

# My Revision Notes: Health T Level

## A1 Working within the health and science sector

### A1.1 The purpose of organisational policies and procedures in the health and science sector

Now test yourself: page 9

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- 1 The Equality Act 2010 and the Human Rights Act 1998
- 2 A safeguarding policy sets out what an organisation must do to protect the health, wellbeing and human rights of individuals.
- 3 Three from:
  - employment conditions
  - rights (guaranteed by the employer)
  - responsibilities (of the employee)
  - duties.
- 4 A performance review gives employees the opportunity to see what they have done well, receive feedback on how to improve and raise any concerns they may have. It can also ensure there is continuing professional development.
- 5 A disciplinary policy sets out the process to be followed by an employer if an employee fails to do their job properly.  
A grievance policy sets out the process to be followed by an employee if they have a legitimate concern about their employer or employment. It also sets out what the employee can expect the employer to do as part of the grievance process.

### A1.2 The importance of adhering to quality standards, quality management and audit processes within the health and science sector

Now test yourself: page 10

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- 1 Two from:
  - It promotes consistency across services and providers.
  - It maintains health and safety for all.
  - It monitors processes and procedures, highlighting areas for improvement.
  - It drives up standards of care.
  - It facilitates continuous improvement.
  - It facilitates objective and independent review and oversight.
- 2 An audit is a process that aims to check compliance with an agreed standard. For example, patient notes in a hospital could be examined to check that staff are complying with agreed standards for completing notes, such as signing and dating all entries and writing legibly in black ink.

## A1.3 The key principles of ethical practice in the health and science sector

Now test yourself: page 11

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- 1 Autonomy recognises an individual's right to make decisions about their care and treatment. It underpins the achievement of person-centred care. Beneficence requires that care and treatment should benefit the individual, while respecting their right to self-determination (autonomy), therefore professionals must use beneficence to provide person-centred care.
- 2 Informed consent is gaining the permission or agreement of an individual to do something (to them), after providing them with sufficient information on which to base this decision.
- 3 Nonmaleficence is a principle that should guide everything a health professional does, to prevent them causing harm due to an action or an omission. Beneficence is making decisions that are in the best interests of individuals, knowing that what is best for one individual is not necessarily best for others.
- 4 The Equality Act 2010 and the Human Rights Act 1998

## A1.4 The purpose of following professional codes of conduct

Now test yourself: page 12

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- 1 Conduct means expected behaviour in a particular place or situation. For example, I would like to work as a paramedic in the future. I will be expected to behave in a way that respects the diversity of the people I work with and treat.
- 2 Some examples include:
  - British Dietetic Association (BDA)
  - General Medical Council (GMC)
  - Health and Care Professions Council (HCPC)
  - Nursing and Midwifery Council (NMC)
  - Royal College of Occupational Therapists (RCOT).
- 3 It enables registered professionals, such as nurses, to meet the behaviour expectations of the professional body they are registered with; for nurses, this is the Nursing and Midwifery Council (NMC). It means that workers will meet the expected standards of behaviour established by their employer and that safe and compassionate care will be given to service users, which will increase their trust in the professional and the service.

## A1.5 The difference between technical, higher technical and professional occupations in health, healthcare science and science

Now test yourself: page 13

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- 1 Technical occupations require qualifications at level 2 or 3 and so are suitable for school/college leavers, whereas higher technical occupations require qualifications at level 4 or 5 which are acquired through further education (FE) or on-the-job training (apprenticeship). Professional occupations are entered via progression from the higher technical level, either through a degree or degree apprenticeship.
- 2 Examples include:
  - Technical: ambulance support worker, healthcare support worker, mental health support worker
  - Higher technical: associate ambulance practitioner, healthcare assistant practitioner, nursing associate (mental health)
  - Professional: paramedic, adult nurse, mental health nurse.

## A1.6 Opportunities to support progression within the health and science sector

Now test yourself: page 14

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- 1 For example:

By taking the T Level in Health at my further education college, I am learning new knowledge and skills. I will gain a qualification that will enable me to either get a technical-level job or progress to further training or learning to achieve a higher technical qualification.
- 2 CPD is about keeping your work-related knowledge and skills up to date and/or learning new things that are relevant to your work. It helps you to be competent at your job and to progress in your job.

Exam practice: page 14

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- 1 Equality, diversity and inclusion policy. [1]
- 2 Example response (note that as the question is asking for just one aspect, there are multiple possible correct answers): One benefit of equality of opportunity [1] is that individuals feel respected, celebrated and valued. [1]
- 3 One from:
  - It enables employees to raise a grievance confidentially. [1]
  - It establishes the procedure for employees to follow when they wish to raise a grievance. [1]

- It sets out how employees can appeal if they do not agree with decisions after they have raised a grievance. [1]
- 4 Quality standards set by the National Institute for Health and Care Excellence (NICE) will establish the safest and most effective care for Megan, which the hospital then has a responsibility to provide to her. This will ensure she and her baby have the best possible health outcomes. [1] Quality management will ensure the hospital has consistent processes for maintaining health and safety, for example making sure Megan is provided with food that is free from contamination. [1] Finally, the audit process will be used to objectively measure and monitor that all staff comply with standards, for example to check they are following the correct handwashing procedures to prevent passing on infections. [1]
- 5 The principle of autonomy in health relates to the ability of competent adults to act in their own best interests. [1] However, Darius is a child, as he is under 16 years old. Therefore, the doctor will need to consider whether Darius has the autonomy to give consent himself. [1] As he is 15, the doctor could conclude that Darius has the intelligence to understand the information about the risks and benefits of the procedure and therefore have the competence and capacity to give (or not to give) informed consent himself. [1] However, if the doctor believes that Darius does not have the required knowledge and understanding, the doctor will need to seek informed consent from the person or authority with parental responsibility for Darius. [1] This could be his parents or a legal guardian or the local authority. [1] It is important that the doctor provides full and truthful information about the surgical procedure so that consent is informed, and consent must be freely and voluntarily given. For example, if the doctor decides Darius is competent to give his own consent, he must not be pressured or forced into giving (or withdrawing) consent by his parents. [1]
- 6 Example responses (note that as the question is asking for just one aspect, there are multiple possible correct answers):
  - a One aspect of a professional code of conduct relevant to working as a mental health support worker is to 'respect people's right to confidentiality'. [1]
  - b The purpose of following this is to ensure Jenna adheres to the expected standard of her workplace and complies with the law. [1] It means that service users will know that she is expected to not share their information unnecessarily and without consent, which will increase their trust in both Jenna and the service or organisation. [1]
- 7 For example:
  - a Dominic could apply for the role of healthcare support worker. [1]
  - b This is a technical occupation. [1]
- 8 For example, Jamal could look into degree courses or degree apprenticeships in paramedic science. [1] This would give him a formal qualification which would enable him to seek employment with the ambulance service. [1]

# My Revision Notes: Health T Level

## A2 The healthcare sector

### A2.1 The diversity of employers and organisations within the healthcare sector

Now test yourself: page 16

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- 1 The NHS, private healthcare, non-profit organisations
- 2 Three from:
  - hospitals
  - GP surgeries
  - community settings, such as family/children's centres or schools
  - residential settings, such as elderly care homes
  - the homes of service users
  - prisons and youth offender institutions
  - local authority departments, such as the housing office.

### A2.2 The characteristics of primary, secondary and tertiary healthcare tiers

Now test yourself: page 17

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- 1 Primary care, secondary care, tertiary care
- 2 For example:
  - primary care: GP/health centre
  - secondary care: respiratory services in a hospital
  - tertiary care: burns unit.
- 3 Primary care is often the first point of contact that service users have with healthcare. It can be accessed directly, either by 'walking in' or making an appointment, for example with a dentist.  
Secondary care requires a referral from primary care and provides specialist care and treatment, usually in a hospital. It is generally organised by specialism, for example the neurology department in a hospital.  
Tertiary care offers highly specialised care over extended periods for complex or long-term conditions, for example transplant services.

## **A2.3 The diverse range of personal factors that would dictate the services accessed by an individual and barriers to service access**

Now test yourself: page 19

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- 1 Three from:
  - pre-existing health conditions
  - physical disabilities
  - mental health conditions
  - learning disabilities
  - age/life stage
  - gender
  - social care needs.
- 2 Individuals with a pre-existing condition might require services that regularly monitor and review the condition and how it is being treated so it does not get worse, as well as services that offer advice and support to manage the condition themselves. This can often take place at the GP surgery, with input from GPs and nurses.
- 3 For example:
  - socioeconomic: being unable to afford to take time off work for medical appointments
  - psychological: having a fear of doctors or hospitals or needles
  - physical: not being able to read signs and leaflets due to vision impairment
  - cultural and language: not having an interpreter available in someone's first language to translate what is being said
  - geographical: not having access to public transport to travel to the service.

## **A2.4 How the use of different developments in technology supports the healthcare sector**

Now test yourself: page 21

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- 1 The benefits of health apps include:
  - providing advice and support to enable service users to make healthy choices
  - allowing service users to order repeat prescriptions and get health advice
  - helping service users to manage their health conditions independently
  - supporting the management and monitoring of an individual's ongoing condition by healthcare professionals, via the collation and sharing of information
  - bringing together important health information in one place
  - providing the opportunity for booking, changing and managing health appointments.
- 2 Health implants are devices placed inside the body for medical purposes, so that medical conditions can be managed continuously. Examples include internal pacemakers and defibrillators.

- 3 Artificial intelligence is computers performing tasks that are usually carried out by humans because they require skills such as decision-making, speech recognition or visual perception.

## **A2.5 The origins of the healthcare sector and how this has developed into the current healthcare sector**

Now test yourself: page 22

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- 1 5 July 1948
- 2 Through general taxation and the National Insurance (NI) scheme
- 3 Two from:
  - Advancements in medical care and treatment are expensive.
  - An increase in population size has placed more demands on the NHS.
  - Increased complexity of patient needs has placed more demands on the NHS.
- 4
  - Private healthcare
  - Charity-provided healthcare

## **A2.6 The potential impacts of future developments in the healthcare sector in relation to care provision**

Now test yourself: page 23

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- 1 People with mobility issues, people with chronic pain, people living in rural areas
- 2 A biomarker is a medical sign that can be measured accurately, for example a substance present in the blood. Biomarkers can be used to speed up diagnosis, to test or measure the impact of treatment, or to support new treatment discoveries.
- 3 Regenerative medicine offers the possibility of developing new, innovative treatments that could improve individual health outcomes, for example bone marrow or stem cell transplants for patients with cancer.

## **A2.7 The importance of adhering to national, organisational and departmental policies in the healthcare sector and the possible consequences of not following policy**

Now test yourself: page 25

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- 1 Policies outline actions that should be taken in particular situations, and their purpose is to ensure all staff in an organisation take the same action that is safe, legal and based on best practice.
- 2 Two from:

- It ensures high-quality, standardised care is provided for all patients and service users.
- It maintains the safety of all service users.
- Errors are prevented.
- There is consistency of practice.
- Health and wellbeing are promoted for service users.
- It ensures the safety and wellbeing of practitioners.

3 For example:

- Not following policy may result in a risk to health and safety. For example, if a member of staff does not follow the manual handling policy, they risk hurting themselves, their colleagues or a service user.
- Not following policy may result in termination of employment, as employment contracts usually state that all organisational policies must be followed, so to not do so would be a breach of contract.
- Not following a policy may result in deregistration of a professional, because if they cause direct harm to someone as a result of failing to follow a policy, they can be struck off by their regulator. An example of this could be a nurse failing to follow the medicines policy and not recording giving pain relief to a patient, which later results in an overdose.

## A2.8 The different ways in which the sectors are funded

### Now test yourself: page 25

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- 1 The government funds public health services by:
  - taxing the population, such as income tax and VAT
  - taking National Insurance contributions (NICs) from employees and their employers
  - charging individuals for some services, for example prescriptions and sight tests.
- 2 Individuals pay for private healthcare by:
  - taking out private healthcare insurance, for which they pay a regular insurance premium
  - making one-off payments
  - receiving some kind of private healthcare provision as a benefit from their employer.
- 3 The services provided by the voluntary sector are funded by:
  - collecting money from the public and private organisations
  - receiving donations from private individuals or organisations
  - applying for grants from organisations (which may include governmental organisations).

## A2.9 The meaning of evidence-based practice, its application and how it benefits and improves the healthcare sector

Now test yourself: page 26

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- 1 Evidence-based practice means using the results of high-quality scientific or mathematical research studies to inform the way you work.
- 2 If a piece of research is valid, it means the methods and design were well chosen, as the results accurately measure the concept being studied.
- 3 Two from the following (with two benefits for each):
  - The population:
    - It facilitates improvements in person-centred care.
    - It improves outcomes for individuals.
    - It improves safety.
    - It promotes equity in provision.
    - It informs health-promotion requirements.
  - The health sector:
    - It encourages quality provision.
    - It improves cost effectiveness.
    - It improves capability and competency of the workforce.
  - The healthcare practitioner:
    - It improves job satisfaction.
    - It promotes empowerment.
    - It supports continuing professional development.

## A2.10 The different types of organisational structures within the healthcare sector and the resulting job roles

Now test yourself: page 28

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- 1
  - It features multiple layers of management.
  - Management of the organisation cascades from the top down.
  - Employees have a specialty and can see a clear career path.
  - It is suitable for large organisations, for example an NHS hospital.
- 2
  - Management roles, for example chief executive or ward manager
  - Caring roles, for example doctor or nurse
  - Ancillary roles, for example cleaner or security guard
- 3 Multidisciplinary team working is when people with different areas of expertise or different professional disciplines work together to achieve the same end. The team members may also have different roles, for example caring professionals working together with management professionals.

- 4 Multi-agency working is when different agencies work together. Schools, the police, the NHS and children's social care may work together to support a common goal for an individual, for example a school-aged child that has been injured while involved in crime.
- 5 Team working:
  - enhances respect between colleagues
  - builds rapport between colleagues
  - creates a positive working culture
  - supports continuity of care
  - leads to increased problem solving
  - leads to best practice.
- 6 A professional can maximise their contribution to a team by:
  - giving and receiving constructive feedback
  - sharing best practice
  - contributing to discussions to support problem-solving
  - actively listening to colleagues' contributions
  - sharing relevant information with colleagues
  - collaborating to support the continuity of care.

## **A2.11 The importance of job descriptions and person specifications and how this defines roles and responsibilities**

Now test yourself: page 29

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- 1 A job description provides a snapshot of the roles and responsibilities of a job.
- 2 A person specification outlines the necessary qualifications, skills and attributes required of individuals applying for or holding a job.
- 3 Features of a typical job description include:
  - scope of role
  - purpose of role
  - responsibilities
  - reporting lines
  - accountabilities.
- 4 Features of a typical person specification include:
  - experience required
  - essential and desirable skills
  - attributes required
  - qualifications required
  - mandatory training and continuing professional development required
  - registration requirements, where appropriate.

## A2.12 The career pathway opportunities for employment and progression within the healthcare sector

Now test yourself: page 30

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- 1 Three from:
  - ambulance support worker
  - community health and wellbeing worker
  - dental nurse
  - healthcare support worker
  - mortuary technician
  - peer worker
  - senior healthcare support worker.
- 2 Three from:
  - adult nursing support
  - allied health professional – therapy support
  - children and young people
  - maternity support
  - mental health support
  - theatre support.
- 3 Senior healthcare support workers may:
  - specialise in a particular area, for example maternity support
  - assist registered professionals with clinical and therapeutic tasks
  - have additional training to carry out roles such as taking blood samples.

## A2.13 The potential impact of external factors on the activities of the healthcare sector

Now test yourself: page 32

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- 1 Two from:
  - epidemic/pandemic/endemic outbreaks
  - extreme weather
  - changes to infrastructure (for example building and maintenance)
  - geographical events (for example disasters that happen in specific geographical locations)
  - government policy (for example the COVID-19 vaccination programme).
- 2 Two from the below as relevant to your answer to Question 1:
  - epidemic/pandemic/endemic outbreaks: service overload; insufficient staff resources; additional resource requirements; contingency planning requirements
  - extreme weather: service overload; insufficient staff resources; inaccessible services; damage to facilities; additional resource requirements; effect on supply chain contingency planning requirements

- changes to infrastructure (for example building and maintenance): inaccessible services; additional resource requirements
  - geographical events (for example disasters that happen in specific geographical locations): service overload; insufficient staff resources; inaccessible services; damage to facilities; additional resource requirements; effect on supply chain contingency planning requirements
  - government policy (for example the COVID-19 vaccination programme): service overload; insufficient staff resources; additional resource requirements
- 3 Flooding or drought could:
- overload services, as additional people require medical help
  - damage buildings where services are located or prevent people accessing services
  - disrupt the supply chain of resources such as medicines and equipment.
- 4 Large amounts of building work could reduce physical space and therefore the number of beds or operating theatres, so fewer people can have treatment. It could also interfere with access to buildings and services.

## **A2.14 The role of public health approaches and how this benefits regional and national population health through prevention and improvement initiatives**

Now test yourself: page 33

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- 1 Public health is about protecting, promoting and improving the health of entire populations and communities.
- 2 UK Health Security Agency (UKHSA)
- 3 World Health Organization
- 4 The four public health approaches are:
  - determining health issues by collecting information regarding their extent, whom they impact and their effects
  - determining why a particular health issue might occur and factors that may contribute to it or increase the risk of it occurring
  - determining what could help decrease the risk and providing interventions to a wide range of people, in a number of different health-related environments and locations
  - determining the impact of social issues for health and wellbeing.
- 5 Two from:
  - They raise public awareness regarding risk.
  - They educate on healthier lifestyles and self-care.
  - They improve each generation's prospects (improving the likely health outcomes of existing and future generations).
  - They reduce the requirement for social care services.
  - They reduce the number of people impacted by health issues and preventable illness.
  - They reduce the pressure on the NHS.

