



T Level Technical Qualification in Healthcare Science

Core knowledge and understanding

Paper A

Mark scheme

v1.0 Pre-standardisation
P002396
6 December 2023
603/7083/X

This mark scheme has been written by the assessment writer and refined, alongside the relevant questions, by a panel of subject experts through the external assessment writing process and at standardisation meetings.

The purpose of this mark scheme is to give you:

- examples and criteria of the types of response expected from a student
- information on how individual marks are to be awarded
- the allocated assessment objective(s) and total mark for each question.

Marking guidelines

General guidelines

You must apply the following marking guidelines to all marking undertaken throughout the marking period. This is to ensure fairness to all students, who must receive the same treatment. You must mark the first student in exactly the same way as you mark the last.

- The mark scheme must be referred to throughout the marking period and applied consistently. Do not change your approach to marking once you have been standardised.
- Reward students positively giving credit for what they have shown, rather than what they might have omitted.
- Utilise the whole mark range and always award full marks when the response merits them.
- Be prepared to award zero marks if the student's response has no creditworthy material.
- Do not credit irrelevant material that does not answer the question, no matter how impressive the response might be.
- When allocating marks across AOs within an individual response these should logically link and should not be from disparate points of indicative content provided in the mark scheme.
- The marks awarded for each response should be clearly and legibly recorded in the grid on the front of the question paper.
- If you are in any doubt about the application of the mark scheme, you must consult with your team leader or the chief examiner.

Guidelines for using extended response marking grids

Extended response mark grids have been designed to assess students' work holistically. They consist of levels-based descriptors and indicative content.

Levels-based descriptors: Each level is made up of several descriptors for across the AO range - AO1 to AO3, which when combined provide the quality of response that a student needs to demonstrate. Each level-based descriptor is worth varying marks.

The grids are broken down into levels, with each level having an associated descriptor indicating the performance at that level. You should determine the level before determining the mark.

Indicative content reflects content-related points that a student may make but is not an exhaustive list; nor is it a model answer. Students may make all, some or none of the points included in the indicative content as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

Application of extended response marking grids

When determining a level, you should use a bottom up approach. If the response meets all the descriptors in the lowest level, you should move to the next one, and so on, until the response matches the level descriptor. Remember to look at the overall quality of the response and reward students positively, rather than focussing on small omissions. If the response covers aspects at different levels, you should use a best-fit approach at this stage and use the available marks within the level to credit the response appropriately.

When determining a mark, your decision should be based on the quality of the response in relation to the descriptors. You must also consider the relative weightings of the assessment objectives, so as not to over/under credit a response. Standardisation materials, marked by the chief examiner, will help you with determining a mark. You will be able to use exemplar student responses to compare to live responses, to decide if it is the same, better, or worse.

You are reminded that the indicative content provided under the marking grid is there as a guide, and therefore you must credit other suitable responses a student may produce. It is not a requirement either that students must cover all the indicative content to be awarded full marks.

Assessment objectives

This assessment requires students to:

- AO1: Demonstrate knowledge and understanding of contexts, concepts, theories, and principles in healthcare science.
- AO2: Apply knowledge and understanding of contexts, concepts, theories, and principles in healthcare science to different situations and contexts.
- AO3: Analyse and evaluate information and issues related to contexts, concepts, theories, and principles in healthcare science to make informed judgements, draw conclusions and address individual needs.

The weightings of each assessment objective can be found in the qualification specification.

Section A: The roles and responsibilities within healthcare science

This section is worth **34** marks, plus **3** marks for quality of written communication (QWC) and use of specialist terminology.

1 Identify two purposes of pharmacy services in the healthcare science sector. [2 marks]

AO1 = 2 marks

Award **one** mark for each purpose identified, up to a maximum of **two** marks:

- supply prescription products (1)
- supply non-prescription products (1)
- provide health and wellbeing advice (1)
- perform retail duties (1).

Accept any other suitable response.

2 List two features of Making Every Contact Count (MECC). [2 marks]

AO1 = 2 marks

Award **one** mark for each feature listed, up to maximum of **two** marks:

- MECC address public health issues specific and relevant to the patient (smoking dieting, exercise, etc.) (1)
- MECC signposts the patient/carer towards leaflets, contacts etc., for further information/help (help with dementia, physical disability) (1)
- MECC acts as a primary prevention tool (for improving the health of patients) (1)
- MECC addresses health risks, smoking and alcohol consumption (1).

Accept any other suitable response.

3 Charlie works in a prosthetics department, creating prosthetic lower limbs for patients.

Explain how two of the services the prosthetics department provides are beneficial to their patients.

[4 marks]

AO2 = 4 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks per service, up to a maximum of **four** marks:

- The prosthetics department will design the prosthesis for the patient during this process, they will consider their patient's needs, requirements and preferences (1) This will ensure the prosthesis is fit for purpose and made to perfectly fit the patient (1).
- The prosthetics department will ensure that the prosthesis fits correctly (1), this is essential to prevent unnecessary pain/discomfort/pressure sores from a poorly fitting prosthesis (1).
- The prosthetics department will ensure that material used in the prosthesis are of the correct grade for the patient's activity and weight (1). This will ensure that the prosthesis can be used safely without the possibility of structural failure/injury (1).
- The prosthetics department can advise patients on the use of their prosthesis and give the patient advice on their wellbeing (1). This ensures the patient can get the maximum benefit from wearing their prosthesis (1).
- The prosthetics department will ensure that prostheses are repaired and maintained at regular intervals and when the patient reports a problem (1). This ensures that the prostheses functions as it should and prevents injury due to overuse of components or changes in patients weight shape or activity level (1).

Accept any other suitable response.

