

# Cambridge Advanced National in H&SC AAQ Revision Guide – Answers

## Unit F090

### 1: Equality, diversity, and rights in health and social care settings

#### Assessment Practice – Page 21-22

1. Two of: Personalised care plans, providing translators or interpreters, training staff.
2. Have information in simple writing and pictures (1) such as pictures of a toilet on the toilet door (1).
3. Two of: Playing culturally appropriate languages gives them confidence that their culture is being considered; It will make them feel more relaxed which will improve their health and wellbeing; it supports their identity making them feel at home and accepted.
4. Two of: It will make service users from different cultures feel represented; the staff group will be able to look at things from different points of view making discrimination less likely; individuals may feel more comfortable discussing their personal concerns with someone from the same background.
5. Three of:
  - Making the setting physically accessible e.g. ramps
  - Employing staff from different backgrounds to represent diversity of service users
  - Provide staff training
  - Provide translation services
  - Provide menu choices to match diversity
6. A and D
7. Two of: It is the right of the individual to not have their private information shared without their consent; maintaining confidentiality makes the person more confident in the service; confidentiality breaches can cause distress; confidential information could be used to take advantage of vulnerable individuals.
8. Two of: the decision may not meet their needs if their wishes have not been considered; the person will feel disempowered; it will give them more confidence in the service.
9. Three of: Giving everyone the same access to high quality services; preventing discrimination; consider an individual's needs when providing a service; treat everyone with respect and dignity; consult with individuals before making decision that affect them.
10. C and E.
11. They may not feel comfortable going to an area that does not reflect their status; they may not be able to travel to the unit easily; they may not get screening so any conditions like cancer will not be diagnosed.
12. Taking account of different education levels will mean that information is presented in a way that the individual can understand; health advice is more likely to be followed if it is understood so health outcomes are likely to be better.
13. Not meeting care and support needs; for example, not giving them food, or not taking them to the toilet when they need it.
14. Two of: discrimination can lead to neglect; it can lead to a person's needs being misunderstood; the individual may not understand health advice given to them because

their communication needs have been misunderstood; they can deliberately not be given the care they need due to discrimination.

15. No support given to manage their own finances leaving them without benefits.
16. The person doing the discrimination may physically abuse the individual causing harm; the upset caused by the discrimination may lead them to self-harm to make them feel more in control.
17. Three of: it causes stress that affects health; not getting the correct treatment leads to worsening health; can lead to unhealthy behaviours due to smoking and drinking; they may not be able to access health care because of the discrimination.
18. Unfair treatment can lead to the individual not getting the treatment they need; this will worsen their condition both physically and mentally; this leaves them unable to work and earn money.
19.
  - A. **What the centre does well –**
    - Disabled access
    - Translation service
    - Leaflets available in different formats
    - Training for staff and canteen available
  - Ways it could improve –**
    - No mention of training in equality and different people's needs
    - No provision for deaf people
    - Menu does not consider different cultural and health needs
  - B. Taking account of Ralph's hearing impairment will help him communicate; being able to communicate will help him connect with others; providing activities that suit people with hearing impairment will help him get involved; providing food that supports his dietary needs (gluten free food) will support his physical health; Ralph will have more confidence in the service if he knows his unique needs have been taken into account.

20.
  - A. Answers can include the following:
    - Sarah getting bruises on her arms when being moved is a breach of health and safety.
    - Not providing cultural options on the menu is indirect discrimination because the policy of the home is accidentally disadvantages some groups over others.
    - Being openly mocked is direct discrimination, is intentional and is a form of verbal abuse or bullying.
    - Being patronising towards Edith is due to stereotyping.
  - B. Answers can include the following:
    - Training raises awareness so that staff won't discriminate unintentionally because they have not taken a particular need into account.
    - It will give ideas on how to ensure that everyone's needs are met and people are not being discriminated against.
    - It challenges people's existing prejudices.
    - It promotes a culture within the home of promoting equality and not tolerating discrimination.
  - C. Marks as per marking grid but could include the following points:

- **Practices that promote equality:**
- Some staff are aware of the need for different menu options.
- The home celebrates festivals from different cultures.
- There are plans for all staff to attend diversity training.
- **Examples of discrimination:**
- Rough handling during moving and handling – a breach of health and safety
- Not providing cultural choices – prejudice based on culture and religion.
- Openly mocking menu choices of Sarah – open discrimination which is verbal abuse.
- Making Rachel wait for support on the grounds of her low socioeconomic status is prejudice and direct discrimination.
- Patronising Edith due to stereotyping.
- **Overall judgement:**
- Overall, the home is not doing well at preventing discrimination. It does look like it is trying to address the issue with training, but it will need to do a lot more.