## Exam practice: page 34

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1

- a Gracie is most likely to be employed by the NHS. [1]
- b Three settings that would be appropriate for a health visitor to carry out this check on a child would be the service user's home[1], a GP surgery [1] or a community setting such as a children's centre. [1]

2

- a Example response: Macmillan Cancer Support provides services for people living with cancer at every stage of their cancer experience. This includes the Macmillan nurse service. Individuals with cancer can be referred to this service through a doctor or nurse. Macmillan nurses are registered nurses with skills and experience in caring for people with cancer and they often have further qualifications in cancer care. Through their work in hospitals, hospices and the community, Macmillan nurses will often coordinate the care of patients, as part of the multidisciplinary team. [1]
- b Two from:
  - Healthcare assistant[1]
  - Community nurse/district nurse[1]
  - Maternity care assistant[1]
  - Midwife[1]
  - Occupational therapist[1]
  - Specialist nurse, for example palliative care, cancer care[1]
  - GP doctor[1]

3

- a Jin works in the secondary healthcare tier. [1]
- b Secondary healthcare offers specialised treatment and is usually organised around a specialty, for example cardiology. [1]

4

- a Example response: Zendaya might want to access an occupational therapy service to help her find new ways to perform her daily activities with her physical disability. [1] She might also want to access the breast-screening service, as she is now in a higher-risk age group. [1]
- b As Zendaya lives in a small village she may experience a geographical barrier[1]; it is unlikely there will be a hospital (for breast screening) in her village, so it might be hard for her to get there. [1] Zendaya might experience a psychological barrier [1], because she may be fearful of breast screening or embarrassed about removing her clothing. [1] Zendaya might experience physical barriers, as she has problems with arm and leg movements and balance [1]; this could be an issue if there are lots of steps or heavy doors at the hospital. [1]

- 5 Continuous blood glucose monitoring means that Jeanette's blood glucose will be continuously monitored without her having to do anything. She can link the monitoring system to her smartphone, so she can check her blood glucose at any time. [1] This means

she will have greater control over her condition. [1] She can also share the collated data with her healthcare professionals remotely, without being in the same geographical location. They can then give her advice on managing her condition. This will be more convenient to Jeanette and make her feel more empowered. [1]

- 6 An ageing population is one where the proportion of elderly people is increasing. This places extra demand on healthcare and social care because people are living longer, therefore there are more people needing services. For example, in later adulthood there are multiple illnesses and conditions that individuals are likely to have, such as dementia and type 2 diabetes, alongside social care needs, like support with personal care and other activities of daily living. [1] As in the case of Faizal, these can be co-morbid – meaning one individual has more than one disease and more than one social care need – which increases complexity and is a further demand on resources. [1] Integrated care systems have been developed because it is a more efficient way to address multiple needs and those that overlap between healthcare and social care. [1]

7

- a Example answer: Kit Yee could research artificial intelligence (AI) [1] and patient self-management. [1]
  - b AI could speed up diagnosis [1] because it can work quickly and analyse a lot more data than a human can. [1] Patient self-management, such as wearable technology that monitors the patient, can save time and money [1] because it can reduce the number of appointments the patient needs for testing and examination. [1]
- 8 It is important for Dawood to read the policy because it serves an important purpose – directing what action he should take to ensure health and safety in the specific ward he works in. [1] It will ensure he takes the same actions as other staff in specific situations [1], in order to keep service users, his colleagues and himself safe from harm. [1] If he fails to read the policy, he will not be aware of what he needs to do and how he should do it, and therefore harm might occur. [1] This could have secondary consequences, such as legal action against him or the organisation he works for [1], or he could lose his job. [1]
- 9 Valentina could choose NHS care for her labour and birth. [1] This would be free to her. [1] It is a publicly funded service, which means it is paid for by the government, which raises revenue through taxation on goods, services and income, as well as through National Insurance contributions (NICs) – payments made by employees, employers and the self-employed. [1]
- On the other hand, if she chooses private healthcare, she will be responsible for funding the care. [1] This may be done by Valentina making a one-off payment or multiple payments direct to the provider. Alternatively, she could take out, or may already have, private healthcare insurance. As the policy holder, she would pay a monthly or annual premium. [1] Alternatively, Valentina or her partner may receive private medical care as part of a benefits package from their employer. This may mean she does not have to pay anything at all for private healthcare, or she may pay a reduced rate. [1]

10 Nelson will need to use a mixture of his clinical skills, his professional judgement [1] and his ability to understand research in order to make this comparison and apply it to his practice: [1]

- Before suggesting any changes to practice, he needs to ensure the research he is reading is rigorous and valid. He will need to check the validity by making sure the research studies reported have chosen the best methods, so that pain control using each method is what the results actually represent. [1]
- He will then need to see whether the results of each piece of research can be generalised to his settings. [1]
- Then he will need to use his professional judgement to see how the findings could be applied to his practice. [1]
- He will need to use his clinical skills to decide whether a change in practice could be performed in his setting, would benefit service users, would require further training and so on. [1]

11 A flat organisational structure is one where there are very few levels of management. [1] It is suitable for small organisations or teams. [1]

12 Registration requirements[1]: this means that if the role is for a registered professional, for example a nurse, the person must meet the requirements of their professional regulator to be registered. This includes having the correct initial qualifications and regularly revalidating. [1]

Reflective practice[1]: this means regularly using a structured model or method to think about and learn from one's own actions and experiences. [1]

13 Three from:

- adult nursing support [1]
- allied health profession – therapy support [1]
- children and young people [1]
- maternity support [1]
- mental health support [1]
- theatre support. [1]

14 Example answer:

An outbreak of an infectious disease could overload the healthcare service and affect the availability of staff. [1] For example, large numbers of people may seek medical advice and treatment as they become ill. [1] At the same time, staff may fall ill themselves and be unable to work[1], therefore increasing the burden on services. [1]

15

a This message is based on two public health approaches:

- determining why a particular health issue might occur and factors that may contribute to it or increase the risk of it occurring[1]
- determining what could help to decrease the risk and providing interventions to a wide range of people. [1]

b The government knew that COVID-19 was spread by airborne droplets containing the virus[1], therefore this messaging was about preventing transmission and decreasing risk[1]. The benefits of this messaging were a raised awareness among the public,

education on how to be healthier, [1] reduction in the number of people affected by the illness and therefore reduction in pressure on the NHS. [1]

# My Revision Notes: Health T Level

## A3 Health, safety and environmental regulations in the health and science sector

### A3.1 The purpose of key legislation and regulations in the health and science sector

Now test yourself: page 37

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- 1 Two from:
  - Special Waste Regulations 1996 (Scotland only)
  - Hazardous Waste (England and Wales) Regulations 2005
  - Waste Electrical and Electronic Equipment (WEEE) Regulations 2013
  - Control of Substances Hazardous to Health (COSHH) Regulations 2002 (amended 2021).
- 2 The Control of Substances Hazardous to Health (COSHH) Regulations 2002 define employers' responsibilities to control substances hazardous to health by reducing or preventing employees' exposure to them.
- 3 RIDDOR stands for Reporting of Injuries, Diseases and Dangerous Occurrences Regulations. RIDDOR might be used when:
  - an employee suffers a serious workplace accident, such as limb amputation, burns or death
  - an employee develops an occupational disease (a disease triggered by something at work, for example dermatitis due to regular exposure to a skin irritant)
  - something occurs that did not cause, but could have caused, serious harm, which is considered a 'near miss', for example a fire or an explosion.

### A3.2 How to assess and minimise potential hazards and risks, including specific levels of risk, by using the Health and Safety Executive's 5 Steps to Risk Assessment

Now test yourself: page 38

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- 1 A hazard is an event, an object, a substance, a condition or an activity that has the potential to cause harm.
- 2 In order to assess risk, you need to decide:
  - who might be harmed
  - how they might be harmed
  - how likely it is that the harm will occur
  - how serious it would be if the harm occurred.

- 3 Step 3 is about controlling risks. The risks need to be evaluated – can the hazard be completely removed? If not, how can the risk be controlled so the harm is unlikely?
- 4 It is important to record:
  - the hazards
  - who might be harmed and how
  - what is being done to control the risks.
- 5 Three from:
  - if controls are no longer effective
  - if there has been a change in staff
  - if there has been a change in process
  - if there has been a change in substances or equipment used
  - if there has been a change in environment
  - if any problems are spotted, or accidents or near misses occur.

### A3.3 How health and safety at work is promoted

Now test yourself: page 40

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- 1 Example answer:
  - Ensure there is clearly visible information and guidance – it is mandatory to display the health and safety law poster.
  - Provide statutory training.
  - Establish processes for recording and reporting issues and concerns.
- 2 Example answer:

Clearly visible information and guidance on health and safety help employees to:

  - model good practice, for example washing hands and wearing appropriate PPE
  - follow organisational policies and standard operating procedures (SOPs), including site-specific emergency procedures
  - follow correct manual handling techniques.
- 3 Three from:
  - Encourage individuals to take reasonable care of their own and others' safety.
  - Model good practice.
  - Follow organisational policies and standard operating procedures (SOPs), including site-specific emergency procedures.
  - Ensure there is clearly visible information and guidance.
  - Follow processes for recording and reporting issues and concerns.
  - Maintain equipment and remove faulty equipment.
  - Follow correct manual handling techniques.
  - Ensure working environments are clean, tidy and hazard free.
  - Store equipment and materials appropriately.
  - Complete statutory training.
- 4 Statutory training is required for legal compliance.

## A3.4 How to deal with situations that can occur in a health or science environment that could cause harm to self or others (for example spillage of hazardous material)

Now test yourself: page 40

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1

- Follow any organisational procedures, for example sounding the alarm, evacuating.
- Keep yourself and others safe as appropriate, for example do not take unnecessary risks.
- Secure the area/evacuate to keep people safe from harm.
- Report as appropriate, for example call the fire brigade.
- Escalate as appropriate, for example to seniors.
- Complete incident forms.

2 An entry should be made in the accident book and/or an incident report should be completed. A senior manager may have to make a RIDDOR report depending on the seriousness of the harm to the nurse.

3 Debrief everyone that was involved. Reflect on the root causes of the incident. Look at how to prevent the incident from occurring again, which includes reviewing any risk assessments and control measures.

Exam practice: page 40

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1

a Control of Substances Hazardous to Health (COSHH) Regulations 2002[1]

or

Personal Protective Equipment at Work Regulations 1992[1]

b The purpose of the COSHH regulations is to control hazardous substances, such as blood, by reducing or preventing employees' exposure to them. [1]

or

The Personal Protective Equipment at Work Regulations 1992 define employers' responsibilities to provide appropriate personal protective equipment (PPE) to reduce harm to employees. For example, Aleesha should provide disposable aprons and gloves to reduce the risk of blood contamination to her staff. [1]

2 Risk assessment is the responsibility of all employers under the Health and Safety at Work etc. Act 1974 and the subsequent Management of Health and Safety at Work Regulations 1999. [1] Therefore, it is an important legal duty for Farah to fulfil, to ensure staff, patients and visitors on the ward are kept safe. [1] Risk assessments need to be reviewed regularly, and should always be reviewed if there is a change to the environment and if new equipment is to be used. [1] This is because new hazards may have been introduced that could cause harm. [1] Therefore, Farah will need to identify any new hazards, assess and evaluate risks, control those risks and then record her findings. [1] This will ensure everyone's ongoing safety. [1]

3 Example answer:

Rupa could ensure the health and safety policy, the health and safety law poster and any other linked policies are easily accessible to new staff. [1] This will ensure they are aware of the guidance. [1]

Rupa could also provide statutory training for her staff, [1] such as fire safety training which is required by the Regulatory Reform (Fire Safety) Order (RRO) 2005. [1]

4 Example answer:

Gurinder should follow the procedure for spillages like these, which will be in the hospital health and safety policy and is underpinned by COSHH regulations. He may need to display a wet floor or hazardous substances sign, and he should definitely ensure the area is secure, to prevent anyone encountering the spill which could cause a slip, trip or fall, or a chemical burn to the skin, or even an inhalation burn. [1] He will need to report this incident, so it can be dealt with and recorded appropriately. This will prevent any further harm occurring. [1]

# My Revision Notes: Health T Level

## A4 Health and safety regulations applicable in the healthcare sector

### A4.1 The purpose of workplace health and safety regulations in the health sector

Now test yourself: page 41

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- 1 The purposes of having workplace health and safety regulations are to:
  - maintain the safety and wellbeing of both the individual and healthcare workers
  - reduce risk to the individual and healthcare workers
  - provide a duty of care to the individual and healthcare workers.

### A4.2 The purpose of specific health and safety regulations, guidance and regulatory bodies in relation to the health sector

Now test yourself: page 42

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- 1 The Health and Safety (First-Aid) Regulations 1981 set legal guidelines for employers to provide adequate and appropriate equipment, facilities and personnel (trained first aiders) to ensure employees receive immediate attention if they are injured or taken ill at work.
- 2 The Care Act 2014 places an obligation on local authorities (who are responsible for adult social care) to provide or arrange services that help to:
  - prevent people developing needs for care
  - prevent deterioration of people's situations that could result in a need for ongoing care and support.
- 3 The purpose of the Ionising Radiation Regulations 2017 is to impose duties on employers to protect employees and members of the public from:
  - radiation arising from work
  - radioactive substances
  - any other forms of ionising radiation.

### A4.3 The overarching responsibilities of trained first aiders

Now test yourself: page 43

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- 1 First aid is immediate attention given to a person who becomes injured or is taken ill, until full medical treatment is available (if it is necessary). It is not a replacement for proper medical attention, it is what happens before, for example, an ambulance arrives.

- 2 A first aider is a person who has been trained to give first aid at the level required in a setting, after an appropriate first-aid needs assessment has been carried out.
- 3 Two from:
  - Provide first-aid treatment for minor injuries and illness.
  - Ensure the casualty is referred for further treatment (if necessary), appropriate to the circumstances of the injury/illness.
  - Keep the first-aid box/kit clean, tidy and appropriately stocked.
  - Ensure the support provided (as far as possible) reflects the individual's needs and does not discriminate against them in any way.

## **A4.4 The purpose of guidelines produced by the Resuscitation Council (UK)**

Now test yourself: page 44

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- 1 The three elements that form the role of the Resuscitation Council are to:
  - promote and publish high-quality scientific resuscitation guidelines
  - develop education materials for resuscitation
  - support research into resuscitation.
- 2 The resuscitation guidelines provide detailed information about basic and advanced life support, to empower healthcare workers to save lives through effective resuscitation.
- 3 The resuscitation guidelines are used in the training and education, as well as everyday practice, of healthcare workers.

## **A4.5 The purpose of manual handling regulations and training, and why it is important to follow policy and guidance when moving and positioning people, equipment or other objects safely**

Now test yourself: page 45

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- 1 Manual handling regulations and training protect service users and service providers from injury or harm.
- 2 Two from:
  - to protect individuals and healthcare professionals from harm
  - to comply with the law
  - to ensure the conditions of insurance are met.

Exam practice: page 45

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- 1
  - a The Ionising Radiation Regulations 2017 will keep Jonti safe. [1]

- b The purpose of these regulations is to impose duties on employers to protect employees and members of the public from radiation arising from work, radioactive substances and any other forms of ionising radiation. [1]
- 2 One from:
- Provide first-aid treatment for minor injuries and illness. [1]
  - Ensure the casualty is referred for further treatment (if necessary), appropriate to the circumstances of the injury/illness. [1]
  - Keep the first-aid box/kit clean, tidy and appropriately stocked. [1]
  - Ensure the support provided (as far as possible) reflects the individual's needs and does not discriminate against them in any way. [1]
- 3 The purpose of resuscitation guidelines is to establish the best possible process for resuscitating individuals in respiratory or cardiac arrest. [1] Healthcare workers can read the guidelines, understand the best available evidence, and know the steps to take to resuscitate individuals in different situations. [1] This ensures they are empowered to act in an emergency and to save lives. [1]
- 4 One from:
- to protect individuals and healthcare professionals from harm[1]
  - to comply with the law[1]
  - to ensure the conditions of insurance are met. [1]

# My Revision Notes: Health T Level

## A5 Managing information and data within the health and science sector

### A5.1 Common methods used to collect data

Now test yourself: page 47

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- 1 Two from:
  - closed-question surveys
  - observation
  - public databases
  - journals and articles
  - carrying out practical investigations
  - official statistics.
- 2 Two from:
  - focus groups
  - open-question surveys
  - interviews
  - observation
  - journals and articles.
- 3 Observation involves watching a process, activity or interaction being carried out and recording what is seen.
- 4
  - a In open-question surveys, questions are asked that invite the respondent to provide detailed answers. This means they can describe an experience, explain why they have done something, or give their opinion. This type of survey is used when you want rich and detailed qualitative data.
  - b In closed-question surveys, questions are asked that have a predefined set of answers, from which the participant chooses. This type of survey is used when you want to collect data that is easily quantified and analysed.