4 George, aged 45, has been unemployed for several years. He previously worked as a gardener and has an interest in conservation. George has been experiencing some mental health difficulties. His general practitioner (GP) has contacted local relevant services in the community to include social prescribing as part of his treatment plan.

Justify why the GP has taken this action.

[3 marks]

A03 = 3 marks

Award **one** mark for each justification point, up to a maximum of **three** marks:

- George could volunteer as a parks gardener, this work is in an area of interest for George so he will enjoy the work and will meet new people (1). By working and engaging with other people, George will also attain a healthy level of fitness (1) as well as improving George's mental health when engaging with new people and activities (1).
- George could be introduced to council warden services, charities and other organisations to volunteer as a warden (1), as his previous work as a gardener will provide him with useful transferable skills in an area of work he enjoys, and he will learn new skills whilst volunteering (1). George will gain useful skills and meet new people this would have a positive impact on George's health and mental wellbeing (1).
- George could be introduced to a community allotment organisation run and organised by volunteers (1). This work would develop areas of George's expertise as a gardener, encourage George to eat healthily, as well as George encouraging others to eat healthily as George will be providing a source of healthy food for his local community; as well as enable him to meet new people with similar interests (1). George will gain useful skills in gardening and communicating with other members of the public, all of which would improve George's physical health and mental wellbeing (1).

Accept any other suitable response.

5 Sebastian is a 24-year-old male who believes he may have broken his arm after a fall. He decides to ring 111.

Explain one reason why Sebastian has chosen to ring 111 rather than go to an NHS Urgent Treatment Centre (UTC).

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- Sebastian considers the possible break of his arm to not be life threatening therefore he can phone 111, whereby the receiver can ask questions about his symptoms (1) and then refer him to the best course of action (1).
- Sebastian has decided not to go to the NHS UTC as it is quicker to phone 111 to receive appropriate advice (1). The advice may be for Sebastian to go to an NHS UTC or to be referred elsewhere as may have been the case if Sebastian had gone straight to the UTC (1).

Accept any other suitable response.

6 Amelia visited her GP as she had blood in her urine. This did not clear up or stop after being prescribed and taking antibiotics. Her GP then sent Amelia for an urgent referral.

Explain one reason why Amelia may require an urgent referral.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- The GP is concerned that after initial treatment with antibiotics, that the blood in the urine may be an indication of a severe condition (1). It is important that an urgent referral is carried out as soon as possible so that the cause of the blood in the urine can be determined and further treatment options considered (1).
- Many cancers including bladder cancer are more successfully treated, the earlier it is discovered/confirmed (1). If Amelia waits for a routine appointment rather than an urgent referral, the cancer may progress past the point that it can be treated successfully (1).

Note: Accept any suitable severe condition.

Accept any other suitable response.

7 You are working in a rehabilitation clinic with patients who have difficulty in understanding verbal instructions, due to a variety of illnesses and disabilities.

Explain two examples where a patient's needs may require a specific form of communication and how to accommodate them.

[4 marks]

AO2 = 4 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks per example:

- The patient may have difficulty in understanding due to a predisposing clinical condition for example stroke or dementia. It is important that a patient's ability to understand information is checked first (1). If the patient cannot understand instructions, then instructions may be explained to the patient's carers (1).
- The patient may have difficulty in hearing (1), the use of hearing loops or even sign language may help (1).
- Instructions must be kept as simple as possible for the patient to understand (1). This can be done by avoiding jargon and specialist terminology (1).
- Patients may respond better to non-verbal communication (1). This may include body language and the provision of written material or written material in another form (Braille) (1).

Accept any other suitable response.

8 Healthcare provision in a large area has been compromised due to extreme weather damaging several hospitals. You are part of a team sent to re-establish health science facilities to the population affected by such weather.

Assess two actions that could be taken to re-establish health science facilities to the population in the region affected by the extreme weather.

[6 marks]

AO3 = 6 marks

Award **three** marks for each assessment point, up to a maximum of **six** marks for two actions:

- A contingency plan/disaster recovery plan/emergency planning documentation should be consulted (1) this will enable your team to efficiently work alongside other agencies involved in restoring healthcare services (1). It is important that all agencies in reestablishing health care and other services work together, otherwise inefficiencies and omissions may result, which could cause increased loss of life (1).
- Repair the hospitals resupplying essential infrastructure: power, water, waste disposal etc. (1) This needs to be done as quickly as possible so that treatment of patients can commence (1) so as to reduce the possibility of unnecessary death and spread of disease (1).
- A temporary facility can be assembled (1), this needs to be large enough to cope with the increased need (1) ensuring that increased patient numbers caused by exposure to the environment (damage to housing and so on), disease and injury are adequately treated (1).
- If the effects of the weather have rendered large areas unusable (ie: flooding) then temporary facilities may need to be created in a place near to; but unaffected by the weather (1), such a place will also require the relocation of people (possibly injured suffering from disease etc.) (1).
- Widespread weather damage may require rescue and possible relocation of people (1) such people may be suffering from trauma, disease, exposure to the environment (1). This will require health science facilities to be able to cope with displaced people increasing the population in areas where they are relocated (1).
- It is important to repair and provide essential infra structure: power, water supply, accommodation and adequate waste control (sewerage) facilities (1) as well as create the necessary residual and emergency healthcare facilities including health science facilities (1), so as to be able to treat increased numbers of people suffering from increased injuries and disease (1).
- There will be shortages of staff (1) which due to loss of facilities and increased demand (1). Increased numbers of qualified staff need to be sent to the areas damaged from outside sources such as disaster relief/armed forces etc. (1).
- It is important that adequate healthcare/health science facilities are restored to the people affected by the flooding as soon as possible (1) to prevent excess death and unnecessary discomfort from disease injury and exposure to the environment (1) and it is imperative that the above actions are co-ordinated and implemented concurrently, so as to ensure maximum damage limitation for the affected area (1).