## 2: Managing hazards, health and safety in health and social care settings

### Assessment Practice – Page 33

1. One mark each up to a total of three:
  - Blood
  - Urine
  - Faeces
  - Vomit
  - Bacteria
  - Fungi
  - Viruses
2. One mark each up to a total of two:
  - Clinical waste bins
  - Sharps boxes
  - Sluice
  - Wear PPE
  - Good hygiene
  - Incinerate biological waste
3. One mark each up to a total of two:
  - Confused e.g. due to dementia
  - Very young e.g. babies in a maternity unit
  - Mental health patients
4. One for each point up to a total of 2.
  - Time off work for staff
  - Death
  - Long healing time
  - Reduced confidence
  - Reduced mobility
5. One mark for each point up to a total of 2.
  - Something put in place to reduce risk
  - Can be new equipment
  - Can be adaptations to the building or a task
  - Can be a new procedure
6. One mark for each up to a total of 2.
  - Wear PPE when in contact with an infected person
  - Wash hands before touching an individual using the service
  - Clean the setting regularly
  - Dispose of clinical waste and body fluids in special bins
7. Three of:
  - Health and safety law poster from HSE
  - Fire exit signs
  - Warning signs such as radiation
  - Fire assembly information
  - Fire evacuation procedures
  - Information on where to dispose of hazardous waste
8. One mark for each up to a total of 2.

- Keep setting clean
  - Tidy clutter to prevent falls
  - Check equipment regularly for faults
  - Replaced worn equipment
9. One mark for each: fire, flood and chemical or gas leak
10. Workplaces with 10 or more employees must use an accident book; all accidents that occur in the setting should be recorded; they are used to look for patterns in accidents.
11. A near miss is an accident that has happened which did not cause harm, but it could have caused harm if circumstances had been slightly different.
12. Three of: Reporting certain accidents is a requirement when registered with the CQC; accidents can be reported online or by email; accidents must be reported on the same day as it happened; serious injuries or deaths due to an accident must be reported.
13. One answer for each valid point up to a total of 3.
- MRSA is an antibiotic resistant bacterial infections often found in hospitals
  - To prevent MRSA the hospital needs to be cleaned regularly and thoroughly
  - When the ward is not thoroughly cleaned, MRSA bacteria can multiply
  - Staff should wear PPE and wash hands regularly to prevent one patient catching infections off another
  - Not following procedures may lead to poor hygiene of the hospital or in the work of the staff
14. Mark as per marking grid. The following could be considered.
- Less pressure on staff to look after the needs of the residents
    - Staff less likely to rush service users causing accidents
    - Procedures more likely to be followed
    - Staff less likely to go off sick causing more staffing issues
  - Staff more able to keep up to date with training
    - Having plenty of staff allows others to take time out to attend training
  - Staff less likely to make mistakes
    - Staff less exhausted and so can concentrate on the job that they are doing
    - Staff more able to follow procedures which reduce the change of mistakes
15. Good health and safety management:
- There is a health and safety policy that is available to read.
  - Risk assessments on the premises are carried out.
  - Hazards are identified such as the worn carpet.
  - Safety measures such as wet floor signs are used.
  - Some health and safety training is being given e.g. fire training.

Poor health and safety management:

- The health and safety policy is not kept up to date.
- Safety concerns are not always acted on e.g. torn carpet not replaced.
- Staff are not receiving training on challenging behaviour.
- The manager does not have time to supervise staff because they are doing general work instead.

### 3: Legislation in health and social care settings

#### Assessment Practice – Page 43-44

1. Treating someone less favourably because of a protected characteristic.
2. One mark for each up to a total of 2. Allow other relevant answers.
  - Not providing a multifaith room in a hospital.
  - Having specific mealtimes.
  - Requiring that meals are taken in a particular place such as a dining room.
  - Not providing information in different formats such as large print.
  - Taking residents on a trip on transport that does not accommodate people with disabilities.
3. Integrated care boards, integrated care partnerships.
4. Integrated care records (ICR).
5. It is illegal to carry out virginity testing in the UK; It is illegal to send a girl abroad to have a virginity test; virginity testing is illegal even if the girl/woman gives her consent.
6. The Laming report.
7. Local safeguarding children boards (LSCB).
8. Two of: the Big Ask, Help at Hand, In My Opinion
9. Three of: lawfulness, fairness and transparency; purpose limitation; data minimisation; accuracy; storage limitation; integrity and confidentiality; accountability.
10. Three of: Name, age, address, medical conditions, living situation, support network details.
11. A data protection officer.
12. Three of: produce health and safety policies; carry out risk assessments; ensure workplace is safe; train staff in health and safety; provide protective equipment where relevant; consult with employees on safety matters; ensure first aid arrangements are in place.
13. B,C and E
14. Avoid moving and handling if possible.
15. Three of: posture needed during the moves; the dangers of not moving hand handling properly; how to move people safely; how to use specific equipment; how to follow a care plan.
16. Three of: chemicals, cleaning agents, urine, faeces, saliva, blood, bacteria, viruses, dust, gases.
17. Two of: Raising awareness of COSHH regulations; how to use hazardous substances safely; how to follow risk assessments; how to dispose of biological hazards; how to handle hazardous substances, when to use equipment when handling hazardous substances.
18. Three of: keep an up-to-date COSHH file; carry out a COSHH risk assessment on all hazardous substances used in the setting; keep the file up to date; review risk assessments annually or if something changes.
19. The Health and Safety Executive.