### A5.2 The considerations to make when selecting a range of ways to collect and record information and data

Now test yourself: page 48

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- 1 Some methods will produce one type of data and not the other. For example, open-question surveys produce rich, detailed and descriptive data because the respondent can describe experiences, give their opinion or describe the how or why behind something.

Closed-question surveys can only produce quantitative data because the possible answers are pre-determined.

- 2 Some audiences will understand more complex or scientific data and information than others, for example healthcare professionals versus the general public.

### **A5.3 The importance of accuracy, attention to detail and legibility of any written information or data**

Now test yourself: page 49

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- 1 The information recorded must be:
  - accurate – correct in all details
  - thorough – pays attention to relevant detail
  - legible – clear enough to be read.
- 2 Three from:
  - It ensures compliance with legal requirements, such as UK GDPR.
  - It provides an accurate account of events – which protects people from harm and ensures accountability.
  - It informs integrated working and data sharing, for example when different members of a multidisciplinary team need to refer to the same record.
  - It ensures accurate analysis of findings, so that we can depend on the results.
  - It provides support with audit trails to prove compliance with guidelines and protocols.
  - It ensures reproducibility of results.
- 3 Two from:
  - It ensures compliance with legal requirements, such as UK GDPR.
  - It limits liability – legible records provide accountability and prove compliance.
  - It provides an accurate account of events – which protects people from harm and ensures accountability.
  - It ensures accurate analysis of findings, so that we can depend on the results.
  - It provides support with audit trails to prove compliance with guidelines and protocols.
  - It contributes to reproducibility of results.

### **A5.4 The strengths and limitations of a range of data sources when applied in a range of health and science environments**

Now test yourself: page 50

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- 1 Strength: If the extraneous variables (those not being studied) are controlled, they will not affect the results. Therefore, the results should be accurate and consistent.  
Limitation: There might be a tendency to over-extrapolate the results, which means reaching conclusions that are not supported by the evidence from the investigation.

- 2 If the blood sample is not collected correctly or according to protocol, or if the standardised test method is not followed precisely, the result could become inaccurate or open to personal interpretation.
- 3 Peer review is when literature and data are examined by other experts in the field. They make judgements on the methods chosen by the researcher and the data presented. If they agree that the research seems to have validity, it is published. This is a strength as it means that less valid and less reliable research is not published.

## **A5.5 How new technology is applied in the recording and reporting of information and data**

Now test yourself: page 51

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- 1 AI can be used to analyse and report on very large data sets. It can also use machine learning to become more successful at this analysis over time.
- 2 Mobile technology and applications can be used to:
  - track location data through GPS, which can be used to monitor physical activity or if people come into contact with infectious diseases (for example the NHS COVID-19 app/NHS Test and Trace system)
  - collate and record health informatics through wearable technology, for example heart rate.
- 3 Cloud-based systems can be accessed through a device connected to the internet.
- 4 A digital information management system uses computer software that enables settings such as hospitals to manage all the digital information generated within the setting. It can consolidate numerous systems into one to give greater oversight and create digital audit trails (for example patient journeys).
- 5 Data visualisation involves analysing large amounts of data and communicating the results in a visual context, for example through charts and graphs. It can be used to consolidate and present a lot of data in a way that is quick and easy to comprehend.

## **A5.6 How personal information is protected by data protection legislation, regulations and local ways of working/organisational policies**

Now test yourself: page 52

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- 1 The Data Protection Act 2018
- 2 Personal information must be:
  - used fairly, lawfully and transparently
  - used for specified, explicit purposes
  - used in a way that is adequate, relevant and limited to only what is necessary
  - accurate and, where necessary, kept up to date

- kept for no longer than is necessary
  - handled in a way that ensures its security and protection.
- 3 Individuals have the right to:
- be informed about how their data is being used
  - access their personal data
  - have incorrect data updated
  - have data erased
  - stop or restrict the processing of their data
  - port their data (allowing people to get and reuse their data for different services)
  - object to how their data is processed in certain circumstances.
- 4 Restricted use of mobile phones and devices prevents the accidental or deliberate sharing of personal data of service users, such as their image, voice or other information.

## **A5.7 How to ensure confidentiality when using screens to input or retrieve information or data**

Now test yourself: page 53

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- 1
- Set a password that is not easy to guess.
  - Do not write the password down.
  - Do not tell anyone your username and password.
  - Do not share logins with others.
- 2 Secure internet connections ensure data and information is not at risk of breach or hacking.
- 3
- Make sure others are not looking over your shoulder.
  - Do not look at confidential information when others are present.
  - Use a privacy filter over the screen.
- 4 Log out or lock the screen.

## **A5.8 The positive use of, and restrictions on the use of, social media in health and science sectors**

Now test yourself: page 54

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- 1 Agencies such as the UK Health Security Agency (UKHSA) could use social media to pass on messages about healthy behaviours to the public, for example hand washing or wearing a face mask to prevent spreading contagious infections.
- 2 Researchers can use social media to recruit participants for research studies, or they can observe behaviour or information posted online as part of their data gathering.

- 3 Professionals can form or join networking groups online, which they can then use to share information and learning. An example would be journal clubs, where journal articles on evidence-based practice are read and discussed.
- 4 For example, when acting in a professional capacity or representing their organisation, healthcare workers should:
  - not post personal or sensitive information about themselves or others online
  - maintain professional boundaries when interacting with others.

## **A5.9 The advantages and risks of using IT systems to record, retrieve and store information and data**

Now test yourself: page 55

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- 1 Any three from:
  - Data is easily accessible.
  - It makes sharing and transferring data easy.
  - It contributes to speedy data analysis.
  - It offers security via secure servers, password protection and encryption.
  - It enables data to be standardised.
  - It enables continuous and real-time monitoring of data.
  - It is cost and space efficient compared to large archives of paper records.
  - It contributes to integrated working, as data is accessible and can be shared and transferred.
  - It supports safeguarding practice, as professionals can access patient history and records to see a full picture.
- 2 Any two from:
  - There may be security breaches, either accidental or malicious, for example if systems are hacked or passwords are compromised.
  - There is the potential for corruption of data.
  - There may be a lack of access due to system failure.

## **A5.10 How security measures protect data stored by organisations**

Now test yourself: page 55

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- 1 Access to information can be controlled through the use of passwords and authority/clearance levels and by controlling who has access to specific work areas, particularly areas where sensitive information is worked with.
- 2 Organisations can train staff in how to protect data, as well as control their access to information and sensitive work areas.

- 3 A back-up system makes a copy of all data. It is important in case data becomes corrupted or is stolen. Using off-site/external/cloud-based back-up adds another level of protection.

## A5.11 What to do if information is not stored securely

Now test yourself: page 56

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- 1
  - a Secure the data.
  - b Record and report the incident.
- 2 Guidance will be in the organisation's relevant policy and/or procedure, for example its data protection policy.

Exam practice: page 56

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- 1 Two from:
  - Focus groups – a way of obtaining first-hand information from a group of people purposely selected to provide their opinion or experience. [1] They offer an opportunity to gather detailed, descriptive data, as they usually provide qualitative data. [1]
  - Open-question surveys – questions without a predefined set of possible answers. They invite detailed responses that may give opinion or experience. [1] They usually provide qualitative data. [1]
  - Closed-question surveys – surveys that have a predefined set of answers for each question from which the participant chooses. [1] They usually provide quantitative data. [1]
  - Interviews – face-to-face discussions between two or more individuals. [1] They can use pre-determined questions (structured interview) or be a free-flowing conversation (unstructured interview). [1]
  - Observation – involves watching a process, activity or interaction being carried out and recording what is seen. [1] It may provide qualitative or quantitative data. [1]
  - Databases – organised collections of data accessed electronically. [1] They most often provide quantitative data. [1]
  - Journals and articles – primary research and articles written by professionals that are published in journals. [1] They may provide qualitative or quantitative data. [1]
  - Practical investigations – may range from taking samples from a patient for testing, imaging patient bodies, or carrying out experiments or clinical trials. [1] They usually provide quantitative data. [1]
  - Official statistics – numerical data collected by local authorities, regional or national governments, as well as other interested agencies such as charities. [1] They provide quantitative data. [1]
- 2
  - a A survey [1] or a focus group [1] would be appropriate for collecting this data.

- b A survey can use either closed or open questions, or a mixture of both. This would be appropriate because it would produce a mixture of quantitative data (numerical data that is quick to analyse and can be displayed using charts) and qualitative data (descriptive data that takes longer to analyse but gives rich and detailed description and allows people freedom to give their opinions). [1]The quantitative data might be results of a question like 'How satisfied are you on a scale of 1–5?', which will provide a snapshot of satisfaction, while the qualitative data might be responses to a question like 'Explain why you rated your satisfaction at this level', which will help the GP practice understand what it needs to do to improve. [1]

A focus group involves gathering a selection of people together to share their thoughts and experiences. This would generate qualitative data that is rich and descriptive[1] and will help the GP practice to understand how satisfied patients are and the reasons behind this. [1]

3

- a Example answer: It is vital that the record is legible to ensure an accurate account of events is provided. [1]
  - b If the record is illegible, this may lead to harm being caused to the patient[1], for example a drug overdose could occur if the administration of medication is not clearly written on the patient record. [1]
- 4 The nurses may behave differently from usual, as they know they are being observed. For example, they might follow the policy more closely than usual because they do not want to get into trouble. [1]This means that the observation may not measure what it is intended to measure. [1]
- 5 As large amounts of data can be difficult to understand, data visualisation could be used to consolidate and display this information in a clear, visual way using charts, graphs or maps. [1]These are easier and quicker to understand than text and numbers alone and provide a good snapshot of trends or patterns, as well as anomalies or outliers. [1] As there are lots of sources of data due to the number of indicators, these can all be combined into one visualisation. [1]
- 6 Example answer: The Data Protection Act 2018 has several principles that are relevant here. The most important is arguably the principle of handling the information in a way that ensures security, including protection against unlawful use, access, loss, destruction or damage. [1] Paper-based records are easier to lose or misplace, as well as easier for someone else to steal. This might particularly be the case if staff are used to using electronic records. [1]Therefore, staff must ensure each paper record is filed in a locked cabinet as soon as is reasonably possible. [1]Linked to this is the principle of accuracy and being kept up to date. Handwritten notes need to be as accurate as electronic records, which includes legibility of writing and accurate spelling, use of units, dates, times and so on, which may ordinarily be provided or corrected by computer software. [1]Electronic records are easier to update than paper-based records, nevertheless, this must still be done. [1]Finally, paper-based records are subject to the remaining principles in exactly the

same way as electronic records, for example fair and lawful use, use for only specific and limited purposes, and not being kept for longer than necessary. [1]

7 One from:

a	b
Way to reduce unauthorised access	Possible impact of not doing this
Protect login and password information by using a complex password, not writing it down anywhere, and not disclosing it to or sharing use with others. [1]	Others could get unauthorised access to data/information [1] and they might cause a data breach in your name. [1]
Be aware of your surroundings and who might be able to see your screen when you are using it; consider using a privacy screen filter if this cannot be avoided. [1]	Others could see private information [1] or confidential data. [1]
Only use secure internet connections, secure email systems and encryption where necessary. [1]	Systems could be hacked and confidential data and information leaked [1] or used in an unauthorised or illegal way. [1]

8 Example answer: Healthcare workers should be aware of their organisation's relevant code of conduct for social media use which will set out their responsibilities, such as not posting personal or sensitive information about themselves or others on social media [1], as this breaches confidentiality. [1]

9

- Computer software can be used to retrieve data quickly and easily from any device connected to an IT system [1], thus saving time, especially over having to physically go to a paper archive in one place to request paper-based information. [1]
- If data is standardised on an IT system, computer software (databases) can be used to select only specific or required data [1], rather than having to manually go through and filter out required information from large data sets. [1]

10 All data should be regularly and securely backed up. [1] To enhance protection, this should be done to an external or a cloud-based system, so that if locally based data storage devices are damaged, the data is not lost. [1]

11 The first step is to secure the information [1], therefore the member of staff should either be logged out of the computer or the screen should be locked. T[1]his incident should then be recorded and reported to the designated person. [1] All policies and procedures related to data protection within the organisation should be closely followed during this process. [1]

## A6 Managing personal information

### A6.1 Your role in relation to record keeping and audits

Now test yourself: page 57

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- 1 Ensure records are accurate and factual and fulfil legal responsibilities under UK GDPR and the Data Protection Act 2018. They should provide detail on care given to each individual and be completed in a timely manner. Do not use abbreviations (where possible) and jargon. Make sure you know how to use any systems used to record data – get training if necessary. Protect data by using secure storage systems.
- 2 Handwritten records should be legible and completed in black ballpoint pen. Each entry in a record should include a date, time and signature.
- 3 Be careful to enter it accurately, so that it is a factual record.

### A6.2 Why personal information is collected, stored and protected

Now test yourself: page 58

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- 1 The healthcare sector collects personal information to:
  - create a personal history
  - inform the diagnosis of a condition or an illness
  - inform the treatment to be given
  - inform follow-on care to be provided.
- 2 The healthcare sector stores personal information so that it can be:
  - shared (as appropriate) with the wider multidisciplinary team involved in diagnosis, treatment and care
  - used in future, for example for future diagnosis or treatment of the individual or as part of research.
- 3 Information governance concerns the use of personal information in healthcare. It establishes that personal information may be shared among organisations and professionals giving direct patient care, but it also protects patients' confidentiality when information about them is used for other purposes.

### **A6.3 The types of information needed when obtaining a client history**

Now test yourself: page 59

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- 1 Patient identity can be confirmed (for example, to make sure medication is given to the correct person) and their records maintained and tracked.
- 2 It is important to know what medications/treatments the patient has received, as these may make the patient's health status better or worse, and so that doctors do not prescribe another medication/treatment that might react adversely with existing ones.
- 3 Social history refers to familial, occupational and recreational elements of a person's life that may be relevant, for example diet, exercise, smoking, drug use, who they live with and where they work.

### **A6.4 The purpose of common abbreviations used in the healthcare sector**

Now test yourself: page 60

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- 1 The abbreviation PRN may be seen on an MAR or a prescription.
- 2 An MAR is used to record all medications given (dose, date and time, and signature of the person administering them).
- 3 Both are charts used to record patient physiological observations and alert you when you need to take action; however, NEWS 2 is for adult patients and PEWS is for paediatric patients (children).

### **A6.5 The advantages of reporting systems for managing information with regards to incidents, events and conditions**

Now test yourself: page 60

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- 1 You can use any device connected to the organisation's computer network.
- 2 Two from:
  - It prevents misinterpretation of information.
  - It allows timely reporting of information by someone who witnessed or discovered the event or incident.
  - It provides easy access to information for ongoing tracking or monitoring.

## A6.6 When it may be appropriate to share information and the considerations that need to be made when sharing data

Now test yourself: page 62

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- 1 The Caldicott principles ensure people's information is kept confidential and used appropriately. Those working in the healthcare sector can apply the principles when deciding when and how to share information/data.
- 2
  - Ensure you can justify the use of any personal data.
  - Only use confidential data when necessary, and use the minimum necessary.
  - Anonymise the data by removing all patient identifiers or, if necessary, use their NHS number instead of their name.
  - Ensure you have their consent or discuss with an appropriate adult or advocate if age or mental capacity is an issue.
  - Comply with the law.

## A6.7 The different formats for the sharing of information

Now test yourself: page 62

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- 1 An oral report is most appropriate when giving immediate verbal information or answering questions to support an individual's care.
- 2 A written report is more appropriate than an oral one when a permanent record is required that can be referred to later, for example at handover between shifts or services.
- 3 An oral report would be the best format. This is because it can be done quickly in an emergency, and the person you are providing the information to can ask questions to get clarification or ask for further details.
- 4 Leaflets and posters can be used to share information about treatment options and available services, or to promote public health messages.

## A6.8 The reasons for record keeping and how this contributes to the overall care of the individual

Now test yourself: page 63

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- 1 Three from:
  - It provides an overview of an individual's medical history.
  - It provides an overview of an individual's care needs.
  - It provides access to an individual's information for all multidisciplinary teams.
  - It provides a record of all services accessed.
  - It supports continuity of care.

- It protects individuals and healthcare and social care professionals.
- 2 Two from:
- It ensures uniform care is given by professionals across services.
  - It provides an accurate record of what has been discussed.
  - It provides an accurate record of what took place at each interaction.
  - It provides an accurate record of agreed next steps.

## A6.9 The responsibilities of employees and employers in relation to record keeping and when to escalate issues

### Now test yourself: page 64

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- 1 Records are one of the data sources that the CQC uses to inform its inspections of healthcare settings. CQC inspectors will review records to ensure care is being given to the correct standards and that, for example, duty of care is always demonstrated.
- 2 Duty of care is about ensuring the safety and wellbeing of others. Accurate record keeping will show all actions taken to give safe and effective care to an individual.
- 3 Duty of candour is about being truthful, open and honest, particularly if things go wrong with care. Accurate record keeping shows that this is being done, for example by documenting discussions and actions when mistakes are made.
- 4 Accountability means taking responsibility for actions, either as an individual or an organisation. Healthcare organisations and the individuals who work in them are accountable for their actions to employers or governing bodies, professional bodies and the public.
- 5 Escalation means taking further action or informing someone more senior when there is a concern. Escalation should occur if there are concerns regarding safeguarding and radicalisation. Whistleblowing is one way of escalating, particularly if there is a serious risk of harm or illegal actions.