Accept any other suitable response.

9 **Safia and Ayesha are women employed as technicians in a spinal injury unit. In a recent performance review, they were rated as “unacceptable” by their manager. The other members of the team told Safia and Ayesha that the work they produced was of high quality.**

Discuss how the use of internal policies may help Safia and Ayesha attempt to ensure their treatment is fair.

Your response should be supported by the Equality Act 2010 and employment legislation and their use in producing and implementing workplace policies and procedures.

Your response must include reasoned judgements.

[9 marks, plus 3 marks for QWC]

AO1 = 3 marks
AO2 = 3 marks
AO3 = 3 marks
QWC= 3 marks

Band	Marks	Descriptor
3	7-9	<p>AO3: Discussion of the importance of adhering to the Equality Act 2010 and employment legislation, including the impact of contravening the Equality Act 2010 and employment legislation in the workplace, by poorly constructed policies and inappropriate use of policies by the employer is: comprehensive, effective and relevant, showing detailed understanding and logical and coherent chains of reasoning throughout. Informed conclusions are fully supported with rational, balanced, and reasoned judgements, with most of the relevant arguments evident.</p> <p>AO2: Applied all relevant knowledge of adhering to the Equality Act 2010 and employment legislation including the impacts of contravening the Equality Act 2010 and employment legislation by inappropriate use of policies in the workplace on employees and the employer, showing a detailed, functional understanding of the implications of non-compliance.</p> <p>AO1: Demonstrates a wide range of understanding of the impacts of contravening the Equality Act 2010 and employment legislation, by inappropriate use of policies in the workplace on employees and the employer which is accurate and detailed.</p> <p>The answer demonstrates comprehensive breadth and/or depth of understanding.</p>
2	4-6	<p>AO3: Discussion of the importance of adhering to the Equality Act 2010 and employment legislation, including the impact of contravening the Equality Act 2010 and employment legislation, by imprecise, and inappropriate use of, policies in the workplace on employees by the employer and how their principles apply in this context, are in most parts</p>

		<p>effective and mostly relevant, showing mostly logical and coherent chains of reasoning. Conclusions supported by reasoned judgements that consider most of the relevant arguments are evident.</p> <p>AO2: Applied some relevant knowledge of the importance of adhering to the Equality Act 2010 and employment legislation, including the impacts of contravening the Employment Act 2010, by imprecise and inappropriate compilation and use of policies in the workplace on employees and the employer in this context, showing some functional understanding of how such impacts can be applied in this scenario.</p> <p>AO1: Demonstrates a sufficient range of understanding of the impacts of contravening the Equality Act 2010 and employment legislation, by inappropriate use of policies in the workplace on employees and the employer which is mostly accurate and detailed.</p> <p>The answer demonstrates reasonable breadth and/or depth of understanding, with occasional inaccuracies and/or omissions.</p>
1	1-3	<p>AO3: Discussion of the importance of adhering to the Equality Act 2010 and employment legislation, including the impact of contravening the Equality Act 2010 and employment legislation in the work place on employees, by poorly constructed policies and inappropriate use of policies by the employer; and how such principles, applied in this context are in some parts effective and of some relevance, with some understanding and reasoning taking the form of generic statements with some development. Brief conclusions supported by reasoned judgements that consider only basic arguments and show little relevance to the question aims are evident.</p> <p>AO2: Applies limited knowledge of the importance of adhering to the Equality Act 2010 and employment legislation, including the impacts of contravening the Equalities Act 2010 and employment legislation in the workplace, by poorly constructed and inappropriate use of policies on employees by the employer, in this context, which shows a lack of functional understanding of the underpinning legislation.</p> <p>AO1: Demonstrates a limited range of understanding of the impacts of contravening the Equality Act 2010 and employment legislation, by inappropriate use of policies in the workplace on employees and the employer which is limited in accuracy and detail.</p> <p>The answer is basic and shows limited breadth and/or depth of understanding, with inaccuracies and omissions.</p>
	0	No creditworthy material.

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list, nor is it a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide

for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1: Knowledge of how the Act encourages employee involvement in Equality Act 2010 and employment legislation that concerns the whole of the health science workplace discussion points may include.

- Safia and Ayesha in their attempt to ensure fair treatment should have access to relevant internal policies such as a grievance policy, disciplinary policy (appeals) and other relevant policies.
- Safia and Ayesha should have had training in the use of internal policies.
- Policies should include a procedure to allow Safia and Ayesha to try and solve the issue informally, also the disciplinary process should ensure fair and consistent treatment of Safia and Ayesha.
- Safia and Ayesha may use equalities legislation (Equality Act 2010), (should internal processes fail/stall).
- Safia and Ayesha may use employment legislation, (should internal processes fail/stall).

AO2: Application of knowledge and understanding of the integrated approach to Equality Act 2010 and employment legislation, concerning the employees in the workplace may include.

- Safia and Ayesha in their attempt to ensure fair treatment should have access to current policies such as grievance, disciplinary, appeals policies, that are fit for purpose and can be used effectively and within the law.
- Workers such as Safia and Ayesha, should have had induction and periodic training in the use of policies.
- There should be a facility within the policies to enable an informal route should Safia and Ayesha chose to take it.
- In ensuring fair and consistent treatment, Safia and Ayesha should be able to use a grievance policy if they are under a disciplinary process, if they wish.
- In ensuring fair and consistent treatment, Safia and Ayesha should be able to appeal the disciplinary process. Safia and Ayesha should have available contact details of HR, Workplace Trade Unions, ACAS and so on would help eliminate discrimination and help ensure equality.
- Safia and Ayesha may need to use equalities and employment legislation as part of their argument to resolve this issue internally or externally if needed.

AO3: Discussion to include reasoned judgments and conclusions of the integrated approach to Equality Act 2010 and employment legislation, concerning the employees in the workplace that may include.