A, D and E

## 4: Best practice in health and social care settings

### Assessment Practice – Page 53

1. Treating everyone as an individual; acknowledging differences.
2. Information should give benefits and limitations; so, the individual can choose the most appropriate option for them.
3. B, C and E.
4. Take time to explain the issue in small manageable chunks; use easy read leaflets or documents so they can read the information in their own time.
5. Having the skills and ability to do the job well. (1)
6. Two of: continue to learn and gain skills in your line of work; providing outreach services to people who might otherwise not be able to access the service; being available to support individuals while on call; spend time talking to people.
7. Protect individuals from three of:
  - Accidents
  - Illness
  - Abuse
  - Neglect
  - Exploitation
8. Whether they have been convicted of a crime; whether they are barred from working with vulnerable adults or children.
9. Their education will suffer.
10. Where someone tells you that abuse has taken place.
11. Three of: Date and time; name of individual; details of abuse; details of witnesses; details of actions taken.
12. To maintain confidentiality, if you do not need to know the information to do your job you will not be told details of the abuse.
13. Workers can discuss difficulties about best practice so that issues can be resolved.
14. It will inform workers about the best practice ways of working. Training acts as a refresher to keep the best ways of working in mind.
15. Line manager and regulatory body such as the NMC.

## Unit F091

### 1: Cardiovascular system

#### Assessment Practice – Page 67-68

1. Phagocytosis and production of antibodies
  2. B) to carry oxygen
  - 3.
- 

A	Right atrium
B	Aorta
C	Pulmonary artery
D	Left ventricle

4. Bicuspid
5. Semi-lunar, Semi-lunar aortic/aortic
6. Systolic
7. Relaxing
8. SA, AV
9. Contraction of the atria
10. Away, towards, oxygenated, deoxygenated
11. Low blood pressure
12. C. Veins carry blood towards the heart.
13. . Angiogram
14. 8. Two of: Reduce fat/salt intake, stop smoking, reduce stress, exercise, lose weight
15. Anticoagulant
16. Oestrogen
17. One mark for each correct explanation up to a total of three.
  - White blood cells release antibodies which fight infections.
  - Antibodies help other parts of the immune system kill pathogens.
  - White blood cells carry out phagocytosis to destroy pathogens.
  - Phagocytosis is where the pathogen is engulfed by the white blood cell and destroyed.
18. One mark for each correct point made, up to a total of four.
  - When valves are open blood can flow freely through them.
  - When valves are closed blood is prevented from flowing backwards (in the wrong direction).
  - The tricuspid and bicuspid valves allow blood to flow from the atria to the ventricles when open.
  - The tricuspid and bicuspid valves prevent blood flowing backwards from ventricles to atria.
  - The semi-lunar valves (aortic and pulmonary) allow blood to flow freely into the aorta and pulmonary arteries.
  - The semi-lunar valves prevent blood from flowing backwards from the arteries back into the ventricles.
19. One mark for each correct point made up to a total of two.
  - A blood pressure of 140/90 lies within the high range of blood pressure.
  - High blood pressure can cause damage to tissues and organs.
20. One mark for each correct point made up to a total of three.

- During the systolic phase the ventricles are contracting.
  - Contracting ventricles (systolic phase) force blood into the arteries.
  - Blood pressure is high during the systolic phase due to the force of the ventricles contracting.
  - During the diastolic phase the heart muscles are relaxing.
  - When the heart muscles relax, the blood pressure is lower.
  - When the heart muscles relax, blood floods into the heart ready for the next beat.
21. One mark for each correct explanation up to a total of three.
- Veins have wide lumens which reduces friction between blood and vessel walls.
  - Veins have a smooth lining to reduce friction for easier flow of blood.
  - Veins contain semi-lunar valves to prevent back flow of blood.
  - Veins lie close to muscles which squeeze the blood further along the vein when they contract.
22. Mark as per level indicator grid. Answers can include some of the following:
- Physical impacts include:
    - Pain, especially during activity
    - Feeling tired and breathless due to lack of oxygen
    - Less likely to exercise due to pain and breathlessness
  - Intellectual impacts include:
    - Difficult to focus due to pain or discomfort
    - Harder to make decision due to pain and lower oxygen levels
  - Emotional impacts include:
    - Anxiety about condition as risk of heart attack
    - Necessary changes to lifestyle difficult to deal with.
    - Feeling of blame as lifestyle plays a strong role in development of the condition
  - Social impacts include:
    - Avoidance of physical activity reduces opportunities for social interaction
    - Reluctance to go out due to pain and anxiety
    - Withdrawal from social activities due to pain and anxiety.
    - Dependence on others may lead to conflict
23. One mark for each correct point up to a total of four.
- Ultrasound scans use high frequency sound which bounces off tissues and forms a picture.
  - They can show up blood flow through the blood vessels.
  - An ultrasound device (transducer) is passed over the area suspected to have a DVT.
  - Gel is applied to the skin to make the picture clearer.
  - Ultrasound scans can be used to detect and locate DVT.
  - Ultrasound scans can be used to monitor progress of treatments.
24. Mark as per level indicator grid. Answers can include some of the following:
- Treatments include anticoagulant medication, thrombolytics, thrombectomy and filters.
  - Anticoagulant medication:
    - Prevents further clots forming or existing ones getting bigger.
    - They do not get rid of existing clots so other treatments needed.
    - They are useful for preventing new incidences of DVT
    - Can cause excessive bleeding if cut.