### Exam practice: page 64

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- 1 Example answer (two points required):
  - I should enter the blood pressure data accurately and as soon as possible (timely). [1]
  - When completing an electronic record, I should ensure the date and time and my electronic signature are recorded alongside the entry. [1]
  - I should ensure the data is not left unsecured, for example by locking the computer or logging out when I have completed the record. [1]
  - I will ensure I am meeting all legislative requirements, for example GDPR and the Data Protection Act 2018, during this process. [1]
- 2 Personal information is collected so that a patient's personal history can be built up. [1] This can then be used to inform patient diagnosis, care and ongoing treatment, now and in the

future. [1] This data is also stored and can be used for the purposes of research, service planning and improvement. [1]

3 Three from:

- Name: It is important to take the name of the person, so that their identification can be confirmed, for example before giving them medication, and so that their patient record can be updated and tracked as needed. It also enables you to find out what they want to be called, improving dignity and respect. [1]
- Date of birth: Age can increase the risks of certain conditions and diseases and can be important in determining treatments and drug dose calculations. In children and young people, age is important regarding capacity and consent. [1]
- Individual NHS or hospital number: This enables patient identification to be confirmed and patient records to be maintained and tracked. [1]
- Health status: It is important to establish details regarding the patient's current health, as this may influence care and treatment decisions. [1]
- Medication/treatment history: It is important to know what medications/treatments the patient has received either to relieve a new or a pre-existing condition.
- Family history: This is important to record as certain conditions are genetically inherited (for example Huntington's disease) or an individual may be genetically susceptible to a condition (for example diabetes). [1]
- Social history: This refers to whom the individual lives with, their job and lifestyle factors such as diet, exercise and substance use. Social history could inform treatment. [1]
- Social care involvement: It is important to know whether the individual has a named social worker, or if they receive any care and support services from social care agencies. [1]

4

- a DNR stands for 'do not resuscitate' or a 'do-not-resuscitate order'. [1]
- b If this patient had a cardiac arrest [1], cardiopulmonary resuscitation (CPR) to restart their heart would not be attempted. [1]

- 5 A reporting system for managing information with regards to incidents, events and conditions offers several advantages. The first is that the system can be used on any device connected to the organisation's network. This makes it quick and easy to do, so reports will be made in a timely manner, which enables prompt action to be taken. [1] It will also mean that the person with first-hand knowledge of what happened can make the report – therefore the information will not be misinterpreted. [1] In addition, the reporting system is easier to access, track and monitor, for example if an investigation is launched. [1]

6

- a Oral (verbal) report [1]
- b An oral (verbal) report is appropriate because it is a quick and efficient way for the nurse to share all relevant information that will support the GP in making an assessment. [1] It also gives the GP the opportunity to ask questions of the nurse to make any clarifications. [1]

7 Example answer:

- a Record keeping provides a complete overview of the patient's needs and medical history. [1]
- b This is important because it supports continuity of care[1], which means that care will be co-ordinated across and between the professionals and services that are required to meet the patient's needs. [1]

8

- a The concern here is radicalisation. [1]
- b This needs to be realised as an immediate safeguarding concern and the healthcare assistant should escalate to a more senior member of staff and/or the designated safeguarding lead. [1]

# My Revision Notes: Health T Level

## A7 Good scientific and clinical practice

### A7.1 The principles of good practice in scientific and clinical settings

### A7.2 What an SOP is

### A7.3 Why it is important for everyone to follow SOPs

### A7.4 How to access SOPs for a given activity

Now test yourself: page 66

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- 1 The four principles of good scientific and clinical practice are:
  - using standard operating procedures (SOPs)
  - effectively managing calibration and maintenance of equipment and work areas
  - effectively managing stock
  - appropriately storing products, materials and equipment.
- 2 A standard operating procedure (SOP) is a set of sequential steps or instructions designed to standardise the approach to a process or an action.
- 3 Two from:
  - It maintains health and safety.
  - It enables a consistent approach.
  - It meets any legal or organisational requirements.
  - It upholds professional standards.
  - It demonstrates compliance for audit purposes.
- 4 One from:
  - Attend staff induction and training sessions to become familiar with SOPs and how to access them.
  - Use the organisation's intranet to search for them, or look in the relevant manual.

### A7.5 The potential impacts of not regularly cleaning and preparing work areas for use

Now test yourself: page 66

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- 1
  - It can facilitate the spread of infection, for example from a patient sample to a member of staff.
  - It can cause the production of toxic or dangerous by-products during laboratory tests.

- 2 The laboratory might produce invalid results, as samples might become cross-contaminated by using equipment which is contaminated with microorganisms from another sample.

## **A7.6 The potential impacts of not maintaining, cleaning and servicing equipment**

Now test yourself: page 67

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- 1 If equipment is not serviced and maintained as required it could malfunction and cause an injury to the person using it.
- 2 Not cleaning equipment can damage it, which then means money must be spent to replace it. This can also delay results if you must wait for new equipment.

## **A7.7 Why it is important to calibrate and test equipment to ensure it is fit for use**

Now test yourself: page 68

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- 1 Testing checks the quality, performance or reliability of equipment prior to use. Calibration involves checking that equipment is operating correctly against a required standard and making any adjustments to return it to the standard.
- 2 For example, one from:
  - blood pressure monitor
  - manual sphygmomanometer
  - glucose meter
  - thermometer
  - scales.
- 3 Two from:
  - inaccurate/invalid data
  - faulty equipment
  - shortened life of equipment
  - not meeting industry standards and/or legal requirements.

## **A7.9 Why it is important to order and manage stock**

Now test yourself: page 69

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- 1 A stock control system is a systematic method for monitoring stock levels of materials and consumables to enable stock to be managed effectively and only reordered as required.
- 2 A stock control system:

- ensures enough stock is always on hand
- means stock is used before it expires
- means there is no excess stock, which saves money
- means no one has to wait for stock, so the service is efficient and productive
- ensures stock is safe because it is checked regularly.

## A7.10 The potential consequences of incorrectly storing products, materials and equipment

### Now test yourself: page 70

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- 1 The manufacturer's instructions are on the original container that stock is supplied in and will list any storage requirements and expiry dates.
- 2 It may become torn or develop a small hole, which could allow physical, biological or chemical contamination of the contents.
- 3 It may be impossible to locate stock or see old stock if it is not carefully stored according to product type and expiry dates.
- 4 Stock that is contaminated, degraded, unstable or expired will have to be destroyed and replaced at a cost.

### Exam practice: page 70

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- 1 A standard operating procedure (SOP) is a set sequence of steps to follow when carrying out a process or an action. [1]SOPs are important because they ensure activities or processes are standardised across people and organisations, such as effectively managing calibration and maintenance of equipment and work areas or managing stock levels. [1]They are based on evidence and industry standards, and are therefore proven to be safe, effective and reliable[1], which means they maintain health and safety and a consistent approach. [1]Finally, SOPs meet legal, organisational and professional standards [1]and demonstrate compliance for audit purposes. [1]
- 2
  - a It is important to keep these areas clean so they are free of substances which could potentially spread infection or contaminate samples. [1]
  - b Not regularly cleaning clinical work areas could risk health and safety, [1]for example with staff falling ill, or invalid results being obtained through contamination or cross-contamination. [1]
- 3
  - a Equipment must be serviced regularly to ensure it continues to work correctly. [1]
  - b Equipment that is malfunctioning can cause invalid test results. [1]The impact of this is that a patient could miss out on vital treatment or be treated for something they do not have. Both scenarios cause harm. [1]

- 4 If the scales have been calibrated recently, Pavel will be reassured that they are working correctly [1]and will give him an accurate and valid weight for his patient. [1]
- 5 The glucometer should be withdrawn from use, by removing it from the setting and/or applying a label or sticker to say it should not be used. [1]The organisational procedure should be followed to record that the equipment is not fit for use and report it to the correct person. [1]This will enable the glucometer to either be recalibrated or replaced. [1]
- 6 One from:
  - Using a stock control system could eliminate wastage, as it allows you to easily see how much stock you have at any one time and when it will expire. [1]
  - By carrying out regular stock checks, you can identify stock that will expire soon and ensure it is used. [1]
  - Using a system for managing stock could avoid this, for example by ensuring the oldest stock is used first, by putting it at the front of the shelf or on the top of the pile. [1]
- 7 Example answer:
  - a Stock must be stored according to the manufacturer's instructions, for example at the correct temperature. [1]Stock should be easy to locate. [1]
    - b An impact of not storing products or materials according to the manufacturer's instructions is degradation of the product, [1]which can affect how well it works and its safety, and therefore it may need to be discarded and replaced. [1]

## A8 Providing person-centred care

### A8.1 The purpose of the Mental Capacity Act 2005 plus Amendment (2019) in relation to healthcare

Now test yourself: page 71

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- 1 The Mental Capacity Act 2005 applies to:
  - anyone over the age of 16 whose mental capacity to make their own decisions around care and treatment may be limited
  - everyone delivering or responsible for the care and treatment of over 16s who have potentially limited mental capacity.
- 2 The Act protects rights and safeguards and supports people to make their own decisions where at all possible, providing a decision-making framework. If an individual lacks the mental capacity to make choices about their own treatment or care, the Act lays out who can make decisions in the person's best interests and how these decisions should be made.

### A8.2 The key principles of the Care Act 2014

Now test yourself: page 72

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- 1 The six key principles of the Care Act 2014 are:
  - empowerment
  - protection
  - prevention
  - proportionality
  - partnership
  - accountability.
- 2 Proportionality means that an action taken (protective or preventative) to safeguard individuals should be in proportion to the level of risk.
- 3 Taking proportionate action means that an individual can remain empowered as much as possible, while ensuring their protection and preventing harm. It also means that the professional can demonstrate they are being accountable. It requires partnership, working with a range of others such as the service user themselves and other professionals such as advocates, to achieve proportionate responses to situations.

## A8.3 The role of a range of regulatory bodies within the health sector

### Now test yourself: page 74

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- 1 Statutory regulation is regulation required by law.
- 2 Regulation involves the control of professionals working in the health sector and activities carried out within the health sector, by means of rules and standards.
- 3
  - General Dental Council (GDC)
  - Health and Care Professions Council (HCPC)
  - Nursing and Midwifery Council (NMC)

(Others not mentioned in the specification but valid include the General Medical Council (GMC), General Pharmaceutical Council (GPC), General Optical Council (GOC), General Osteopathic Council (GOsC) and General Chiropractic Council (GCC).)
- 4 Two from:
  - They set standards for professionals' education and training.
  - They establish the scope of practice for the profession.
  - They establish standards for the character and health of professionals.
  - They register qualified professionals who meet required standards.
  - They expect registered professionals to uphold required standards and behaviours.
  - They investigate and take action if professionals on the register do not meet standards.
  - They protect the public and uphold public confidence in the profession.
- 5 Two from:
  - treatment of disease, disorder or injury
  - accommodation for persons who require nursing or personal care
  - maternity and midwifery services
  - nursing care.
- 6 For example, two from:
  - GP practice
  - private or NHS hospital
  - dentist
  - residential care home.
- 7 Services offering regulated activities must register with the CQC. The CQC then monitors and inspects what they do. It issues reports and ratings on the services it inspects for public information. It can act if it finds failings in care, such as requiring improvements, issuing fines or even closing down services or prosecuting individuals.
- 8 The HSE regulates workplace health and safety and prevents work-related death, injury and ill health by ensuring health and safety standards are adhered to.
- 9 The HSE can inspect a service within the health sector after non-clinical health and safety incidents, such as an accident or injury reportable under RIDDOR.
- 10 Ofsted also regulates children's social care services.

- 11 The ICO is the independent regulator for data protection and its role is to promote and support information rights in the public interest.

## A8.4 How physical and mental function across the lifespan impacts on care needs and informs person-centred care

Now test yourself: page 76

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- 1 For example:
  - personal care – nappy changing, washing
  - nutrition – breast or bottle feeding, feeding of solids at an appropriate age
  - hydration – breast or bottle feeding, fluids appropriate to developmental stage.
- 2 For example:
  - support to develop independence and begin to meet their own physical needs, for example toileting and feeding
  - support to learn, play and develop social skills
  - support to explore and establish their own identities and develop their self-esteem.
- 3 For example:
  - puberty – may result in physical complaints, for example acne and menstrual issues
  - secondary school/exams – may cause stress and anxiety
  - developing identity – may cause self-esteem issues.
- 4 For example:
  - support with sexual health and fertility
  - support with ill health due to pathogens, for example bacteria or viruses
  - support with increased susceptibility to disease due to lifestyle factors, for example smoking and alcohol use.
- 5 For example:
  - ageing of the cardiovascular system causing hypertension
  - weakened immune system leading to increased susceptibility to and severity of viral and bacterial infections
  - reduction in mobility due to ageing and conditions such as osteoarthritis.

## A8.5 The key values of the healthcare sector when providing care and support

Now test yourself: page 77

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- 1 The NHS values ensure patients receive the best possible care which is safe and effective.
- 2 Compassion: Treating everyone with kindness and humanity, to meet their needs and reduce any anxiety, pain, fear or distress.

Respect and dignity: Valuing every person – patients, family members, staff – and respecting their needs, wishes and preferences.

- 3 An example would be ensuring physical barriers to accessing services are removed for anyone with mobility challenges, for example providing ramps and power-assisted doors to access a hospital.
- 4 The six principles set out the basis of good, person-centred, community-focused health and social care.

## **A8.6 The purpose of the Personalisation Agenda 2012 and the importance of using holistic approaches in order to place individuals, their carers and significant others at the centre of their care and support**

Now test yourself: page 79

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- 1 The individual can be asked to contribute by expressing their needs and preferences and combining that with what is required medically.
- 2 For example:  
A person who expects to have deteriorating physical and/or mental health can make an advanced decision to decline CPR. This is known as a DNR directive.
- 3 A holistic approach involves considering the person as a whole – physically, psychologically, socially and spiritually – and planning and delivering care to meet needs in all those domains.

## **A8.7 A range of verbal and nonverbal communication techniques, potential communication barriers and how to overcome them to support an individual's condition**

Now test yourself: page 81

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- 1 Pitch, tone, volume, pace
- 2 Gestures and facial expressions can add emphasis and emotion, and they also confirm what is being said. If someone has difficulty hearing or understanding speech, this can be an important way to confirm what is being said and how it is being said.
- 3 Ask the service user what their communication needs and preferences are and check any documentation – communication passports or notes.

## **A8.8 The application of relevant legislation, including Mental Capacity Act 2005 plus Amendment (2019) and Liberty Protection Safeguards (LPS) on the provision of person-centred care**

Now test yourself: page 82

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- 1 The Mental Capacity Act 2005 applies to vulnerable adults (aged 16 years and over) who require protection around decision-making.
- 2 The purpose of the Act is to protect the rights of every adult to make their own decisions about their daily life and care or treatment.
- 3 The first principle of the Act is to assume every individual has capacity (to make their own decisions) unless it is proven otherwise.
- 4 The purpose of the LPS is to ensure anyone lacking capacity and experiencing deprivation of liberty is still placed at the centre of all decisions made about them.

## **A8.9 The considerations when providing person-centred care to people with pre-existing conditions or living with illness**

Now test yourself: page 83

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- 1 Two from:
  - the social model of disability and inclusion
  - ongoing treatments
  - overall wellbeing
  - following the person-centred plan
  - co-morbidity
  - assessment of need
  - discharge planning
  - mental capacity
  - individual's rights and wishes
  - access to community provision
  - access to relevant additional secondary services
  - financial circumstances
  - carer's assessment.
- 2 Co-morbidity is the presence of two or more diseases or conditions in one patient; they are often linked.
- 3 The social model of disability is the idea that people are disabled by barriers within society, rather than an individual impairment or difference. These barriers are seen not just in the

physical environment (for example steps) but also in terms of the way that society is organised and operates (for example prejudiced attitudes).

- 4 Ask them directly about their needs and preferences, or support them to do this, for example through an advocate if necessary.

## **A8.10 How mental health conditions, dementia and learning disabilities can influence a person's needs in relation to overall care**

Now test yourself: page 84

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- 1 For example, support with:
  - grocery shopping
  - preparing meals
  - eating meals
  - remembering to take medication
  - travelling to and attending appointments
  - taking part in leisure and social activities.
- 2 For example, providing them with:
  - a communication/hospital passport
  - easy-to-read information
  - advocacy services
  - picture cards.
- 3 A dissociative condition is a mental health condition which causes a person to feel disconnected from the world and possibly themselves; they may have memory gaps.
- 4 Reasonable adjustments must be made by public services to accommodate the needs of individuals with disabilities, therefore it is a way of ensuring care given is person-centred. For example, an individual with a learning disability may become distressed in busy, loud spaces, therefore they may be given their appointment at a 'quiet clinic' to reduce any associated distress.

## **A8.11 How to promote independence and self-care and the positive impact on the healthcare sector**

Now test yourself: page 85

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- 1 For example:
  - Give individuals choice and control over their own self-care, for example what clothes to wear each day.
  - Refer individuals to support groups, for example a group for individuals who have the same health condition so they can learn from each other.

- Provide assistive technology, for example a magnifier so that someone who is vision impaired can read labels and recipes to make their own food.
- 2 For example:
- The individual has higher self-esteem and so will not require additional services or support for mental wellbeing.
  - The individual will know how to care for and manage certain elements of their condition themselves, freeing up healthcare resources and reducing demand.
  - The individual can remain more independent and so will not require the same level of practical support from a service, which frees up resources to be used elsewhere.