- If Safia and Ayesha wish to resolve the issue internally, they will need to access to the grievance and disciplinary policies and must ensure that these are up to date so that they are compatible with the Equality Act. Internal policies should run alongside any external processes, if these are involved.
- Policies need to be consistent when they are used in combination ie disciplinary policy and grievance policy, so that there is no ambiguity when an employee switches between policies when defending their case. Such will help in ensuring equality and help eliminate discrimination.

- Safia and Ayesha may need to invoke external and internal processes simultaneously and the policies should respect this, as legally, issues taken externally in many cases need to be resolved within a short time frame (3 months minus one day).
- Workers such as Safia and Ayesha, should have induction and periodic training in the use of policies and should be able to get advice from human resources/trade unions/ACAS or other bodies, so they can make an informed decision as to the best process for them to follow.
- There should be a facility within the policies to enable an informal route, should Safia and Ayesha chose to take it. Safia and Ayesha should be aware of the advantages and disadvantages of undergoing an informal route.
- Safia and Ayesha should be able to appeal the disciplinary process as stated in the disciplinary procedure and concurrently use the grievance procedure as well. Safia and Ayesha may need to use equalities and employment legislation as part of their argument to resolve this issue internally or externally if needed, so they should be assisted in understanding their rights within these areas of legislation.

Accept any other suitable response.

QWC

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms are used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms are used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms are used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

Section B: Personal and patient safety

This section is worth **34** marks, plus **3** marks for quality of written communication (QWC) and use of specialist terminology.

10 State two functions of the Serious Hazards of Transfusion (SHOT) haemovigilance scheme.

[2 marks]

AO1 = 2 marks

Award **one** mark for each function, up to a maximum of **two** marks:

- collection and analysis of anonymised information on adverse events (1)
- collection and analysis of anonymised information on blood transfusion reactions (1)
- production of annual recommendation reports designed to improve safety (1).

Accept any other suitable response.

11 You are working on a hospital ward, and witness a doctor giving a patient morphine. Morphine is a controlled drug used to relieve pain in patients.

Explain two ways the Misuse of Drugs Act 1971 allows morphine to be used on the ward but prevents it being generally available.

[4 marks]

AO2 = 4 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks per way:

- The Misuse of Drugs Act recognises the importance of keeping morphine controlled so that they are not freely available to the public (1) yet acknowledges the usefulness of morphine allowing them to be used safely and only for specific reasons such as on wards in secure storage (1).
- Specific reasons will include use of the morphine on the ward by specific professionals, for example doctors/dentists/nurses/pharmacists and others, (1) when acting in their professional capacity to prescribe, administer, manufacture, compound or supply medicines containing dangerous drugs when using the morphine stored on the ward (1).
- It is important to store morphine on the ward securely, (1) reducing the availability of morphine to be obtained for drug abuse (1).
- The ward may be storing morphine used for special purposes, as is allowed under the Misuse of Drugs Act (1) as the Act recognises the value in using “dangerous drugs” for research and other special purposes; (1) and allows morphine to be produced and supplied for such purposes (1).

Accept any other suitable response.

12	<p>An employer has created a check list to help ensure compliance with the Health and Safety (Display Screen Equipment) Regulations 1992. This is the checklist:</p> <ul style="list-style-type: none">• The main monitor is central to the user’s desk and about one arm’s length away in distance.• The user faces the screen when sitting in a neutral position.• The monitor is free from glare and does not flicker.• The user’s eyes are at the top of the screen.• The user’s head, neck and shoulders are straight and relaxed. <p>Explain two ways that the checklist created by the employer could be used to ensure that they are compliant with Health and Safety (Display Screen Equipment) Regulations 1992.</p> <p style="text-align: right;">[4 marks]</p>
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AO2 = 4 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks per way:

- Perform a periodic audit of every workspace with the users present (1), this will ensure that the workplace is fully compliant with the check list and that the monitors are adjusted to the requirements of each user as stated in the check list (1).
- Ensure that employees/workers have undertaken statutory training in induction and periodic further training in checking their own workstations/monitor (1). This will enable the workers/employees to adjust their own display equipment to suit their requirements as stated in the checklist (1).
- Ensure that employees/workers have a procedure for reporting issues outside inspection timetables (1), so that faulty equipment that cannot be adjusted and/or positioned to avoid glare or flickers, can be replaced more rapidly (1).
- Ensure that workstations used by numerous people (hot desking) are adjustable with staff trained in adjusting such with accessible manuals (1) so that persons of different dimensions can comfortably use the monitor/workstations as per the requirements in the checklist (1).
- Hot desking should be discouraged as it means that workers must adjust a workstation every time they use it, reducing compliance, especially for relatively short time periods of use (1). Designated workstations for workers/employers mean that the equipment is preadjusted to the user’s dimensions encouraging compliance with the checklist (1).
- Workers working in several locations need training and access to adjustment manuals (1). This will encourage them to comply with the checklist requirements when working at several sites (1).

Accept any other suitable response.

13 There are a range of ways in which infection control is managed in healthcare science settings including through a dress code.

State two inclusions within a dress code that may reduce infection.

[2 marks]

AO1 = 2 marks

Award **one** mark for each item, up to a maximum of **two** marks:

- hair (should be short/tied back) (1)
- uniform (should be worn) (1)
- uniform (should not have sleeves below the elbow) (1)
- jewellery (should not be worn unless exempt (for example, fob watches, wedding rings) (1).

Accept any other suitable response.

14 A hospital workshop produces large quantities of metal and electrical waste.

Explain one way in which workshop employees can be encouraged to recycle this waste.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

-
- Audit/Measure the quantity of metal and electrical waste (1) to ensure recycling bins have enough capacity (1).
- Ensure recycling bins are available (1) and correctly labelled for metal/electrical waste (1).
- Ensure employees are trained on recycling these wastes (1) As this waste is specific to the workshop / department (1).