- Can interfere with other medication.
  - Can interact with vitamin K.
- Thrombolytics:
  - Break down clot so remove DVT.
  - Use the body's own clot removal systems (enzymes).
  - They are quick acting which reduces damage by the DVT.
  - They can risk excessive bleeding.
  - Not suitable for people at risk of bleeding or haemorrhagic stroke.
- Thrombectomy:
  - Physical removal of the clot using a tube inserted into the vein.
  - Variety of ways clot can be removed including medication, suction and laser.
  - Quick treatment of the clot and reduction of associated risks.
  - Can increase risk of infection at the site of the cut.
- Filters:
  - Use to reduce the risk of pulmonary embolism.
  - Physically block clots from passing into heart via vena cava vein.
  - Useful for patients who cannot take anticoagulant medication.
  - Do not prevent further clots.
  - Can cause clotting at site of the filter.
  - Can fail.

## 2: Respiratory system

### Assessment Practice – Page 78

1. A) the rings of cartilage in the trachea are “C” shaped.
2. High, low
3. Diaphragm contracts, external intercostal muscles contract
4. C) Carbon dioxide moves from the blood into the alveoli.
5. Surface area
6. Cellular respiration
7. Attack, triggers
8. Two of: Smooth muscle contracting (constricting); more mucus; inflammation of the airway walls
9. Peak flow meter
10. Stethoscope
11. B) Fighting off the flu exhausts the immune system so it cannot fight off a bacterial infection in the lungs.
12. The mucus is easier to remove so bacteria-filled mucus does not build up in the lungs.
13. Two of: No energy to go out with friends; need to miss school or work where they would interact with others; strain on close relationships due to the illness.
14. One mark for each correct point up to a total of three.
  - The diaphragm is a sheet of muscles which extends across the body between chest and abdomen.
  - When relaxed the diaphragm is dome shaped, pointing up into the chest cavity.
  - This reduces the volume of the chest cavity.
  - When it contracts it pulls down flat.
  - This increases the volume of the chest cavity.
15. One mark for each linked explanation up to a total of four.
  - Air pressure increases when volume decreases
  - Air pressure decreases when volume increases
  - During inspiration volume of lungs is increased which reduces air pressure in lungs.
  - During inspiration pressure in lungs is lower than atmospheric pressure.
  - During expiration the volume of the lungs is decreased which increases the air pressure in the lungs.
  - During expiration the air pressure in the lungs is higher than atmospheric pressure.
  - Air moves from an area of high pressure to an area of low pressure.
16. Allow one mark for each adaptation and an extra mark for linked explanation up to a total of four.
  - There are many of them causing a large surface area (1) giving more area for gas exchange to occur (1)
  - The walls are one cell thick, therefore very thin (1) which reduces the distance the gases need to diffuse (1)
  - The alveoli are lined with fluid (surfactant) (1) which the gases can dissolve in making diffusion easier (1)
17. One mark for each correct point up to a total of three.
  - Anaerobic respiration is the process of obtaining energy from glucose without using oxygen.
  - Glucose is broken down in the cytoplasm of the cell to release energy.

- Lactic acid is produced as a byproduct of anaerobic respiration.

18. Mark as per level indicator grid. Answers can include some of the following (it is not necessary to include all triggers):

- Chest infections:
  - Cause inflammation of the airways and narrows them.
  - Frequent chest infections damage the airways making asthma more likely.
- Allergies:
  - Stimulates inflammation which narrows airways.
  - Can include allergies to dust, pollen, animal fur and feathers.
- Medicine:
  - Some medicine e.g. aspirin and NSAID medication trigger asthma attacks.
  - People who are sensitive to these drugs should avoid taking them.
- Mould or damp:
  - Mould produces spores which can trigger allergic reactions.
  - The allergic reactions cause inflammation and narrowing of the airways.
  - Damp areas encourage mould to grow.
- Pollution:
  - Pollution such as chemicals and fine particles irritate the airways.
  - This causes inflammation and the muscles around the airways to contract.
  - It is difficult to avoid pollution.
- Temperature:
  - Asthma attacks can be triggered by very cold weather or very hot weather.
  - The extreme temperature causes the muscles of the airways to contract to protect the lungs.
  - Narrowed airways lead to asthma attacks.