### **A8.12 The range of terms used in the healthcare sector in relation to death and bereavement, including their meaning**

Now test yourself: page 86

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- 1 life
- 2 palliative
- 3 year
- 4 imminent
- 5 end
- 6 life
- 7 treat
- 8 hospice
- 9 home
- 10 expected
- 11 sudden (unexpected)
- 12 grief
- 13 bereavement

### **A8.13 The role of healthcare professionals in providing person-centred care for the individual during the active dying phase**

Now test yourself: page 86

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- 1 Three from (for example):
  - Provide information on what they might expect during this time.
  - Address questions and concerns honestly.
  - Take time to be an active listener.
  - Recognise when someone may be entering the last few days and hours of life.
  - Involve the individual in decisions about their care and wishes.

- Involve multi-agency teams where required in the care of the individual.
  - Advocate for the patient's rights and wishes.
  - Safeguard the individual from harm, abuse and neglect.
- 2 Three from (for example):
- Provide information on what they might expect during this time.
  - Address questions and concerns honestly.
  - Take time to be an active listener.
  - Understand the stages of grief and provide emotional support or advice.
  - Involve the family in decisions about care.
  - Ask about and respect religious or spiritual wishes/rituals.

## A8.14 How to support people with bereavement and how to communicate with families

Now test yourself: page 87

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- 1 Three from:
- Provide a safe and comfortable environment and suitable resources, such as tissues and refreshments.
  - Provide emotional support, for example by listening or allowing the person to talk/cry.
  - Understand families may have an emotional reaction and how to handle those situations, for example anger or aggression.
  - Remember the duty of candour, for example accurately representing the situation.
  - Acknowledge cultural/religious rituals with a bereaved individual.
  - Signpost applicable services, for example bereavement care and national charities for bereaved people.
- 2 For example:
- Speak to them honestly and with integrity (duty of candour).
  - Be an active listener.

## A8.15 What the 6Cs are in relation to person-centred care

Now test yourself: page 88

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- 1 communication
- 2 care
- 3 compassion
- 4 competence
- 5 commitment
- 6 courage

## **A8.16 The importance of practising and promoting the 6Cs in relation to demonstrating person-centred care skills, through own actions and promoting the approach with others**

Now test yourself: page 89

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- 1 For example:  
Effective *communication* skills are needed to provide the full range of information required for informed consent.  
*Compassion* is required to understand the individual's personal circumstances, which may affect whether or not they wish to consent to certain procedures or treatments.
- 2 For example:  
*Competence* is required to take appropriate action when an individual's safety or wellbeing is compromised.  
*Commitment* to employers, colleagues, service users and the public is needed to maximise the best possible outcomes.
- 3 For example:  
Being *compassionate* shows that you understand the individual's perspective, which makes them feel more comfortable, at ease with care and more likely to work with you.  
Open and honest *communication* fosters trust.

## **A8.17 The concept of safeguarding in relation to providing person-centred care**

## **A8.18 The importance of managing relationships and boundaries, and how to work within parameters, when providing person-centred care**

Now test yourself: page 90

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- 1 Because safeguarding protects individuals from abuse, harm and neglect, when it is carried out properly it will enable individuals to feel cared for and treated with compassion, which will maximise their health and wellbeing.
- 2 For example:  
A professional relationship is one that is defined for a specific purpose, linked to work. It is the responsibility of the professional to manage the relationship so that no boundaries are crossed.
- 3 For example, boundaries are important:
  - so that misunderstandings around the nature of the relationship do not occur, for example so the service user knows they are being cared for to improve or maintain their health, not because there are personal feelings involved

- to reduce any possible risk of abuse, for example if the boundaries are clear that the service provider will not touch the service user inappropriately, abuse is easier to spot.
- 4 For example:
- It ensures the working relationship remains formal and is not affected by personal issues, conflict or emotions. This means that competence and duty of care are maintained.
  - It means that professionals remain focused on the purpose of their work, rather than being distracted by personal relationships and issues at work. This ensures the highest quality of care and health outcomes for service users.
- 5 The key features of professional conversation are:
- using professional language and tone
  - staying focused on work-related and professional topics.

## Exam practice: page 91

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- 1 The Mental Capacity Act 2005 applies to anyone over the age of 16 who may lack mental capacity to make their own care and treatment decisions and to those responsible for and delivering their care and treatment. [1]The Act provides a decision-making framework to ensure decisions can be made by the individual where possible, or to support others to ensure decisions are made in the best interests of the individual. [1]It makes sure everything is done in the best interests of the individual and in line with legal principles, which keeps them safe from poor decisions which may result in harm. [1]
- 2 Partnership is important because most adults in need of safeguarding protection will have their needs met by a wide variety of services. Those services need to work together to share information and provide integrated care to keep the individual safe. [1] It is known from serious case reviews that when harm occurs, it is often due to services failing to work together appropriately. [1]
- 3 Three from:
  - Professional regulation is important because it aims to protect the public from harm and uphold public confidence in health professionals. [1]In the case of Marianne, to be registered with the NMC she will have to prove that she has the necessary training, qualifications and experience to practise as a midwife in the UK. This means she will be able to work competently within her scope of practice and give safe and effective care. [1]
  - She will also have to prove that she is of good health, for example that she is physically fit enough to work 12-hour shifts, [1] without putting herself, her colleagues or the public at risk. [1]
  - She will also have to prove she has good character[1], for example that she does not have any criminal convictions that would bar her from working with vulnerable people. [1]
  - Once she is registered, Marianne will have a duty to continue to uphold the standards set by the NMC. [1]If she fails to do this, she can be investigated, and if she is found to

have failed, action can be taken against her to protect the public from any further harm. [1]

4 Four areas where the elderly residents may require care and support are:

- hydration[1]
- nutrition[1]
- personal care[1]
- mobility. [1]

5

a The purpose of the NHS values is to establish a common set of values that everyone working in the NHS should adhere to[1], in order to ensure safe and effective care for everyone. [1]

b Two from:

- Compassion means treating everyone with kindness and humanity, to meet their needs and reduce any anxiety, pain, fear or distress. [1]
- Improving lives means working to improve the health and wellbeing of everyone. [1]
- Respect and dignity means valuing every person – patients, family members, staff – and respecting their needs, wishes and preferences. [1]
- Commitment to quality of care means working continually and proactively to provide safe and effective care. [1]
- Working together for patients means putting individuals at the centre of care and bringing together multidisciplinary and multi-agency teams to meet their needs. [1]
- Everyone counts means maximising benefit for everyone, ensuring equality of access to services and anti-discriminatory practice. [1]

6 The Personalisation Agenda 2012 is an overarching concept in health and social care. It puts the individual first in the process of planning, developing and providing their care [1]and ensures care for those with long-term illnesses or conditions is tailored to their individual needs and desires. [1]

7 Henry could be supported to develop a communication passport, which is a document that summarises his communication needs as well as the most effective methods for him to communicate. [1]This information should also be recorded in his records, regularly reviewed and updated. If Henry does not have a communication passport, he should be asked directly what his needs and preferences are, and he should be actively listened to. [1] Henry may benefit from the use of technological communication aids, such as communication systems that use pictures and symbols, or a voice generator. [1] An advocate might also be beneficial for Henry, as they can work to understand Henry's needs and preferences and support him to communicate these. [1]All professionals that meet Henry should use clear speech and open, friendly body language. They should ensure all information they convey to Henry is free from jargon and at a level that he understands. [1]They should ensure they have plenty of time for Henry at appointments, so he has time to understand what is being said and ask any questions. The professionals should ensure the environment is quiet and well lit, as these factors can improve communication for everyone. [1]

- 8 The Mental Capacity Act (MCA) 2005 aims to protect vulnerable adults like Gail around decision-making. The MCA must be used by staff at the hospital to support Gail to make decisions about her own care, treatment and choices as much as possible. [1] This is to support her rights and maintain person-centred care. [1] Staff must assume Gail has capacity unless proven otherwise and recognise and respect that unwise decisions do not automatically mean that she lacks capacity. If it is decided that Gail lacks capacity and a decision must be made for her, this must be done to protect her interests and must be the least-restrictive option. [1] If Gail must also be deprived of her liberty to be treated, for example detained on a psychiatric ward, the Deprivation of Liberty Safeguards (DoLS) or Liberty Protection Safeguards (LPS) must be used. [1] These will also ensure Gail is placed at the centre of care and any decisions. [1] Furthermore, the Act places a legal duty on staff to make sure any arrangements made are necessary to protect her from harm and proportionate to the likelihood and seriousness of that harm. [1]
- 9 It is important to consider co-morbidities because they will also need management or treatment. [1] They may also cause difficult symptoms and/or their treatments may have impactful side effects. For example, Darcus has left-sided weakness, so this will need to be considered when supporting him with daily tasks. [1] He also needs to be empowered to take his medication. To give person-centred care, you need to find out all the ways the individual is affected by their co-morbidities so you can ensure you meet their desired needs and preferences when supporting the individual to manage them. [1]
- 10 Sadie may have increased requirements for physical support, for example someone to travel with her and attend her appointment with her. [1] She may also need support to put into practice any necessary self-care for her cardiac condition, such as healthy eating, exercise or taking medication. Therefore, staff need to know what support she has for this and from whom, or to make arrangements for it to happen as needed. [1]  
Linked to this, Sadie may need support with communication, in terms of understanding any written or verbal information given to her, as well as having her say. [1] If Sadie has a hospital or communication passport, staff should ask to see it and use it, or if Sadie requires an advocate, they should ensure an independent advocate is available. [1] Staff need to be aware of what things cause Sadie anxiety and what, if any, behaviours may result from that. This ensures they can work to reduce any factors that may trigger anxiety as well as deal appropriately with any potential behaviour that challenges. [1] Staff must make any necessary reasonable adjustments for Sadie, as this is required by the Equality Act 2010. All of this will ensure Sadie is given person-centred care and has good health outcomes. [1]
- 11 Individuals receiving treatment for pre-existing conditions may have preferences or additional needs arising from that treatment or condition which should be considered to ensure care is centred on their wishes and needs. [1] For example, they may experience side effects of treatment such as nausea or digestive issues, which can affect when, what and how much they wish to eat. [1]
- 12 Dementia has an impact on all areas of an individual's life. Both diagnosis and the symptoms it causes can be frightening and distressing, leading to feelings of anger, sadness or even depression. It can affect relationships with family members and friends, causing

isolation and exclusion. [1]It also has a range of physical impacts, such as loss of mobility and bladder and bowel control, all of which can be distressing and reduce overall wellbeing. [1]

- 13 Georgie will not need a member of staff to help her to the bathroom, or to eat and drink. [1]This will benefit the service, as it will leave the staff free to provide medical care for Georgie and to support other service users. [1] It will also result in greater partnership working between Georgie and the staff, which will empower Georgie, meaning she places less demand on the service, and will improve her outcomes. [1]
- 14 Palliative care is suitable for anyone with compromised quality of life due to long-term illness and not just those with a terminal (life-limiting) diagnosis. [1]End-of-life care is usually given in the last year of life, or when death is imminent. It takes place when the individual's disease is no longer being treated or controlled. [1]
- 15
  - a The family may be in denial because the death was sudden, and therefore they were not expecting it. Denial is also the first stage of grief, according to the Kübler-Ross model. [1]
  - b Jakob should ensure there is a safe, comfortable place for the family. [1]He should answer their questions openly and accurately represent the situation (duty of candour). [1]He should allow them time to talk or cry and he should be prepared for possible reactions such as anger or aggression. He should sensitively ask about any special or religious requests and actively listen to the family's wishes. [1]When appropriate, he can signpost the family to further support services, such as bereavement charities. [1]
- 16 Radhika can show that she *cares* by answering all call bells promptly. [1]She can show she has good *communication* skills by listening carefully to patient concerns and requests. [1]To show that she has *compassion*, she should be respectful to the women asking for her help and show empathy by trying to understand their perspective. [1]She can demonstrate her *competence* by only carrying out tasks for which she has training, for example answering the call bells and responding to basic requests, for example for water. [1]She can show *commitment* by ensuring she answers all the bells, or repeated calls from the same patient. [1]She can show *courage* by escalating any concerns she has about patients. [1]
- 17 Rashid could use *courage* to challenge those members of staff or to escalate his concerns to someone more senior. [1]When he does this, he must ensure he uses effective *communication* to communicate calmly and clearly what happened. [1]This will show that Rashid has *care* and *compassion* for the service user. [1]It also shows he is *competent* and he knows his duty of care and legal obligations[1], and that he is *committed* to the patient and to the service. [1]
- 18 Anatoly needs to ensure he establishes his relationship with the young adults based on providing them with healthcare and meeting their health and wellbeing needs. [1] He should focus on the professional purpose of the relationship and remember he is not making friendships. [1]Anatoly is responsible for maintaining boundaries, [1]for example by not establishing personal connections with the adults, such as making friends on social media. [1]



# My Revision Notes: Health T Level

## A9 Health and wellbeing

### A9.1 Changes in the approach to healthcare and how to support a person's health, comfort and wellbeing

Now test yourself: page 93

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- 1 Health inequalities are unfair and avoidable health differences. They are caused by the conditions in which people are born, grow, live, work and age and can affect the ability to access care and health outcomes.
- 2 Smoking can cause illness and diseases of the respiratory system, such as cancer and COPD. Therefore, supporting people to stop smoking will improve their individual health and contribute to improved public health.
- 3 Two from:
  - encouraging collaboration between different groups, communities and individuals
  - encouraging active involvement of individuals in self-managing their conditions
  - supporting individuals to make positive lifestyle choices
  - supporting individuals to take an active part in decisions about their own care
  - adopting a person-centred approach
  - taking a holistic approach, including physical, intellectual, emotional and social needs.

### A9.2 How to recognise the signs and symptoms of a person who is experiencing pain and discomfort and/or whose health and wellbeing is deteriorating

Now test yourself: page 96

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- 1 60–100 beats per minute
- 2 Pain, infection
- 3 If the skin colour is blueish or purple, this can suggest lack of oxygen. If the skin is paler than usual, this can indicate dehydration, shock or blood loss. If the person is more flushed than usual, this can indicate hypertension, fever or a temporary hot flush.
- 4 They are trying to minimise any pain by restricting movement as much as possible.
- 5 Verbal signs of being in pain include self-reporting pain, crying out in pain, and groaning or grunting when consciousness is reduced.

### **A9.3 How to work in a person-centred way, to ensure adequate nutrition, hydration and care are provided to prevent deterioration in the individual's wellbeing**

Now test yourself: page 97

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- 1 Two from:
  - Provide food and drink that meets individual needs (considering preferences, beliefs and medical conditions).
  - Ensure food and drink provided does not have contraindications.
  - Support individuals who might experience difficulties in eating or drinking.
  - Provide equipment where appropriate to help individuals eat and drink independently.
  - Ensure sufficient time to eat and drink.
  - Closely monitor nutrition and fluid intake.
  - Communicate with individuals to identify any barriers.
  - Promote the value and importance of effective nutrition and hydration to overall wellbeing.
  - Work with carers or family members.
  - Work with other healthcare professionals.
- 2 A contraindication may cause harm to the individual, for example if a medication interacts negatively with food eaten.
- 3 It may be necessary to support individuals and remind them to eat and drink. You should communicate with them, ensuring they have any equipment they might need. Allow them sufficient time to eat and drink.
- 4 You should work with the individual's family and carers, as well as other professionals such as dietitians, doctors and dentists.

### **A9.4 The purpose of the prevention agenda and the concept of preventative approaches for moving towards good health and wellbeing**

Now test yourself: page 98

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- 1 The prevention agenda is about taking action or providing programmes to prevent people becoming ill in the first place, rather than waiting for them to become unwell and then treating them.
- 2 Health education (part of the prevention agenda)
- 3 Vaccination is a way of preventing infectious diseases.

## A9.5 The ways in which health promotion is used to support the prevention agenda to support good health and wellbeing

Now test yourself: page 99

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- 1 For example:
  - The UK Health Security Agency (UKHSA)
  - The Office for Health Improvement and Disparities (OHID)
  - The Department of Health and Social Care (DHSC).
- 2 For example:
  - Hand – Face – Space
  - Every Mind Matters
  - Better Health.
 (Could also mention Change4Life, Be Clear on Cancer and others.)
- 3 It means taking opportunities as they arise to deliver health promotion messages. For example, a midwife can discuss healthy eating with pregnant women at each appointment.

## A9.6 The overarching principle of the opportunistic delivery of health promotion through the Making Every Contact Count (MECC) initiative and the risk factors this initiative targets

Now test yourself: page 100

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- 1 MECC encourages healthcare workers to use opportunities that arise during routine work to deliver key health messages. They can highlight risk factors such as smoking and poor diet, as well as signposting individuals to additional support and resources.
- 2 A midwife, during a routine antenatal appointment, could ask a pregnant woman how she is managing her diet and give brief but key messages on healthy and safe food to consume at this time, to promote health and wellbeing and protect the unborn baby.