Accept any other suitable response.

15 You are working in a specialised workshop that repairs and services electronic equipment used in hospitals. You need to ensure that your workstations and equipment, brought into and taken out of the workshop, are suitably decontaminated.

Assess one method used for decontamination and effective infection control for:
(i) workstations
(ii) and another method used for equipment.

[6 marks]

AO3 = 6 marks

(i) Award **one** mark for each assessment point, up to a maximum of **three** marks:

- Workstations are usually large areas and therefore more likely to attract debris during their use. Therefore, regular removal of debris is important as an accumulation of dirt could hold microorganisms (1). After cleaning the workstation, it should be disinfected. This is because it is important to also remove microorganisms that have been brought to the workstation and are left on the surface by tools, equipment, workshop users etc. (1). It is important to regularly disinfect workstations to prevent the spread of infectious agents to other areas of the hospital and the wider community (1).
- The most effective method of decontaminating a workstation is to regularly clean and disinfect all areas, to reduce contamination by microorganisms (1). Although sterilisation of a workstation would be the best form of infection control, it is not practical because of their size and frequent reinfection. It would be very costly in terms of money and time as such would require specialist procedures (1). It is also important to keep workplaces clean and tidy and to ensure that all tools equipment and work surfaces are frequently disinfected to prevent spread of infectious agents from the workshop (1).

(ii) Award **one** mark for each assessment point, up to a maximum of **three** marks:

- Equipment brought into the workshop should be first decontaminated using disinfectant to remove microorganisms. Once the repair has been completed, then depending on the use, the equipment may need to be sterilised before being sent out, for example: single use equipment, equipment that may be used internally (1). One must also consider the choice of sterilisation and/or disinfection technique as this is important depending on materials the equipment is made from, for example electronic equipment cannot be autoclaved but would need to be irradiated (1) It is essential to decontaminate equipment as it is often used in patients who are vulnerable to infection or may be used as part of invasive techniques for treatment. Using the wrong sort of decontamination or not decontaminating can cause harm or death to a patient (1).
- Equipment brought into the department needs to be disinfected or sterilised when it leaves the department (1). This choice of disinfection or sterilisation technique, will depend on its size, ability to withstand exposure to chemicals, steam etc. (1). Large monitoring equipment will be very difficult to sterilise other than by chemical sterilisation (hydrogen peroxide may be a choice of sterilant) and sterilisation of workstations, large storage facilities etc. is impractical due to time constraints, cost and that such level of decontamination is rarely if ever necessary (1).

- Smaller multiuse equipment can be sterilised depending on the materials it is made of (surgical instruments, implants, small electrical sensors, etc.) and should be sterilised so as not to become vectors of infection (1). Autoclaving and chemical sterilisation may be suitable for more robust equipment and irradiation can be used for less robust equipment (1). It is important that techniques used for decontamination must be appropriate to the likelihood of causing the spread of infection from the equipment in the workshop to the workshop, to the rest of the hospital and possibly the general community as well as reduce the possibility of multi-resistance (1).

Accept any other suitable response.

16 (a) State two purposes of the Health and Care Act 2022.

[2 marks]

AO1 = 2 marks

Award **one** mark for each purpose, up to a maximum of **two** marks:

- to improve individuals' independence (1)
- to improve individuals' wellbeing (1).

Accept any other suitable response.

Sebastian is an elderly gentleman who wishes to live independently but is having difficulty moving around in his home and garden due to a progressive illness that affects his mobility and hand function.

(b) Assess how the Health and Care Act 2022 ensures Sebastian is supported by his local authority.

[3 marks]

AO3 = 3 marks

Award **one** mark for each assessment point, up to a maximum of **three** marks:

- The Health and Care Act 2022 ensures that the local authority should assess Sebastian's mobility and residual hand function, and this is best met by providing a home assessment visit (by an occupational therapist) (1). This is necessary to ascertain which adaptations should be considered and then manufactured in the context of the layout of Sebastian's home (1). It is essential that this assessment must involve Sebastian in the decision-making process as Sebastian is best placed to communicate his basic needs and requirements as well as his preferred activities (1).
- The Health and Care Act 2022 ensures that the local authority must provide services and equipment to delay Sebastian's requirement for increased ongoing care and support (1). As such it is important that the local authority provides periodic assessment of Sebastian's needs and preferred activities so that necessary equipment can be made and altered over time to continue to preserve Sebastian's mobility and residual hand function for as long as possible (1) The local authority must continue to make suitable adaptations that take in to account Sebastian's choices over time so that all interventions are up to date and appropriate to the level of deterioration of Sebastian's illness (1).

Accept any other suitable response.

17 The Health and Safety at Work etc. Act 1974 and subsequent health and safety legislation, defines employees’ duties to protect themselves and each other and, identifies the actions employers must take to maintain high levels of health and safety.

A health and safety audit in your Healthcare Science Department has identified several breaches of health and safety legislation including the correct storage of materials, the maintenance of safe passageways, use of personal protective equipment and the correct procedures in manual handling.

Discuss how active employer and employee engagement can improve health and safety in your department and ensure that your department is compliant with health and safety legislation.

Your response must include reasoned judgements.