19. One mark for each correct point up to a total of three.

- Sputum is the name for mucus that comes up from the lungs and airways.
- Having an infection changes the amount and appearance of sputum.
- Bacterial infections often cause sputum to be yellow or green and increase the amount.
- Sputum can be sent to the laboratory to investigate which bacteria is causing the infection.
- The correct antibiotic can be used to treat the specific bacteria.

20. Mark as per level indicator grid. Answers can include some of the following:

- Flu vaccinations are recommended for people at risk of respiratory infections.
- Max is at risk of respiratory infections due to his age and because he smokes.
- The flu vaccination does not protect against a bacterial infection, as flu is a virus.
- Having flu (a viral infection) tires out the immune system making it easier for bacteria to infect.
- Max could increase his physical activities by doing more exercise.
- More exercise will increase his lung capacity and make his cardiovascular system more efficient at carrying oxygen.
- Exercise will reduce inflammation in the airways.
- Exercise will stimulate his immune system so he can fight off bacterial infections.
- Max should give up smoking as it will reduce his risk of bacterial pneumonia and many other conditions.
- He should make sure he drinks plenty of fluids (not alcohol).

- Being well hydrated will make the mucus in his lungs less sticky and easier to get rid of.

21. Mark as per marking grid. Answers can include the following:

- He should take a preventer inhaler to reduce inflammation of his airways.
- He should always carry a reliever inhaler in case of an asthma attack.
- Both parents should give up smoking.
- They should check to see if he is allergic to the cat and if so find it a new home.
- He can keep a diary of symptoms to identify other triggers and then try to avoid them.
- The family could see if they can move somewhere less polluted.

### 3: Digestive system

#### Assessment Practice – Page 87-88

1. One mark for each correctly identified organ.

Letter	Part of digestive system
A	Liver
B	Stomach
C	Small intestine

2. Pancreas
3. Carbohydrase, lipase
4. Stomach
5. Small intestine
6. One mark for each explanation up to three marks:
- The bacon will be mechanically digested in the mouth and stomach
  - Protease enzymes will begin to digest the protein into amino acids in the stomach
  - Lipase enzymes will complete the digestion of protease enzymes in the small intestine.
  - The protein needs to be broken down into smaller molecules so they are small enough to be absorbed into the blood.
7. One mark for each explanation up to three marks:
- Long length to increase surface area
  - Folded inner surface to increase surface area
  - Small projections (villi) into lumen of small intestine to increase surface area
  - Tiny projections on the cells of the villi (microvilli) to increase surface area
  - Good blood supply to absorb the nutrients.
8. One mark for each description point up to three marks:
- Bile is a pigment made of bilirubin and cholesterol
  - Bile neutralises the acid in the stomach
  - Bile is made in the liver
  - Bile is stored in the gallbladder
  - Bile emulsifies fat (breaks large fat droplets into smaller droplets)
9. One of:
- Component of the cell membrane
  - To make some hormones
  - To insulate the body from cold
  - As an energy store
10. One mark for each correct response:
- A. Fats (or fatty acids and glycerol)
- B. Glucose and amino acids
11. Mark as per marking grid. Answers may include some of the following:
- Polyps are found in the large intestine.
  - They are lumps or growths in the lining
  - They are caused by cells growing too quickly to replace cells that have been worn away by food passing.
  - Sometimes there are no symptoms
  - If they are damaged by passing stools they can cause blood in the stools.
  - They can block the bowel leading to constipation.

- They can cause diarrhoea when blocked as only the liquid part of the stools can pass through.
  - They can cause abdominal pain due to the polyps themselves, damage to surrounding tissues or a build up of trapped stool or gas due to blockages.
12. One mark for each point up to a total of three.
- A colonoscopy is a flexible tube with a camera on the end
  - It is inserted into the bowel by the anus to see bowel polyps
  - The individual must prepare for the test with a certain diet a few days before the test.
  - If bowel polyps are found, they can sometimes be removed with a wire loop during the colonoscopy.
13. One mark for each correct response: colonoscope, wire, loop, cancer
14. Two of the following:
- Long recovery time
  - Risk of damage to bowel or surrounding tissue
  - Risk of excessive bleeding
  - Risk of infection at site of incision (cut).
15. One mark for each of the following up to three marks.
- A high fibre diet keeps the stools moving.
  - Losing weight reduces inflammation
  - Exercising regularly reduces inflammation
  - Stopping smoking reduces damage from harmful chemicals in the cigarette
16. Mark as per grid. Answers may include some of the following:
- Suzanne is female which increases the risk of developing polyps
  - The risk increases over the age of 50 and Suzanne is 52
  - Suzanne does not have time for a healthy diet and so probably eats processed foods and a lot of fat.
  - Suzanne smokes and that increases the risk due to the chemicals damaging the bowel lining.
  - Suzanne has a family history as her aunt has the disease so she may have genes that make bowel polyps more likely to develop.
  - However, Suzanne does not have other conditions such as Crohn's disease.
  - Suzanne has several of the factors that make bowel polyps more likely and they might add together to increase her risk even further.
17. Bilirubin
18. Bile duct
19. One mark for each point up to a total of three.
- Bile is made in the liver
  - The liver also breaks down red blood cells to form the pigment bilirubin
  - Gallstones can affect the function of the liver so that it does not break down bilirubin properly
  - When bilirubin is not broken down, it stays in the blood.
  - Bilirubin is yellow and causes the skin and whites of the eyes to appear yellow
  - Jaundice is when the liver is not working properly
  - Jaundice causes the skin and whites of the eyes to appear yellow.
20. Ultrasound, white, liver
21. Two of:

- Quicker recover time
- Less pain
- Lower risk of infection
- Smaller scars

22. Two of:

- It does not treat the gallstones themselves
- Some people cannot take painkillers such as those with liver problems
- It may not reduce the pain enough

23. One mark for each point up to a total of three.

- Being obese increases the amount of cholesterol in the body
- Gallstones are caused by an imbalance of cholesterol to bilirubin
- Too much cholesterol can cause gallstones
- Being obese makes the gall bladder empty slower
- Slow emptying gall bladders cause concentrated bile which forms stones easier.

24. Mark as per grid. Answers may include the following:

- Losing weight will reduce cholesterol in the body
- Too much cholesterol changes the balance between cholesterol and bilirubin
- Too much cholesterol causes excess cholesterol to form gallstones
- Being overweight causes the gallbladder to empty slowly.
- Losing weight will speed the emptying up.
- Emptying slowly concentrates the bile making stones easier to form.
- Eating a diet high in fibre reduces cholesterol
- Reducing refined sugar reduces insulin spikes.
- High levels of insulin can cause gallstones to form.
- Eating healthy fats like olive oil means the gall bladder will regularly empty so bile will not get concentrated.
- Reducing fat overall will reduce the amount of cholesterol in the body.

25. Mark as per grid. Answers may include the following:

#### **Physical**

- Martin will experience severe pain.
- The pain is likely to be worse because he has a high fat diet
- Fat causes the gall bladder to contract around the stones causing pain
- He may feel nausea
- These factors may make it difficult to work

#### **Intellectual**

- The pain may distract him from intellectual activities
- He may be so tired from working and controlling the symptoms that he has not energy left for intellectual activities

#### **Emotional**

- Martin will worry about his ability to work.
- Not being able to work is more worrying to Martin as he is self employed and does not get sick pay.
- Martin may avoid going to medical appointments due to fear of missing work.

#### **Social**

- The pain and worry of his condition may make him less likely to go to the pub and meet friends.
- He may feel he has to prioritise keeping up to date with his work

## 4: Musculoskeletal system

### Assessment Practice – Page 100

1. Sternum
2. Patella
3. Around the outer edge of the bone.
4. Two of: Smooth movement at joints; flexibility of ribcage; formation of growth plate; structure of nose and ears
5. Ligaments, tendons
6. D) The growth plate is where the articular cartilage connects to the bone.
7. Quadriceps, hamstrings, gastrocnemius
8. Pectorals, deltoid
9. Median nerve
10. It is not effective for severe pain; it can lead to muscle weakness.
11. B) Being overweight increases fat tissue which presses on the median nerve.
12. Two of: Swelling in the joint; heat in the joint; restrictions in movement at the joint; they will feel for bone spurs.
13. Two of: The new joints do not last forever; it is major surgery; longer recovery times; new joint may fail.
14. They work immediately; they can last for several months.
15. Two of: Less force of weight bearing joints so less wearing of the cartilage; losing weight reduces inflammation; improves help overall so the individual is better able to cope with the pain.
16. One mark for each explanation up to a total of four.
  - Bone tissue contains two types of bone cell – osteoclasts and osteoblasts.
  - Osteoclasts break down bone tissue to extract the calcium.
  - If the bone is broken, some of it is removed by osteoclasts before rebuilding occurs.
  - Osteoblasts build new bone tissue by laying down calcium.
  - Bones are repaired by the growth of new bone tissue.
17. One mark for each point up to a total of three.
  - Hinge joints allow movement in one plane like door hinges.
  - Bones can only move towards and away from each other.
  - The bones at a hinge joint cannot rotate or move from side to side.
  - An example of a hinge joint is the elbow joint (or knee).
18. One mark for each point up to a total of four.
  - The movement of the lower arm is controlled by the biceps and triceps muscles.
  - The biceps and triceps muscles work as antagonistic muscles.
  - The biceps muscle contracts and pulls the lower arm towards the upper arm.
  - The triceps muscle contracts to straighten the arm again.
  - While one of the two antagonist muscle contracts, the other relaxes.
19. Mark as per level indicator grid. Answers can include some of the following:
  - Gripping with less force
    - Gripping hard puts pressure on the wrist
    - This can be made easier using grips such as thick handled cutlery
  - Taking breaks when using hands.
    - Gives a break from pressure on the median nerve
    - Gives the nerve time to recover

- Makes it less likely that permanent damage will occur
- Keeping hands warm
  - Hands get cold before the rest of the body
  - Blood moves more slowly through cold hands
  - This limits ability of tissue to be repaired
  - Coldness increases stiffness in the area
  - Being cold increases inflammation which makes the condition worse
- Hand stretches
  - Keeps the muscles working and in good condition
  - Relieves pressure on the median nerve
  - Keeps the muscles and tendons flexible
  - It is advisable to follow correct methods to ensure you don't make the condition worse.