## A9.7 How lifestyle choices impact good health and wellbeing

Now test yourself: page 102

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1

Classification	BMI
Underweight	<18.5 kg/m <sup>2</sup>
Healthy weight	18.5–24.9 kg/m <sup>2</sup>
Overweight	25–29.9 kg/m <sup>2</sup>
Obese	30–39.9 kg/m <sup>2</sup>
Severely obese	>40 kg/m <sup>2</sup>

- 2 Three from:
  - type 2 diabetes
  - hypertension
  - coronary heart disease.(Students may also know additional risks such as stroke, cancer, dementia, gallbladder disease, osteoarthritis, sleep apnoea, depression and anxiety.)
- 3 Deficiency diseases are conditions that arise due to a chronic (long-term) lack of a vitamin or mineral in the body, which is required for good physical health.
- 4 Three from:
  - iron-deficiency anaemia
  - vitamin B9 (folate) deficiency anaemia
  - vitamin B12 (cobalamin) deficiency anaemia
  - vitamin D deficiency.
- 5 When the tobacco in cigarettes is burned, the smoke contains:
  - nicotine, which is addictive and makes smoking hard to give up
  - carbon monoxide, which takes the place of oxygen in the blood, making it harder for the cells and tissues to get the oxygen they need for energy and function
  - tar, which is a sticky substance that builds up in the lungs and blocks the airways, causing a cough and making it difficult to breathe; the tar also contains carcinogenic (cancer-causing) particles.
- 6 Physical activity is essential for the maintenance of bone density, muscle mass, balance and co-ordination. Risks of inactive lifestyles include:
  - cardiovascular disease
  - anxiety and depression
  - joint and back pain
  - increased risk of falls.
- 7 Sedentary describes spending a lot of time seated.
- 8 Three from:
  - damage to the major organs (for example heart, liver, pancreas or kidneys)
  - hypertension
  - coronary heart disease
  - stroke
  - liver disease, for example cirrhosis
  - cancer
  - weaker immune system, increasing the risk of infections
  - weaker bones, increasing the risk of fractures and breaks
  - damage to brain tissue
  - interference with neurotransmitters
  - deficits in cognitive function.
- 9 Short-term impacts include:
  - allergic reaction
  - increased heart rate

- increased blood pressure
- death.

Long-term impacts include:

- heart disease
- cancer
- hepatitis B, C and D
- cognitive dysfunction
- depression and anxiety.

## **A9.8 A range of methods of taking a holistic approach to healthcare**

Now test yourself: page 103

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- 1 Three from:
  - treating the person not just the condition
  - bespoke treatment plans that meet personal choices and needs
  - understanding the individual's lifestyle
  - understanding the individual's mental health needs
  - integrated working
  - the work of health and wellbeing boards (HWBs).
- 2 Examples include the individual's commitments, such as family caring responsibilities, their work type and hours done, as well as choices they make around diet, exercise, alcohol etc.
- 3 They promote greater integration and partnership between the NHS, public health and local government/social care; holistic care needs to consider everything about a person, not just their physical health/condition.

## **A9.9 The purpose of signposting individuals to interventions or other services and how this can support their health and wellbeing**

Now test yourself: page 104

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- 1 This gives Don awareness of his options, so that he can make a choice about what best suits his needs and preferences.
- 2 It means that Gemma can speak to others about specific experiences they share, which may give her comfort.

## A9.10 The impact of the ageing process on health and wellbeing

Now test yourself: page 105

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- 1 Ageing is the process of becoming older. It is associated with changes at a biological, psychological, social and emotional level.
- 2 As they accumulate damage over time, cells, tissues and organs function less well. For example, cells become less able to divide, the cell membrane changes and there is an increase in lipids (fatty substances) within the cell. As a result, cells become less effective at functioning, for example they find it harder to take in oxygen and nutrients and expel waste products like water and carbon dioxide. Tissues become stiffer, for example blood vessels, which can lead to increased blood pressure. Tissues also atrophy, for example muscles lose mass, leading to weakness and loss of balance. As a result of these cell and tissue changes, organs do not work as well, for example the heart becomes less effective at pumping blood.
- 3 For example:
  - increased susceptibility to infections such as flu or norovirus, due to an impaired immune system
  - increased risk of heart disease and strokes, due to stiffened blood vessels and a weaker heart
  - increased risk of osteoarthritis and osteoporosis, due to loss of bone density and loss of cartilage between the joints
  - increased risk of neurodegenerative diseases such as Alzheimer's disease, due to accumulation of proteins in the brain and loss of brain cells.
- 4 Damage to the cells and tissues of the nervous system can cause:
  - changes to memory and attention, for example forgetfulness and inattention
  - difficulties with reasoning and problem solving
  - difficulties with information processing, for example slowing of thought processes and reaction times.
- 5 Older adults may experience significant life events, such as retirement, bereavement and their own ill health, which can change their role in society, or contribute to isolation and loneliness. Ageing also focuses attention on mortality (the end of the life span) and can cause low mood.

## A9.11 How aspects of care requirements change throughout various life stages

Now test yourself: page 107

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- 1 Care requirements revolve around healthy growth and development, and the prevention of ill health.

- 2 For example:
  - midwives in first 28 days after birth
  - health visitors from birth to starting school
  - school nurses from reception to year 13
  - GPs for primary care needs from birth
  - paediatric care for secondary care needs
  - sexual health services in later adolescence.
- 3 The ageing process increases vulnerability to disease.

## A9.12 Methods of supporting individuals to look after themselves at various stages of life

Now test yourself: page 108

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- 1 Two from:
  - promoting healthy choices, for example avoiding smoking and alcohol consumption and making healthy sex and relationships decisions
  - promoting self-care, for example nutrition, exercise and good personal hygiene
  - promoting self-awareness, for example over feelings and emotions and asserting and respecting boundaries
  - promoting self-esteem, so that young people feel they have worth and value, which underpins good mental health and wellbeing.
- 2 Two from:
  - promoting activities of daily living, such as good sleep and nutrition
  - promoting screening programmes
  - promoting health awareness and the importance of taking prompt action regarding concerns, for example cancer red flags
  - promoting regular health check-ups
  - dispelling stereotypes, for example that all older people are frail and unwell or that people with physical or sensory impairments cannot have good quality of life.

Exam practice: page 108

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- 1 Ensuring Janelle makes healthy choices will protect her and her baby from developing ill health. [1] It will also promote her wellbeing and help her enjoy her life and pregnancy. [1]
- 2 Moaning can be a sign of pain, particularly in a person with reduced consciousness, such as a patient who has recently returned from surgery. [1] The clenching of hands is also a nonverbal sign of pain. [1]
- 3 Example answer:  
Derek may be worried about his ability to eat and drink after his stroke. [1] Good communication to find out what he perceives are his barriers to eating and drinking should be discussed with him, both to put his mind at rest and to work with him to find solutions.

[1]

Derek may actually find it challenging to eat and drink, because of his stroke causing weakness on his left side. It may be difficult to lift cups/cutlery to his mouth, and he may find it difficult to control his lips/mouth. [1] A person-centred approach would be to provide adapted cups and cutlery, for example a two-handed cup or cup with a lid.

- 4 The prevention agenda focuses on keeping people healthy for as long as possible and stopping them from becoming ill in the first place. Keenan could be educated about the risks of his lifestyle choices/behaviours. [1] Health promotion campaigns will also show him the risks of his behaviour. If he can be educated and influenced to change his behaviour, this may prevent ill health linked to smoking and alcohol use, such as cancer. [1] Keenan's baby will undergo screening tests for certain conditions, so that if the baby has an increased chance of diseases, these can be treated. The baby would also receive vaccinations, which are effective at preventing infectious diseases. [1]
- 5 For example:
  - a Every Mind Matters[1]
  - b This campaign aims to improve mental health and reduce stress and anxiety, thus preventing more severe mental ill health from occurring. [1]  
(Accept any other example campaign such as Better Health and how it supports the prevention agenda.)
- 6 Health professionals can use brief or very brief interventions whenever the opportunity arises, for example during routine appointments, to give health promotion messages[1], such as the importance of reducing alcohol consumption. [1] This will promote better health, for example improved sleep and weight management, and also prevents future health risks such as liver disease and cancer. [1]
- 7 According to his BMI, Pablo is obese, which means his weight is not healthy for his height. Obesity puts him at risk of heart disease, stroke, cancer and type 2 diabetes. [1] This is worsened by the amount of alcohol he consumes, as regularly consuming more than 14 units of alcohol per week will increase his risk of these same diseases, plus cause damage to his liver from alcoholic hepatitis and even cirrhosis. [1] The long-term effects of alcohol also include weakening the immune system, leading to a risk of infections, and weakening bones, which increases the risk of fractures and breaks. Alcohol can also affect the brain, including damaging brain tissue. [1]
- 8 A key approach will be to treat Todd the person, not just his condition of cancer. Time should be spent treating the social and emotional effect that cancer will have on him. For example, Todd is feeling anxious about the treatment and probably his caring responsibilities for his two children. [1] This is linked to understanding his lifestyle and, in this case, his commitments as a single father. His treatment plan should be unique to him and his needs and choices. For example, he might need time to arrange for someone else to care for his children, prior to his treatment starting. Or, he might wish to have treatment as close to home as possible. [1] He might also need support to explain to his children what is happening. Counselling or psychological therapies could benefit him alongside the surgery and chemotherapy, both to help him work through his feelings and to support him to support his children. This requires knowing exactly what his mental health needs are and

how best to meet them. [1]The professionals involved in his care should work in an integrated way, looking at how best to work together with Todd. [1]Health and wellbeing boards are responsible for promoting and improving integration of health and social care services. The health and wellbeing board in Todd's local area should have a plan for how health and social care services can work together, which will be important for Todd as he definitely requires health care and, depending on whether he has any family to help him care for his children, he may need support from children's social care too while he is incapacitated. [1]Useful services to signpost Todd to would be a patient group or self-help group for parents with a cancer diagnosis. This will mean he can share and discuss his experience with his peers. Todd could also be signposted to cancer charities that can provide him with information and advice on the practical challenges of living with cancer, as well as giving him emotional support. [1]

9

- a Ageing is the natural process of growing older. [1]In biological terms, it refers to the accumulation of cell and tissue damage over time, which weakens the function of organs such as the heart and body systems such as the immune system and nervous system. [1] It can also affect social and emotional health. [1]
- b Tissues atrophy over time, which means they lose mass. [1] This can occur in muscle tissue, leading to weight loss or weakness and increased frailty. [1]The sense organs also deteriorate, [1] for example the cells and tissues of the eyes and linked nerves become damaged over time and function less effectively, leading to vision problems. For example, the eye becomes less effective at focusing over time, so reading glasses become more widely required as we age. [1]

10 Once a woman reaches the age of 25, she will be invited for routine cervical screening every three years. This is used to detect early changes to the cervix that may indicate an increased risk of cancer. [1]Shortly after her 40th birthday, she will be invited for an NHS Health Check. This is an overall check on physical health and will identify whether she is at risk of diseases such as heart disease, stroke, type 2 diabetes and dementia. This will be repeated every five years. [1] Once she reaches the age of 50, she will be invited for breast screening, which looks for changes in the structure of the breast which could indicate cancer. [1]Finally, between the ages of 60 and 74, she should expect to be offered a home test kit for bowel cancer every two years. [1]

11 One from:

- promoting healthy choices in school, for example how to eat a balanced diet[1]
- providing sex and relationships education in school, for example use of contraception to prevent pregnancy and sexually transmitted infections[1]
- promoting self-awareness and exploring feelings and emotions in PSHE lessons[1]
- promoting and supporting self-esteem, for example through school counselling. [1]

## A10 Infection prevention and control in health-specific settings

### A10.1 The techniques for infection control and why they are important in stopping the spread of infection

Now test yourself: page 111

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1 Infection can be seen as a chain of links:

- i. infectious agent
- ii. reservoir
- iii. portal of exit from the reservoir
- iv. mode of transmission
- v. portal of entry
- vi. susceptible host.

If all the links in the chain are present, infection will result. If any of the links in the chain are broken, infection can be prevented.

- 2 PPE acts as a physical barrier. It can cover up a portal of exit, for example a wound on a hand, or it can stop a method of transmission, for example direct contact.
- 3 Cleaning eliminates environments in which bacteria thrive and grow (reservoirs), by physically removing dirt and contamination.
- 4 To minimise the risk of transmission of infection and sharps injury, it is important to follow policy and procedure, for example used sharps must be disposed of:
  - at the point of use
  - by the person generating the waste
  - with needles and syringes as one unit
  - with any safety mechanisms deployed
  - into a dedicated sharps bin.
- 5 Segregation and colour coding of waste ensures:
  - it is clear what each waste container contains
  - waste can be stored and disposed of correctly
  - waste does not pose a risk to patients and staff and those who come to remove it.

## **A10.2 The importance of good handwashing techniques and personal hygiene and how to practise this in relation to infection control**

Now test yourself: page 114

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- 1 Maintaining good hand hygiene helps to prevent the spread of infection, and as a result illness and disease. Removing visible contaminants with soap and water prevents the hands becoming a reservoir for pathogens. Using alcohol-based hand gel will remove pathogens that cannot be seen, reducing the risk of transmitting pathogens to patients and the environment.
- 2 Good personal hygiene prevents the body becoming a reservoir of infection and a method of transmission of infection.
- 3 For example, three from:
  - wash body and hair regularly
  - wear clean uniform
  - clean teeth
  - cover mouth and nose when coughing and sneezing
  - maintain short, neat and clean nails.

## **A10.3 The scientific principles of cleaning, disinfection, sterilisation and decontamination**

Now test yourself: page 114

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- 1 Decontamination is a process to remove or destroy contamination. There are three processes of decontamination: cleaning, disinfection and sterilisation.
- 2 Cleaning
- 3 Disinfectant reduces the presence of nonvisible microorganisms.
- 4 Sterilisation eliminates all microorganisms, so the patient being operated on will not be at risk of infection.

## **A10.4 The differences in procedures for cleaning, disinfection and sterilisation**

Now test yourself: page 116

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- 1 Cleaning removes visible dirt and contaminants. Disinfection uses a chemical agent such as bleach to remove microorganisms, although some may remain. Sterilisation involves complete removal and/or killing of all microorganisms.

- 2 Cleaning is sufficient if the item requiring decontamination only comes into contact with a person's unbroken skin, and/or it is not known to be contaminated with an infectious microorganism.
- 3 Colour coding of cleaning tools prevents cross-contamination between cleaning areas, in order to reduce the risk of infection.
- 4 An autoclave machine uses steam under pressure to sterilise items.

### **A10.5 The meaning of impact of antimicrobial resistance, including how this can potentially impact infection control and the ways in which to reduce microbial resistance**

Now test yourself: page 117

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- 1 For example: Antimicrobial resistance is when microorganisms develop the ability to survive, despite being exposed to antimicrobial agents such as antibiotics or disinfectant chemicals.
- 2 It is important to finish a course of antibiotics to eliminate all the harmful bacteria before they start to develop resistance to the drug.
- 3 Antimicrobial stewardship means using antimicrobials in a responsible way and educating others to do the same.

Exam practice: page 117

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- 1 Three from:
  - use of personal protective equipment (PPE) [1]
  - use of cleaning and disinfection agents[1]
  - effective handwashing techniques[1]
  - good personal hygiene and uniform requirements[1]
  - appropriate waste segregation and disposal. [1]
- 2 By wearing a clean uniform, Oliver will not risk transmitting infectious pathogens [1]from his outside clothing to patients. S[1]imilarly, by tying back his hair he will not risk it becoming contaminated with pathogens, for example from blood or vomit[1], and then transmitting these around the ward environment and to the patients he cares for. [1]
- 3
  - a She should use the red mop (red cleaning tools are used where the risk of cross-contamination is high). [1]
  - b The purpose of disinfection is to remove nonvisible pathogenic microorganisms from a surface or item. [1]After the floor has been cleaned to remove visible contamination, a chemical disinfectant, such as sodium hypochlorite, can be applied for this purpose. [1]
- 4 The GP is following the principles of antimicrobial stewardship. These state that we should only use antibiotics when necessary. A cold is not a bacterial infection, therefore antibiotics

will not make the child better. [1]Instead, it will increase the risk of antibiotic resistance developing. [1]Overuse of antibiotics makes them less effective overall and causes superbugs such as MRSA to emerge. [1]The GP is also educating the mother of the patient about the responsible use of antibiotics, which is another principle of antimicrobial stewardship. [1]

## A11 Safeguarding

### A11.1 The meaning of safeguarding in the health sector and the importance of the key principles of safeguarding

Now test yourself: page 118

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- 1 Safeguarding protects individuals from harm, abuse and neglect.
- 2 Empowerment gives people more choice and control over their lives and supports them to exercise their rights. This makes them less vulnerable to harm, abuse and neglect.
- 3 Everyone needs to work in partnership to achieve safeguarding: healthcare professionals, social care professionals, education professionals, community groups and so on.
- 4 Accountability means taking responsibility for your own actions.

### A11.2 How legislation, policies and procedures support the safeguarding of individuals

Now test yourself: page 120

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- 1 Three from:
  - Mental Capacity Act 2005 plus Amendment (2019)
  - Care Act 2014
  - Health and Care Act 2022
  - Safeguarding Vulnerable Groups Act 2006
  - Mental Health Act 2007
  - Equality Act 2010
  - Human Rights Act 1998
  - Domestic Abuse Act 2021.
- 2 The Care Act 2014 sets out the duties of local authorities (for example county councils) to provide a system for safeguarding adults. A key responsibility is to ensure this is multi-agency. They have to make safeguarding enquiries if there is a concern, suspicion or case of abuse, or ask others to do this. They must establish a safeguarding adults board (SAB), carry out safeguarding adults reviews (SARs) and arrange independent advocates when necessary.
- 3 DBS is the Disclosure and Barring Service. It is a service established by the Safeguarding Vulnerable Groups Act 2006. It aims to make recruitment decisions in health and social care safer, by ensuring unsafe and unsuitable individuals, such as sex offenders, do not work with vulnerable individuals.