[9 marks, plus 3 marks for QWC]

AO1 = 3 marks
AO2 = 3 marks
AO3 = 3 marks
QWC = 3 marks

Band	Marks	Descriptor
3	7-9	<p>AO3: Discussion of the Health and Safety at Work etc. Act 1974, in the context of enabling employee and employer involvement and the importance of compliance and the impact of non-compliance with the Act, in the Health Care Science Sector is comprehensive, effective and relevant, showing detailed understanding and logical and coherent chains of reasoning throughout. Informed conclusions are fully supported with rational, balanced, and reasoned judgements, with most of the relevant arguments evident.</p> <p>AO2: Applied all relevant knowledge of the Health and Safety at Work etc. Act 1974, in the context of enabling employee and employer involvement and the importance of compliance and impact of non-compliance with the Act, in the Health Care Science Sector, showing a detailed, functional understanding of the Act and the implications of non-compliance.</p> <p>AO1: A wide range of relevant knowledge and understanding of those sections of the Health and Safety at Work etc. Act 1974, in the context of enabling employee and employer involvement and the importance of compliance and the impact of non-compliance with the Act, in the Health Care Science Sector which are accurate and detailed.</p> <p>The answer demonstrates comprehensive breadth and/or depth of understanding.</p>

2	4-6	<p>AO3: Discussion of the Health and Safety at Work etc. Act 1974, in the context of enabling employee and employer involvement and the importance of compliance and impact of non-compliance with the Act, in the Health Care Science Sector are in most parts effective and mostly relevant, showing mostly logical and coherent chains of reasoning. Conclusions supported by reasoned judgements that consider most of the relevant arguments are evident.</p> <p>AO2: Applied mostly relevant knowledge of those sections of the Health and Safety at Work etc. Act 1974, in the context of enabling employee and employer involvement and the importance of compliance and the impact of non-compliance with the Act, in the Health Care Science Sector, showing mostly functional understanding of how the Health and Safety at Work etc. Act 1974 can be applied in this Health Care Science scenario.</p> <p>AO1: A sufficient range of relevant knowledge and understanding of those sections of the Health and Safety at Work etc. Act 1974, in the context of enabling employee and employer involvement and the importance of compliance and the impact of non-compliance with the Act, in the Health Care Science Sector which are mostly accurate and detailed.</p> <p>The answer demonstrates reasonable breadth and/or depth of understanding, with occasional inaccuracies and/or omissions.</p>
1	1-3	<p>AO3: Discussion of the Health and Safety at Work etc. Act 1974, in the context of enabling employee and employer involvement and the importance of compliance and the impact of non-compliance with the Act in the Health Care Science Sector, is in some parts effective and of some relevance, with some understanding and reasoning, taking the form of generic statements with some development. Brief conclusions supported by reasoned judgements that consider only basic arguments and show little relevance to the question aims, are evident.</p> <p>AO2: Applied limited knowledge of those sections of the Health and Safety at Work etc. Act 1974, in the context of enabling employee and employer involvement and the importance of compliance and the impact of non-compliance with the Act in the Health Care Science Sector; and may show a lack of functional understanding of the legislation.</p> <p>AO1: A limited range of relevant knowledge and understanding of those sections of the Health and Safety at Work etc. Act 1974, in the context of enabling employee and employer involvement and the importance of compliance and the impact of non-compliance with the Act, in the Health Care Science Sector which are limited in accuracy and detail.</p> <p>The answer is basic and shows limited breadth and/or depth of understanding, with inaccuracies and omissions.</p>
	0	No creditworthy material

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list, nor is it a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1: Knowledge of the Act encouraging employee involvement in Health & Safety, which concerns the whole of the health science workplace may include.

- Multiple breaches of the Health and Safety at Work etc. Act (1974) make the workplace unsafe.
- The employer is responsible for ensuring the correct storage of materials and provision of storage space, maintenance of safe passageways, provision of and enforcing the use of personal protective equipment and the correct procedures in manual handling.
- Health and Safety at Work etc. Act (1974) recognises that employees are also responsible for health and safety and should be aware of potential hazards, which should have been reported to the employer.
- The Health and Safety at Work etc. Act (1974) requires employers to encourage employees to be more aware of health and safety issues by providing training, posters and updates in health and safety requirements within a workplace.
- The act provides for many avenues of employer training and involvement so poor health and safety practices should not occur in a workplace with well-trained employees.

AO2: Application of knowledge and understanding of the integrated approach to health & safety, concerning the employees in the workplace may include.

- Incorrect storage of materials inadequate provision of storage space, lack of maintenance of safe passageways, lack of provision and/or enforcing the use of personnel protective equipment and the use of in correct procedures in manual handling are clearly unsafe and breach the Health and Safety at Work etc. Act (1974) and other subsequent health and safety legislation.
- Such could be avoided by the employer taking appropriate steps in all areas that breach the regulations.
- The legislation recognises the responsibilities of employees in taking steps to adequately protect the health and safety of themselves, colleagues, patients and visitors at work. Well trained and responsible employees would not have allowed for the department's compliance with health and safety legislation to get to the level stated in this scenario.
- Employees may also be subject to disciplinary action by the employer as well as fines and convictions if they are not compliant with the regulations. As such the employees must adhere to the correct procedures for storage of materials, ensure clear passageways, use personnel protective equipment as instructed/needed and use correct manual handling techniques. Employees may further engage by become safety representatives for the Healthcare Science Department. Safety representatives work alongside employer appointed health and safety staff and consultants. Such active involvement of employees reduces the likelihood of accidental or deliberate non-compliance of health and safety legislation and also makes it more likely for areas of bad practice as in the scenario to be noticed and stopped before any injury occurs.
- The employer can provide time for health and safety employees and safety representatives to regularly check the Healthcare Science Department, so that the workplace is compliant with the legislation.

- It is important to ensure that risk assessments relevant to your department are carried out for activities that have health & safety implications.
- There is a legal requirement for the employer to provide health and safety instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of employees. Such training encourages employee involvement, complies with the legislation as well as increases the likelihood of bad practice as in this scenario being exposed and stopped.