20. One mark for each explanation up to a total of three.

- Joint fusing surgery is not carried out to improve movement at the joint.
- It stops the pain of bones rubbing together at the joint.
- It strengthens the joint and prevents further damage.
- In weight bearing joints, such as the ankles, it allows the joint to support the weight of the body

21. Mark as per level indicator grid. Answers can include some of the following:

- The pain may affect Amina's ability to sleep
- She may lose her appetite due to the pain
- She lives alone and may struggle to carry out day-to-day living activities
- She may no longer be able to garden which will impact on her mental health
- She may find it harder to go out and meet friends which will impact on her emotional and social well-being.
- Reduced social contact and pain may make it harder for her to undertake intellectual activities.
- Reduced intellectual activities may begin to cause cognitive decline.
- Amina may need social care to help with day-to-day activities
- She may enjoy having social care as it provides some social contact.
- Receiving social care may depress her as she feels dependent.
- She may not manage at home and may have to move into a home where she will lose her independence.

22. Mark as per marking grid. Answers can include the following:

- Osteoarthritis is caused by wearing away of the cartilage.
- This removes the smooth layer of cartilage so movement of the joints is stiff.
- The bones rub together causing pain.
- The bones rubbing together can cause bone spurs to grow.
- The bone spurs make the joint even more uneven and reduces movement at the joint.
- The damage at the joint causes inflammation.
- The inflammation causes heat, swelling and pain.

23. Mark as per marking grid. Answers can include the following:

**Possible causes for carpal tunnel syndrome**

- Having a previous wrist fracture because it can cause swelling which puts pressure on the median nerve.
- Being overweight because the excess fatty tissue presses on the median nerve.
- Family history because families may share genes which make the carpal tunnel narrower.
- Working with vibrating tools because the vibrations damage the nerves.
- Computer-based activities because the wrists are held in a particular position for long periods and the typing causes vibrations.
- Having rheumatoid arthritis because it causes inflammation which presses against the median nerve.
- Hormonal changes such as pregnancy and menopause because they cause fluid retention which puts pressure on the wrist.
- Hypothyroidism which also leads to fluid retention.

**Most likely reasons why Jane may have developed the condition**

- Jane is overweight so there is more pressure on her wrists.
- Jane works as a typist so holds her hands for long periods in a position which puts pressure on the median nerve.
- Jane has a family history of carpal tunnel syndrome and so may already have a narrow carpal tunnel.
- Jane is 48 and may be experiencing hormonal changes caused by menopause leading to fluid retention which will put pressure on her median nerve.

## 5: Control and regulatory systems

### Assessment Practice – Page 113-114

1. Cerebellum
2. Meninges, cerebral fluid
3. Neurotransmitter
4. D) Neurotransmitters are made in the synaptic knob when the nerve impulse reaches it.
5. Changes in a specific variable
6. Hypothalamus
7. Insulin, glucagon
8. C) The cells need insulin to break down glucose to produce energy.
9. Hypothalamus
10. ADH causes the body to retain water (the kidney reabsorbs the water so, it is not lost as urine).
11. Sweating; hairs on skin lie flat; capillaries send more blood to the surface of the skin.
12. Motor neurones
13. Ability to make facial expressions; ability to lift both arms above the head; ability to speak including not having slurred speech
14. Thrombectomy
15. Fat, salt, fibre
16. They can be used to measure glucagon levels.
17. Metformin
18. One mark for each point up to a total of four.
  - The meninges protect the brain.
  - The meninges consist of three layers of membrane.
  - There is a special fluid (cerebral spinal fluid) between two of the membranes/meninges.
  - The meninges hold the protective fluid in place.
  - The meninges reduce the movement of the brain within the skull.
19. One mark for each point up to a total of four.
  - ADH is released by the pituitary gland when the body is dehydrated.
  - ADH acts on the tubules in the kidney.
  - ADH causes the kidney to hold on to water.
  - Less water is lost in the urine.
  - When the body has plenty of fluid, ADH is not released.
  - When there is no ADH, more fluid leaves the body in the urine.
20. One mark for each point up to a total of four.
  - Receptors in the body detect body temperature decreasing.
  - Messages are sent along sensory neurones to the hypothalamus.
  - The hypothalamus sends signals along motor neurones to effectors.
  - Skeletal muscles are stimulated to shiver which gives off heat.
  - Capillaries in the skin reduce flow of blood to the skin so heat is held further within the body.
  - Hairs in the skin are pulled upright to trap air to act as an insulator.
21. One mark for each correct point and an extra point for a linked extension up to a total of Six.
  - Physical examinations (1) such as asking a patient to lift their arms over their heads (1) can determine if the brain is working properly.