### **A11.3 Factors that may contribute to an individual being vulnerable to harm or abuse and the vulnerable groups that require protection**

Now test yourself: page 121

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- 1 Caregivers may deliberately exploit this dependence and become abusive, knowing that the individual relies on them to meet their needs. Or, the caregiver may fail to give timely, sufficient or appropriate care, leading to either psychological or physical neglect.
- 2 Individuals that lack mental capacity may not understand that they are being abused or may be easily influenced or coerced into believing that abusive treatment is acceptable. Individuals without mental capacity may also find it challenging to report abuse to others.
- 3 It may be easier for caregivers to hide abuse when working in the individual's home, because there is less oversight of their work. Similarly, the individual may see only the abusive caregiver and not other carers, so the abuse may go unnoticed and it is difficult for the individual to report.

### **A11.4 A range of different types of abuse and harm**

### **A11.5 The types and possible signs of abuse or harm that may be identified in individuals using healthcare**

Now test yourself: page 123

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- 1 Two from:
  - belittling
  - bullying
  - verbal abuse
  - gaslighting.
- 2 Two from:
  - lack of money and/or belongings
  - debt
  - not having enough food in the house.
- 3 Honor-based abuse is when someone abuses you because they believe you have brought dishonour or shame to them or your family.

## A11.6 What action to take if abuse is suspected or disclosed

Now test yourself: page 124

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- 1 While respecting confidentiality is most important, it can be appropriate to break confidentiality if an individual is at risk of harm or poses a risk to someone else. Any disclosure must be recorded word for word and with impartiality.
- 2 It is your responsibility to ensure safeguarding is taken seriously and instances of abuse are investigated, so you may need to escalate your concern if you do not think enough is being done.
- 3 You may need to challenge authority, for example if suspicions or disclosures of abuse are not being investigated, or if someone in authority is perpetrating abuse.
- 4 Preserving evidence means ensuring the evidence of abuse having taken place is kept, for example documentation, clinical notes and photographs of injuries.

## A11.7 Action that can be taken by individuals and organisations to reduce the chances of abuse

Now test yourself: page 124

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- 1 Three from:
  - raising awareness and educating others
  - staff training
  - creating a whistleblowing policy
  - creating a complaints policy
  - creating risk management procedures
  - carrying out a risk assessment for each individual
  - working with person-centred values
  - multi-agency working
  - implementing holistic approaches
  - promoting and facilitating access to advocacy.

## A11.8 The meaning of patient safety and clinical effectiveness, including why they are important

Now test yourself: page 125

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- 1 Patient safety is the avoidance of accidental or unintended injury or harm during a period of receiving healthcare.
- 2 Clinical effectiveness is the application of healthcare, taking into consideration the individual's wishes, the healthcare professional's experience, and evidence-based research in the approach.

- 3 Patient safety raises the standard of care, improves the patient's experience and quality of care, and results in the best possible outcomes.

### **A11.9 What is meant by radicalisation, identifying signs of radicalisation and the purpose of the Prevent strategy (2011)**

Now test yourself: page 126

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- 1 Radicalisation is the action or process of someone supporting terrorism, or adopting radical extremist beliefs connected with terrorism or terrorist groups.
- 2 Three from:
  - detachment from family and friends
  - raised levels of anger
  - failing to discuss or avoiding discussing their own or alternative views
  - increased interest in privacy or secretive behaviours.
- 3 The Prevent strategy forms part of the government's counterterrorism programme. It aims to prevent people from becoming radicalised and involved in extremist beliefs and acts, such as terrorism.

### **A11.10 The importance of positive behaviour, including a range of positive behaviours expected of a health professional**

Now test yourself: page 127

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- 1 Three from:
  - taking a people-first approach
  - demonstrating effective, practised clinical competence in carrying out roles and responsibilities
  - maintaining safety
  - encouraging professionalism and trust in others
  - promoting individual choice, dignity, inclusion, independence, individuality, identity, privacy and confidentiality of information.
- 2 Three from:
  - It is key to safeguarding individuals and protecting them from harm, abuse and neglect.
  - It improves the quality of service provision, which in turn leads to positive outcomes.
  - Failing to comply with behavioural standards could result in noncompliance with the contract of employment, which may lead to a warning or dismissal.
  - Failing to comply with behavioural standards could result in deregistration for registered professionals.

## A11.11 The types of support for managing positive behaviour

Now test yourself: page 127

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- 1 One from:
  - contract of employment
  - workplace code of conduct
  - professional code of conduct.
- 2 One from:
  - whistleblowing policy
  - social media policy
  - equality and diversity policy.

## A11.12 What is meant by a conflict of interest and how to deal with this while practising healthcare

Now test yourself: page 128

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- 1 Conflict of interest is a situation where the interests of a professional, employee or organisation are in conflict with the interests of a patient. It can also be when a service provider has a personal relationship with a service user, with whom they should only have a professional relationship.
- 2 For example:
  - A patient must have their appointment cancelled because staff have to be used elsewhere.
  - A patient has to wait for their surgery because a more serious emergency case happens.
  - A patient gives a large gift of money to a trusted person looking after them.

Exam practice: page 128

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- 1 Proportionality means taking actions that reflect the seriousness of the potential risk of harm. [1]Taking disproportionate or over-the-top action can be harmful in itself, as it may compromise the rights of individuals and interfere with their ability to make decisions for themselves. [1]
- 2 Rufus should use the NHS England Safeguarding app. [1]He can access it 24 hours a day, on his smartphone or tablet. It gives information on safeguarding procedures, specific details about domestic abuse and safeguarding, as well as relevant legislation and further contacts. [1]  
He could also look at the NICE guidelines on domestic abuse, which are evidence based and make recommendations about best practice. [1]NICE also has quality standards, which are

priority areas for quality improvement, and there are standards on domestic violence and abuse. [1]

3 Example answer:

- a Adults being cared for in their own homes [1] and individuals with learning disabilities [1]
- b Adults being cared for in their own homes may be older adults and therefore lack capacity to understand what is happening to them and that it is wrong. They may be socially isolated, and so will not have the social support network to make a disclosure to or may feel that no one cares. [1] They are usually cared for by lone workers, so there is no one to witness the care they are given, and therefore any abuse that might take place. [1]

Individuals with learning disabilities may also have physical health issues or impairments, [1] which will put them at a physical power disadvantage, meaning they could be easier to push around. [1]

- 4 Raj might suspect physical abuse, as the woman has an injury. [1] This may be part of domestic abuse, which is when an intimate partner may abuse you in your own home. As the woman is fearful of her partner, this seems likely. [1] As part of this, it seems that the woman may be experiencing coercion and control, [1] as the partner does not want her to be on her own. He is watching over her. [1]
- 5 When communicating with the individual, consider confidentiality but balance it with risk. It is acceptable to break confidentiality if harm will occur if you do not. [1] Document what they say word for word and impartially, if possible; use the designated form for this. [1] Preserve any evidence, for example clinical photography of any visible injuries and bruises. [1] Follow the procedure for reporting the disclosure and know whom to report to and the report line that disclosure will follow. Do not intervene unless there is immediate or imminent danger. [1]
- 6 First, the Prevent duty is a legal duty placed on organisations, such as hospitals, to have due regard for the risk of radicalisation in their local area and within their organisation. [1] Second, everyone who works in healthcare has a responsibility for safeguarding, and we must safeguard individuals from radicalisation, therefore everyone should have Prevent training. [1]
- 7 Johann's manager can help him to create a personal development plan, to outline areas where he can develop and learn new things in his job. [1] If his performance is considered to be unacceptable in a particular area, he can also be given a performance improvement plan. [1] This will pinpoint what he needs to improve and will show exactly how he should do this and what support will be put in place, for example training courses or working with a mentor. [1]
- 8
  - a This is a conflict of interest. [1]
  - b Abraham should not care for someone he has a personal relationship with, because his feelings for the person may mean he cannot be objective when giving care. [1] Abraham should act with integrity and report this conflict of interest to his senior,

so his relative can be assigned to a different practitioner. [1] He should be open and honest with his relative, explain that this is a conflict of interest and make sure they understand what action he is taking. [1]

# My Revision Notes: Health T Level

## B1 Core science concepts

### Cells

#### **B1.1 The three principles of cell theory**

#### **B1.2 The different types of cells that make up living organisms**

Now test yourself: page 129

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- 1 Structure refers to how elements are organised in a part or system; function refers to the role of a part or system – what it does.
- 2 Cells cannot be created out of nothing; they have to be formed from other cells.
- 3
  - a Prokaryotic = a bacterium; eukaryotic = a human cell/yeast cell/plant cell/fungal cell
  - b Two from:
    - Prokaryotic cells have DNA in the cytoplasm, eukaryotic cells have DNA in the nucleus.
    - Prokaryotic DNA is not associated with proteins, eukaryotic DNA is associated with histone proteins.
    - Prokaryotic cells do not have membrane-bound organelles, eukaryotic cells do have membrane-bound organelles.

#### **B1.3 The structure and function of the organelles found within eukaryotic cells**

Now test yourself: page 131

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- 1 The nucleus is enclosed by a double membrane that contains pores. It contains the chromosomes that consist of DNA and protein.
- 2 The rough endoplasmic reticulum has ribosomes attached to the surface.
- 3 Lysosomes break down excess or worn-out cell components; they can also be used to destroy invading pathogens (bacteria and viruses).

## B1.4 The structure and function of specialised cells in complex multicellular organisms

Now test yourself: page 133

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- 1 Embryonic stem cells can differentiate into any type of body cell; adult stem cells can only differentiate into one type of specialised cell.
- 2 Specialised cells are cells that have differentiated to fulfil a specific function.
- 3 Sperm cells have a head containing the haploid nucleus and acrosome (for penetration of the egg cell) and a tail consisting of a flagellum. They contain many mitochondria for movement.

## B1.5 The role of a light microscope and how to calculate magnification

Now test yourself: page 134

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- 1  $90 \text{ mm} = 90\,000 \text{ }\mu\text{m}$  (or  $3.6 \text{ }\mu\text{m} = 0.0036 \text{ mm}$ ) (carry out either conversion to make sure you are working in the same units)

$$\frac{90\,000}{3.6} \text{ (or } \frac{90}{0.0036}\text{)}$$

Magnification = 25 000×

Exam practice: page 134

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- 1 C – A living thing comprised of a single, basic cell.
- 2 Mitochondria are responsible for the production of ATP/aerobic respiration.
- 3 Multicellular organisms have many cells, and different cells are specialised to have different functions.

## Cell cycle

### B1.6 The function of mitosis in nuclear division within cells

### B1.7 The purpose of each stage of the cell cycle

Now test yourself: page 135

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- 1 Mitosis is a type of cell/nuclear division that produces two genetically identical daughter cells.
- 2 Interphase always precedes mitosis because DNA is replicated during interphase.

Exam practice: page 135

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- 1 Chromatids separate during anaphase [1] and daughter nuclei are produced in telophase [1].
- 2 The last stage of mitosis/telophase produces two daughter nuclei [1], but cytokinesis leads to the formation of two daughter cells [1].
- 3 Mitosis would produce daughter cells that contain the same damaged DNA [1]. This might lead to cancer [1].

## Large molecules

### B1.8 The molecular structures of the large molecules and how they are used within the body

Now test yourself: page 137

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- 1 Primary structure is the sequence of amino acids in a polypeptide chain.  
Secondary structure is the way the polypeptide chain is folded.  
Tertiary structure is the three-dimensional shape of a protein.  
Quaternary structure is the formation of a functional protein from two or more polypeptide chains.
- 2 A disaccharide is made up of two monosaccharides joined by a glycosidic bond.
- 3 In a phospholipid, one of the three fatty acids in a triglyceride has been substituted by a phosphate-containing group.

Exam practice: page 137

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- 1 Condensation [1]
- 2 Glycogen consists of thousands of glucose units [1], and glucose is used in respiration as a source of energy [1].

- 3 Phospholipids have a hydrophobic tail and hydrophilic head [1], so the hydrophobic tails come together and face inwards [1] and the hydrophilic heads face outwards [1].

## Enzymes

### B1.9 The properties and functions of enzymes that are determined by their tertiary structure

Now test yourself: page 139

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- 1 The substrate is the substance on which an enzyme acts to form the products. The active site is the part of the enzyme where the substrate binds.
- 2 As temperature rises from 0°C to 30°C, the rate of reaction increases because chemical reactions get faster as temperature rises. Above 30°C, the shape of the active site starts to change, so the substrate no longer fits properly and the rate of reaction slows. Eventually, the enzyme loses its shape completely and the rate of reaction falls to zero.

Exam practice: page 139

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- 1 Heat from the radiator would change the shape of the active site [1]. The substrate would no longer be complementary to the active site [1], so the enzyme would lose activity [1].
- 2 Increased acidity will change the tertiary structure of the amylase [1], so it will no longer be complementary to the substrate [1].
- 3 Thrombolytics have an active site complementary to fibrin [1] but not complementary to other blood proteins [1].

## Exchange and transport mechanisms

### B1.10 How the surface area to volume ratio and additional factors affect the rate of exchange and give rise to specialised systems

Now test yourself: page 139

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- 1 Surface area =  $2 \times 2 = 4 \text{ cm}^2$  for each face; a cube has 6 faces, so total surface area is  $24 \text{ cm}^2$   
 Volume =  $2 \times 2 \times 2 = 8 \text{ cm}^3$   
 Surface area to volume ratio is  $24 \div 8 = 3:1$

## B1.11 The structure of the cell-surface membrane and mechanisms of cellular exchange and transport

Now test yourself: page 141

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- 1
  - a Facilitated diffusion
  - b Active transport
  - c Simple diffusion
- 2 Osmosis

Exam practice: page 141

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- 1
  - a Surface area of one face =  $5 \times 5 = 25 \text{ cm}^2$   
 Total surface area =  $25 \times 6 = 150 \text{ cm}^2$  [1]  
 Surface area to volume ratio = 150:125 or 1.2:1 [1]
  - b Cube B would have the greatest rate of exchange [1] because it has a higher surface area to volume ratio [1].
- 2 B – Diffusion
- 3 The dye cannot diffuse through the phospholipid bilayer because it is a polar molecule [1], so it must be taken up using a carrier or channel protein [1]. Because all of the dye is taken up, it must be moved against a concentration gradient [1] and so it must be taken up by active transport [1].

## Genetics

### B1.12 The purpose of deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) as the carrying molecules of genetic information

### B1.13 The relationship between the structure of DNA and RNA and their role in the mechanism of inheritance

Now test yourself: page 143

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- 1 A gene is a sequence of bases in DNA that codes for a polypeptide.
- 2 A nucleotide is formed from pentose, a nitrogen-containing organic base and a phosphate group.
- 3 They both have pentose/phosphate/base. DNA nucleotides have deoxyribose and thymine (T); RNA nucleotides have ribose and uracil (U).

## Exam practice: page 143

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- 1 C – RNA contains C, G, A and U.
- 2 Changing one base will change the base sequence [1], which will change the sequence of amino acids/primary structure of the protein [1]. This will change the tertiary structure of the protein [1] and may change the function of the protein which determines the characteristics of the organism [1].

## Immunology

### **B1.14 The characteristic of key microorganisms**

### **B1.15 The definition and types of pathogen, including common types of condition/disease caused by them**

## Now test yourself: page 144

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- 1 Fungi, protists, most bacteria but not viruses
- 2 Toxoplasmosis, yeast infection (thrush) and malaria are caused by eukaryotic pathogens. (Chlamydia is caused by a bacterium which is a prokaryote, Creutzfeldt–Jakob disease is caused by a pathogenic protein, and mumps is caused by a virus, which is acellular.)
- 3 Bacterial – chlamydia, gonorrhoea or tuberculosis; viral – common cold, mumps, measles

### **B1.20 The role of non-specific and specific defences to protect the body against invasion from a foreign substance**

### **B1.21 The differences between cell-mediated immunity and antibody-mediated immunity**

### **B1.22 The role of T and B memory cells in the secondary immune response**

## Now test yourself: page 148

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- 1
  - a They engulf and destroy pathogens.
  - b They produce antibodies that bind to and neutralise antigens on pathogens.
  - c They destroy infected cells.
- 2 Memory cells remain in the body and trigger a stronger and more rapid immune response if they encounter the same antigen in the future. This can prevent a second infection, or prevent infection developing into disease.

## Exam practice: page 149

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- 1 B – A protein on the surface of the patient's own red blood cells
- 2
  - a Three from: Spread of infection will be reduced by good ventilation [1], lack of overcrowding [1] and wearing face masks [1]. Because infective droplets only contain a few bacteria, exposure may need to be long before enough bacteria are inhaled to cause infection [1].
  - b Longer exposure will increase the risk of infection [1].
- 3 The first line of defence (the skin) has been broken, meaning that the wound could become infected [1]. Cleaning with antiseptic would reduce the risk [1], but the patient should also be offered vaccination against soil-borne pathogens [1]. They should be monitored in case of bacterial infection. If this occurs, they should be given a course of antibiotics [1].

## Epidemiology and health promotion

### B1.25 What is meant by epidemiology and some specific terminology that is used

#### Now test yourself: page 150

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- 1 Incidence is a measure of the rate at which new cases of a medical condition occur. Prevalence is the proportion of a population affected by a medical condition at a specific time.
- 2 Morbidity is any physical or psychological state that is thought to be outside of normal wellbeing. Mortality means death caused by a particular disease.