AO3: Discussion to include reasoned judgments and conclusions of the integrated approach to health and safety, concerning the whole of the workplace may include:

- Incorrect storage of materials inadequate provision of storage space, lack of maintenance of safe passageways, lack of provision and/or enforcing the use of personnel protective equipment and the use of incorrect procedures in manual handling are clearly unsafe and breach the Health and Safety at Work etc. Act (1974) and subsequent legislation. Such could be avoided by the employer increasing storage space or exercising better stock control, ensuring employees maintain safe passageways, wear personnel protective equipment as needed and use correct procedures in manual handling in your Healthcare Science Department; as well as ensuring that employees are appropriately trained in observing breaches in health and safety legislation and reporting them.
- The legislation recognises the responsibilities of employees in taking steps to adequately protect the health and safety of themselves, colleagues, patients and visitors at work. Well trained responsible employees would not have let this scenario occur in the Healthcare Science Department and it is the employer's responsibility to provide such training.
- The legislation allows for both employers and employees to be penalised for breaches in health and safety legislation. Employees by not reporting or practising poor health and safety practice are also in breach of the regulations.
- Employees may become safety representatives for the Healthcare Science Department. The regulations allow and encourage the use of such representatives to work alongside employer appointed health and safety staff and consultants. Such active involvement of employees reduces the likelihood of accidental or deliberate non-compliance with health and safety legislation and allows anonymous reporting, reducing the likelihood of bad practice occurring. If it does, then it is more likely to be noticed and stopped more quickly.
- The employer can ensure that the workplace has an organised structure in place to encourage health and safety in all departments. Such includes setting up a committee (usually in conjunction with the trade unions and their safety representatives), jointly ensuring the workplace is regularly checked and maintained by the employer's safety staff and the safety representatives, so that the workplace is compliant with the legislation.
- Employer's safety staff and safety representatives can work jointly to produce an effective health and safety policy, and to do risk assessments to reduce injury or near misses. Courses are available through trade unions (trade union education) and the employers (NEBOSH) to provide well trained health and safety staff/representatives.
- Anonymous reporting should also be encouraged as employees may be fearful of repercussions. Use of safety representatives encourages such. Anonymous reporting may have prevented the bad practices in the scenario.

Accept any other suitable response.

QWC

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms are used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms are used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms are used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

Section C: Data handling and confidentiality

This section is worth **21** marks, plus **3** marks for quality of written communication (QWC) and use of specialist terminology.

18 State one potential risk when using IT systems to store information.

[1 mark]

AO1 = 1 mark

Award **one** mark for each risk, up to a maximum of **one** mark:

- possibility of accidental or malicious security breach (1)
- potential for data to be corrupted (1)
- lack of access due to system failure (1).

Accept any other suitable response.

19 You are working as a clinical scientist in a hospital department and you believe a member of staff in this unit may be sharing unauthorised information online.

(a) Explain one suitable process by which you could escalate your concerns.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation up, to a maximum of **two** marks:

- If you have evidence, of a confidentiality breach, you must keep it and submit it (1), bearing in mind this needs to be escalated urgently and the escalation process must be done through appropriate channels (1).
- You may wish to provide a breach of confidentiality/patient information/financial information anonymously. If this be the case then a possible course of action would be to inform your trade union representative/worker representative/trusted colleague, who can escalate the issue rapidly on your behalf (1) and keep any evidence, which could also be transferred anonymously if needed (1).

Accept any other suitable response.

You are sending patient details to a colleague in a clinical research unit and you realise you have sent an email to the wrong colleague from a different department.

(b) Explain one suitable action that you would take.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation, up to a maximum of **two** marks:

- Make attempts to secure the data breach by retracting the email (1). If the email is successfully retracted, then check the policy for a data breach and follow its instructions (1).
- If the email is not retracted send another email to the same person asking him/her to delete it (1). You must still go through the data breach notification process, which may include informing your designated person/data protection officer (1).
- Make note of all data that has been unnecessarily shared (1) and inform the designated person/data protection officer to prevent similar incidents in the future (1).
- Make note of all data that has been unnecessarily shared (1) and inform the designated person/data protection officer to mitigate risks and inform individuals who have been affected (1).

Accept any other suitable response.

20 One research method to collect data for an investigation could be to access historical patient data sourced from patient records. You are investigating the incidences of whooping cough (pertussis) in previously vaccinated children and adults.

Assess the use of this method for obtaining data.

[3 marks]

AO3 = 3 marks

Award **one** mark for each assessment point, up to a maximum of **three** marks:

- In obtaining this data there needs to be two checks for each patient, one to determine if the patient has been vaccinated and the other to determine whether the patient subsequently contracted whooping cough (1). Patient records are a practical way of doing this because they will provide the necessary time delay between vaccination and infection that could be several decades (1). Using patient records in this way will be time consuming as they are extensive and the two events (vaccination and infection) would have to be sourced after reading through large amounts of irrelevant data, however, such is a practical method to obtain the data indicating post vaccine infection rates and the effectiveness of the vaccine (1).
- One advantage of using the patient data is that it has already been collected, so no money needs to be spent on data collection techniques such as surveys (1). The data has been collected by healthcare professionals so it should be reliable (1). Each person was diagnosed by a HCP, this means that the diagnosis is more likely to be accurate than studies where patients self-report cases of the disease (1).

Accept any other suitable response.

21 Your department has acquired a research grant, however, one of the conditions of this grant is that you should share this information with the wider healthcare community, both nationally and internationally.

Explain two impacts of using social media to improve the research profile of your department externally.

[4 marks]

AO2 = 4 marks

Award **one** mark for each explanation, up to a maximum of **two** marks per impact:

- Use of social media can potentially disseminate information research outcomes widely and even internationally, making the institution more well-known (1) this is due to indirect access of information via personal social media activity (web pages, blogs, Facebook, Twitter, videos via Instagram/TikTok etc.) and the potentially rapid sharing process by viewers which will raise the profile of the department by building its reputation (1).
- Use of awareness campaigns that can be placed on social media (blogs, web pages, Facebook, Twitter, videos via Instagram/TikTok etc.) (1) to broadcast the department's research to the wider public (1).