- Blood tests (1) can detect cholesterol which is a big risk factors in strokes (1). They can also be used to rule out other conditions. (1)
- MRI scans use high frequency sound to build a picture of the brain (1). They can show blockages in the blood vessels in the brain (1).

22. Allow one mark for each explanation up to a total of four.

- Ischaemic strokes are caused by blood clots that block blood vessels in the brain.
- Blood clots develop when the lining of blood vessels is damaged.
- Cigarettes smoke contains many chemicals which can damage the blood vessels and stimulate clots.
- Smoking reduces the amount of oxygen in the blood.
- Less oxygen in the blood makes the effect of a stroke more severe.

23. Mark as per marking grid up to a total of 6. Answers may include:

- Gastric band surgery is very effective in causing weight loss.
- Weight loss increases insulin production and reduces insulin resistance.
- In some cases, the surgery leads to a remission from the disease.
- The surgery can lead to quick weight loss and improvement in blood glucose levels.
- It can prevent the many complications of diabetes from happening.
- It is major surgery and comes with many risks.
- There are strict eligibility criteria so most people cannot access it.
- It will cause a major change in lifestyle as the individual will no longer to enjoy food the way they used to.
- It can lead to damage to the digestive system and risks of infection.

24. Mark as per marking grid. Answers can include the following:

## 6: Reproductive system

### Assessment Practice – Page 123-124

1. Low, low
2. B) Menopause is a period of increased fertility.
- 3.

A	Penis
B	Prostate gland
C	Vas deferens
D	Testis/ testicle

4. Prostate gland
5. It is caused by endometrial tissue growing in areas of the body other than the uterus.
6. Laparoscopy
7. Burned out, cut out
8. Hormonal, thinner
9. Three of: Lump in testicle; heaviness in scrotum; pain in testicle; firmness in testicle.
10. Orchidectomy
11. Children, testosterone
12. B) Being overweight
13. One mark for each point up to a total of four.
  - The cervix is a narrow passage between uterus and vagina.
  - It is usually blocked with mucus to prevent bacteria from entering the uterus.
  - The cervix forms part of the birth canal during birth.
  - To allow the baby to pass through it, it has to dilate (get wide) as part of the process of labour.
14. One mark for each point up to a total of four.
  - During menstruation the endometrium (uterus lining) is shed and leaves through the vagina.
  - During the follicular stage the follicles develop.
  - The follicular stage is stimulated by the hormone FSH.
  - During the ovulation stage, an ovum (egg) is released from the ovaries.
  - Ovulation is stimulated by the hormone LH.
  - During the luteal phase the follicle becomes the corpus luteum and releases progesterone.
  - During the luteal phase the lining of the uterus (endometrium) builds up.
15. One mark for each point up to a total of four.
  - Menopause is when periods (menstruation) has not occurred for at least 12 months.
  - The menstrual cycle and fertile period of a woman's life is controlled by hormones.
  - Menopause is caused by reductions in oestrogen and progesterone.
  - Reduction in oestrogen makes ovulation less likely to happen.
  - Reduced progesterone levels lead to many of the symptoms associated with the menopause such as hot flushes.
16. One mark for each correct point up to a total of four.
  - A laparoscopy is a method used to diagnose endometriosis.

- The procedure is carried out under general anaesthetic.
- A camera is passed into the abdominal cavity through a small hole in the abdomen.
- The camera can see where endometriosis tissue is growing.
- In some cases, the tissue can be removed during the laparoscopy.

17. Mark as per marking grid. The answer may include the following:

- A hysterectomy is the surgical removal of the uterus.
- In some cases, it can cause immediate relief of symptoms because the affected areas have been removed.
- The individual will no longer have periods which may be of benefit.
- It is major surgery with a long recovery time.
- It will lead to early menopause which has risks of its own.
- It cannot be reversed.
- The individual will no longer be able to have children.
- If the endometriosis tissue is not in the organs that have been removed, symptoms may continue.

18. Mark as per marking grid up to a total of 6. Answers may include:

- Risk is increased if the individual had undescended testicles.
- The risk due to undescended testicles is the same even if surgery was used to correct the condition.
- Certain genes give a greater risk of testicular cancer so if a close member of the family has the condition, the risk is increased.
- Testicular cancer is more common between the ages of 15 and 49.
- It is thought that the germ cells which produce sperm are more active between the ages of 15 and 49 increasing the risk.
- People who have had testicular cancer previously will still have the same risk factors so will still be likely to develop it again.
- Previous cancer can lead to the use of radiotherapy which increases the risk.
- Cancer is caused by gene mutations which can be caused by radiation.
- Radiotherapy uses radiation to treat cancers so damage to DNA causing testicular cancer is likely.