## Exam practice: page 151

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- 1 Three from: Mathematics allows a systematic approach to counting the number of cases [1] and calculating rates of increase or decrease [1]. Statistics allows comparisons to be made between groups [1] and to determine if there are significant differences [1].
- 2 Campaigns could raise awareness of the risks [1], as well as behaviours to reduce risk [1]. The target audience could be reached through the use of social media [1], as well as through schools/colleges [1].
- 3 This question would be marked on level of response. Points to include: Vaccination can give immunity and prevent spread, but it may not be possible to deliver an effective vaccination programme to disadvantaged communities or in developing countries. Antibiotic treatment can cure TB, but the need for long-term treatment means that the cost may be too high and patients may not take their medication for long enough to be effective. Droplet transmission is worse in crowded living conditions, so public health measures such a

provision of adequate housing or increased ventilation and reducing overcrowding may be more effective in preventing spread of TB.

## Homeostasis and physiological measurements

Exam practice: page 153

- 1 C – Negative feedback works to maintain physiological parameters within a narrow range.
- 2 Negative feedback acts to maintain the normal body temperature within a narrow range [1]. 34°C is well below the normal range [1]. The fact that body temperature continues to fall shows that negative feedback mechanisms are not working [1].

## Particles and radiation

Exam practice: page 155

- 1 B – Alpha radiation contains helium nuclei and gamma radiation is a form of electromagnetic radiation.

## Units

### B1.34 How to convert units of measure

Now test yourself: page 156

Convert from	Convert to	Answer
1500 mm	m	1.5 m
250 $\mu\text{m}$	mm	0.25 mm
0.00005 m	mm	0.05 mm
0.0035 L	mL	3.5 mL
25 $\mu\text{L}$	mL	0.025 mL
650 $\text{cm}^3$	L	0.65 L
225 mg	g	0.225 g
0.03 g	$\mu\text{g}$	30 000 $\mu\text{g}$
3.7 $\mu\text{g}$	g	0.0000037 g

## B1.35 The importance of using significant figures and science notation

Now test yourself: page 157

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1

- a  $5.8 \times 10^{-4}$
- b  $2.5 \times 10^{11}$
- c  $1.353 \times 10^5$

2

- a  $3.625 \times 10^5$
- b  $1.8125 \times 10^7$
- c  $5.25 \times 10^{-1}$
- d  $5.77 \times 10^{-3}$
- e 100 or  $1 \times 10^2$

Exam practice: page 157

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- 1 For an 84 kg volunteer, 5 mg per kg = 420 mg per day [1]  
6 weeks = 42 days, so total drug required =  $420 \times 42 = 17\,640$  mg [1] = 17.64 g [1]
- 2  $39\,000\,000 \div 331\,449\,000 = 0.1176$  [1]  $\times 100\,000 = 11\,766 = 1.18 \times 10^4$  per 100 000 population [1]

# My Revision Notes: Health T Level

## B2 Further science concepts in health

### Musculoskeletal system

#### B2.1 The structure and function of the musculoskeletal system

Now test yourself: page 160

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- 1 Humerus, radius and ulna
- 2 Femur, tibia and fibula
- 3 In fibrous joints, the bones are fused together; in cartilaginous joints, the bones are connected by relatively flexible cartilage.
- 4
  - a Myosin
  - b Actin, tropomyosin and troponin

#### B2.2 The process of muscle contraction

Now test yourself: page 161

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- 1 Calcium ions bind to troponin, which causes tropomyosin to expose the myosin-binding sites on actin so that myosin can form cross-bridges.
- 2 ATP binds to the myosin head, breaking the cross-bridge and providing energy to return the myosin head to its normal position.

#### B2.3 The development, impact and management of rheumatoid arthritis

Now test yourself: page 162

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- 1 An autoimmune disease is caused when the immune system attacks the body's own cells and tissues.
- 2 They suppress the immune system.

Exam practice: page 163

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- 1 B G I H D C A F E [all correct – 3 marks; 1/2 mistakes – 2 marks; 3/4 mistakes – 1 mark]
- 2 Four from: Deletions in the amino acid sequence would change the structure of dystrophin [1], which would prevent it from functioning correctly [1]. This could mean that the muscle

fibre would become unstable [1] or the sarcomere would not shorten correctly [1]. This could cause muscle weakness [1].

## Cardiovascular system

### B2.5 The role of the components in performing the functions of the cardiovascular system

Now test yourself: page 165

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- 1 Bicuspid, tricuspid, aortic and pulmonary
- 2 Similarities: both have connective tissue sheaths and layers of elastic tissue and muscle in the walls.  
Differences: arteries have thicker walls with more elastic tissue and muscle; veins have a larger lumen and thinner walls.
- 3 The blood passes twice through the heart for every pass around the body.

### B2.6 The process of the cardiac cycle

Now test yourself: page 168

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- 1 Systole is contraction of the atrium or ventricle.
- 2 The QRS complex represents ventricular systole.
- 3 When the pressure in the aorta is higher than in the ventricle, the valve closes.

Exam practice: page 169

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- 1 Blood enters from the pulmonary vein into the left atrium [1], then passes via the mitral/bicuspid valve into the left ventricle [1]. Contraction of the ventricle increases the pressure [1], which forces the mitral/bicuspid valve to close [1] and the aortic/semi-lunar valve to open [1], so blood is forced into the aorta [1]. As the pressure in the aorta rises, the aortic/semi-lunar valve closes [1].
- 2
  - a Statins will decrease levels of cholesterol, reducing the risk of blockages [1]. Blood-thinning medication will also reduce the risk of thrombosis [1]. Both treatments have side effects [1] and will have to be taken for the rest of the patient's life [1], but the risk of heart attack would be much greater than the risks associated with the medication [1].
  - b The patient should reduce body mass [1], stop smoking [1] and take regular exercise [1].

## Respiratory system

### B2.8 The role of the components in performing the functions of the respiratory system

Now test yourself: page 171

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- 1 Air is taken into the trachea, then to the bronchi, then to the bronchioles and finally to the alveoli.
- 2 In forced expiration, the internal intercostal muscles contract; expiration at rest is a passive process.

Exam practice: page 172

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- 1
  - a Inflammation of the bronchioles will reduce their diameter [1], restricting airflow to the alveoli [1]. This will reduce gas exchange in the alveoli [1] and so less oxygen will enter the blood, leading to a fall in blood oxygen levels [1].
  - b Do they smoke [1] and how much do they smoke [1].
  - c Stop smoking [1], bronchodilator inhalers to relax and widen the airways [1] and steroid inhalers to reduce inflammation if bronchodilators are not effective [1]
  - d A short course of oral steroids [1] could be prescribed, but if that is not effective, surgery may be required [1] to remove diseased tissue and ease breathing [1]. In extreme cases, a lung transplant may be necessary [1].
  - e Pulmonary rehabilitation combines exercise [1] with education [1] in a series of group sessions over several weeks [1] and can provide emotional and psychological support [1].

## Digestive system

### B2.11 The role of the components in performing the functions of the digestive system

Now test yourself: page 174

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- 1 Physical digestion helps to break down food into smaller pieces.
- 2
  - a Amino acids
  - b Monosaccharides
- 3 They must have an acidic optimum pH.

## Exam practice: page 176

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- 1 Amino acids are the products of protein digestion [1]. Active transport of sodium ions [1] out of the cells reduces their concentration [1]. This means that sodium ions diffuse down a concentration gradient from the gut into the cell [1], bringing amino acids with them by co-transport [1]. Amino acids then diffuse into the blood by facilitated diffusion [1].
- 2 Six from: Crohn's disease involves damage to the gut [1]. This would disrupt the uptake of glucose [1] and amino acids [1], so they would remain in the gut [1]. This would exert an osmotic pressure [1], so less water would be absorbed from the gut [1], leading to diarrhoea [1].

## Endocrine system

### B2.14 The role of the components in performing the functions of the endocrine system

#### Now test yourself: page 178

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- 1
  - a FSH, produced in the pituitary
  - b Oestrogen, produced in the ovaries
  - c Cortisol, produced in the adrenal cortex

## Exam practice: page 180

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- 1 She should learn how to monitor her blood glucose [1] and adjust her dose of insulin [1] so that she feels more in control of her condition [1]. She should also be encouraged to eat a healthy diet [1] because this will help maintain a proper blood glucose concentration [1], as well as reducing the risk of developing eating disorders [1].
- 2 The first option should control his blood glucose concentrations [1] and also increase his general health [1] and lower his risk of cardiovascular disease [1]. Like all medication, metformin might have side effects [1] but may control blood glucose more effectively [1]. Whichever option is chosen, it is important that his diabetes is controlled to avoid long-term complications [1].

## Nervous system

### B2.17 The role of the components in performing the functions of the nervous system

### B2.18 The mechanism of nerve impulses via neurones

Now test yourself: page 183

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- 1 Sensory, relay and motor
- 2 An action potential is when the membrane of a neurone depolarises and then repolarises. A nerve impulse occurs when an action potential is propagated along a neurone.
- 3 The nerve impulse jumps from one node of Ranvier to the next.

Exam practice: page 184

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Parkinson's disease affects nerve cells in the brain that make dopamine. Levodopa helps to control symptoms by increasing the amount of dopamine in the brain. Most patients report improvements in symptoms. Levodopa does not slow the progression of the disease, as 75% of patients develop involuntary muscle movement within 10 years. Levodopa has side effects, including nausea (90% of patients) and abnormal muscle movement (65% of patients). DBS targets areas of the brain with electrical signals and changes brain activity. 80% of patients said it improved their symptoms, but this could be subjective. There is no data about long-term effectiveness of DBS. Side effects were less common with DBS than with levodopa, although side effects such as deep infection and seizure might be more serious. DBS is invasive (requires brain surgery under general anaesthetic) and has risks such as bleeding or stroke. There is no information about the size of each group of patients and it is hard to determine whether side effects are more serious with one treatment than the other. DBS is usually only offered to patients who do not/no longer respond to medication. It would be necessary to carry out a clinical trial comparing the two treatments in matched patients to decide which was better.

## Renal system

### B2.20 The role of the components in performing the functions of the renal system

Now test yourself: page 186

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- 1 Urea is produced in the liver and transported to the kidneys via the renal artery where it passes into the nephron. This leads to the collecting duct into the ureter and then into the bladder where urine is stored, before leaving the body via the urethra.

- 2 Ultrafiltration
- 3 Large proteins and erythrocytes

## B2.21 The mechanism of osmoregulation

Now test yourself: page 186

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- 1 The PCT and the collecting duct
- 2 ADH makes the walls of the collecting duct more permeable to water, so that more water can move by osmosis out of the collecting duct.

Exam practice: page 188

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- 1 The glucose will reduce the water potential of the filtrate [1]. This means that less water can be reabsorbed in the collecting duct [1], so a larger volume of urine will be produced [1].
- 2
  - a The filtrate flows in opposite directions [1] in the descending and ascending limbs [1].
  - b Active transport of sodium and chloride ions [1] transfers them from the ascending limb into the descending limb [1]. This means that the concentration of solutes is highest at the bottom of the loop of Henle [1], and so there is a water potential gradient from the collecting duct into the medulla [1], so water moves out of the collecting duct by osmosis [1] for the whole length of the collecting duct [1].
- 3
  - a High pressure in the glomerulus forces fluid out of the blood [1], forming the filtrate that contains small molecules such as urea [1].
  - b The walls of the PCT are a single cell thick [1] and have a large surface area for absorption [1]. The cells contain many mitochondria for active transport [1] and contain carrier proteins that facilitate movement of glucose or amino acids across the cell-surface membrane [1].
- 4
  - Advantages of dialysis, two from: less invasive treatment [1]; lower initial cost than transplant [1]; does not depend on availability of donated kidney [1]; can quickly improve symptoms [1].
  - Disadvantages of dialysis, two from: increased risk of infection [1]; can have side effects such as nausea, vomiting and low blood pressure [1]; requires frequent hospital visits confined to a machine for a long time [1]; patients have shorter life expectancy [1].
  - Advantages of transplant surgery, two from: better long-term survival rates [1]; will improve the patient's quality of life in the long term [1]; can be more cost effective than dialysis in the long term [1].
  - Disadvantages of transplant surgery, two from: shortage of organs for transplant means long waiting times [1]; requires major surgery [1]; organ rejection requires use of immunosuppressive drugs [1] that can weaken the patient's immune system [1].

## Integumentary system

### Exam practice: page 190

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- 1 Epidermis [1] and dermis [1]
- 2 Sweat glands are involved in excretion of urea and mineral ions [1] and in cooling the body [1].
- 3 Two from: it acts as a physical barrier to infection [1]; exocrine glands and benign bacteria living on the skin help protect against infection by pathogens [1]; sebaceous glands/sebum make the skin slightly acidic and that helps protect against pathogens [1].
- 4 Nine from: ceramide cream might reduce symptoms by replacing naturally occurring ceramide [1]. Benign bacteria help protect against pathogens, so probiotics may replace these and reduce the risk of infection [1]. Emollients can be used with mild eczema [1], but corticosteroids may be required for more severe forms [1]. Different strengths of corticosteroid creams can be used to control flare-ups [1]. However, corticosteroids have side effects and may not be suitable for long-term use [1].  
Dietary/environmental/behavioural changes can remove triggers of eczema [1] and they are unlikely to have any side effects [1]. The long-term effects of ceramide/probiotic creams may not be known [1]. Different treatments may work better for some patients than for others [1]. Mental health support and education may help patients manage their condition [1].  
[You will be awarded up to 3 QWC marks for the quality of your written communication, including the use of appropriate technical language.]

## Reproductive system

### B2.26 The role of the components in performing the functions of reproductive systems

#### Now test yourself: page 192

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- 1 Sperm move along the vas deferens towards the urethra, where they are mixed with fluids produced by the seminal vesicles and prostate, forming semen. Semen is ejaculated by the penis into the vagina during sexual intercourse. Sperm then swim up the vagina, passing through the cervix into the uterus and on into the Fallopian tubes where they encounter an egg cell, after which fertilisation may occur.
- 2
  - a Two from: the cervix helps to retain the developing foetus in the uterus, protects against entry of pathogens into the uterus, and allows the passage of sperm.
  - b The male urethra transports semen during sexual intercourse and connects to the bladder to provide an exit for urine.

## B2.27 The role of hormones in the reproductive systems

Now test yourself: page 193

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- 1 In males, LH stimulates secretion of testosterone by the testes. In females, LH stimulates the ovaries to produce sex hormones and the LH surge causes ovulation.
- 2 The corpus luteum and the placenta secrete progesterone.

Exam practice: page 195

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- 1
  - a Transvaginal ultrasound could be used [1], but laparoscopy would be necessary to identify lesions or adhesions [1].
  - b Any four from: pain-relief medication may not be fully effective [1] and can have side effects, such as stomach irritation [1]. Hormone therapy will reduce production of hormones that regulate menstruation [1] and make periods lighter and shorter [1], which will decrease growth of endometrial tissue [1]. However, this may not be suitable if the woman is trying to conceive [1].
- 2 This question would be marked according to the level of response in four bands (0, 1–3 marks, 4–6 marks and 7–9 marks), taking account of AO1 (knowledge and understanding), AO2 (application of knowledge) and AO3 (evaluation).  
 For the highest band, your answer would have to include a wide range of relevant knowledge and understanding (AO1) of IVF, including the points listed here, but you would also get credit for any additional knowledge that you have that goes beyond the specification (as long as it is accurate!).  
 For AO2 you could suggest that, in an older woman, there would be reduced probability of producing sufficient embryos of high quality and therefore a need to transfer more embryos, which could lead to multiple pregnancy with its associated risks.  
 To cover AO3, you might conclude that there is increased risk of pregnancy complications in older women. However, pregnancy at any age carries risk for the mother and the foetus and IVF can improve outcomes in these situations. Genetic screening of the embryo before transfer could avoid chromosomal or other genetic conditions that are more common in pregnancy with older women, although some people disagree with genetic screening on ethical or religious grounds. Overall, the priority would be to reduce the risk to the patient and her unborn child. You might also point out that there is no information about the cause of infertility and that this might not be addressed by IVF. Also, the effect on the mental health of the woman should be considered, and whether this would be improved or made worse by IVF.  
 The maximum QWC (quality of written communication) marks would be for an answer that is expressed clearly using correct grammar and a wide range of appropriate technical terms.

## Cancer

### B2.30 The difference between benign and malignant tumours

Now test yourself: page 196

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- 1
  - a solid
  - b cancerous
  - c uncontrolled
- 2 Benign tumours are slow growing, so are not cancerous, but they could cause a blockage or damage to tissues, or become cancerous.

Exam practice: page 200

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- 1 Proto-oncogenes [1] and tumour-suppressor genes [1]
- 2 Benign
- 3
  - a A high-grade tumour grows quickly and aggressively [1] but responds well to prompt treatment and can often be cured [1].
  - b Any six points from: Radiotherapy may be effective provided the disease has not spread to other parts of the body [1]. High-dose chemotherapy will destroy their immune system [1] and leave them even more susceptible to infection [1] until they can have a bone marrow transplant [1]. It may take time to find a compatible bone marrow donor [1]. Monoclonal antibody therapy will reduce the effectiveness of their immune system [1] but only temporarily [1] until their B lymphocytes are replaced by their own bone marrow [1] so they will not need a transplant [1]. However, monoclonal antibody therapy is likely to be more expensive [1]. Either course of treatment has a good chance of curing the disease [1].