- Dissemination of news through social media channels (blogs, web pages, Facebook, Twitter, videos via Instagram/TikTok etc.) (1) to provide periodic updates of progress with research projects to an international audience (1).
- Social media (blogs, web pages, web-based discussion, Facebook, Twitter, videos via Instagram/TikTok etc.) can be used for the dissemination of research methods, results, discussions and conclusions (1) to enhance the reputation of the department to a wider international audience (1).
- Establishing support networks with interested partners (web pages, web-based discussion, Facebook groups etc.) (1) allows similar research groups based anywhere in the world, to work together for large multicentre grant applications (1).
- Social media can be used to recruit new researchers (1) with an effective strategy enabling interested applicants at international level to possibly apply (1).
- Use of marketing initiatives to expose available products and services to wider audiences, even at international level (1) to increase the sale of products services created by the research (1).
- Sharing links with the grant awarding body and like departments from other hospitals (1) using web pages, discussion for a Facebook etc. increasing collective impact of your department with others (1).

Accept any other suitable response.

22 You have been asked to look into the perceptions of assistive walking devices, prescribed from your department. The data you will be using is to be based on opinions from patients, carers, healthcare workers and other hospital staff.

The following are possible qualitative data collection techniques to improve patients' experiences in the provision of assistive walking devices:

- focus groups
- open question surveys
- closed questions
- surveys
- interviews.

Discuss the suitability of collection techniques above as a method to collect data to improve patients' experiences in the provision of assistive walking devices.

Your response must include reasoned judgements.

[9 marks, plus 3 marks for QWC]

AO1 = 3 marks
 AO2 = 3 marks
 AO3 = 3 marks
 QWC = 3 marks

Band	Marks	Descriptor
3	7-9	<p>AO3: Discussion of qualitative data collection techniques should be comprehensive, effective and relevant, showing detailed understanding and logical and coherent chains of reasoning throughout. Informed conclusions are fully supported with rational, balanced, and reasoned judgements, with most of the relevant arguments evident.</p> <p>AO2: Applied all relevant knowledge and information for a wide range of qualitative data collection techniques showing a detailed, functional understanding of the application of such techniques.</p> <p>AO1: A wide range of relevant knowledge is displayed in the use of qualitative data collection techniques which is accurate and detailed.</p> <p>The answer demonstrates comprehensive breadth and/or depth of understanding.</p>
2	4-6	<p>AO3: The discussion of qualitative data collection techniques should be in most parts effective and mostly relevant, showing mostly logical and coherent chains of reasoning. Conclusions supported by reasoned judgements that consider most of the relevant arguments, are evident.</p>

		<p>AO2: Applied mostly relevant knowledge and information for a wide range of qualitative data collection techniques showing mostly functional understanding of the application of such techniques. AO1: A sufficient range of relevant knowledge is displayed in the use of qualitative data collection techniques which is mostly accurate and detailed.</p> <p>The answer demonstrates reasonable breadth and/or depth of understanding, with occasional inaccuracies and/or omissions.</p>
1	1-3	<p>AO3: Discussion of qualitative data collection techniques is in some parts effective and of some relevance, with some understanding and reasoning, taking the form of generic statements with some development. Brief conclusions supported by reasoned judgements consider only basic arguments and show little relevance to the question aims, are evident.</p> <p>AO2: Applied limited knowledge of various qualitative data collection techniques. The answer also may show a lack of functional understanding of the principles in selecting such techniques.</p> <p>AO1: A limited range of relevant knowledge is displayed in the use of qualitative data collection techniques which is limited in accuracy and detail.</p> <p>The answer is basic and shows limited breadth and/or depth of understanding, with inaccuracies and omissions.</p>
	0	No creditworthy material

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list, nor is it a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1: Knowledge of various qualitative data collection techniques from patients, who are prescribed walking devices in your department, outlining the advantages and limitations of each, for a variety of data collecting scenarios may include:

- focus groups involve small groups of users who share experiences of the department's services and should provide useful information to the department. provided the questions are relevant
- open-question surveys/interviews enable users to answer in any way they wish, which may not be relevant
- closed question surveys/interviews, provide specific responses but some issues may be missed.
- walking devices in your department, discussing the advantages and limitations of each, for a variety of data collecting scenarios

AO2: Application of knowledge and understanding of a wide range of qualitative data collection from patients who are prescribed may include.

Such applications/explanations of qualitative data collection may include the following:

- Focus groups of several people:
 - Advantages – can be used to collect relevant data, on assistive walking device provision especially if they are given appropriate direction in their discussion.
 - Disadvantages – questions may not be clearly focused on issues regarding the assistive walking device prescriptions. Also in this scenario, the focus groups may have too many issues regarding the prescription such as its effectiveness, ease of use and the comfort of the assistive walking device. Carers, healthcare workers etc. may have useful input which form other subgroups.
- Open-question surveys/interviews:
 - Advantages – provide questions where the participant can answer, in any manner they wish. It is important that the patients, carers, health workers etc., have a guidance sheet which directs them into answering questions that relate to their assistive walking device prescription as such questions can lead to irrelevant answers etc.
 - Disadvantages – questions may not be clearly focused on issues regarding the assistive walking device prescriptions and different questionnaires may need to be formulated for patients, carers health workers etc. They also make it difficult to do any quantitative summaries.
- Closed question surveys may be used:
 - Advantages – that they can be used to elicit specific and relevant responses. These can be useful in isolating specific issues regarding assistive walking device prescription. This question type may also allow quantitative analysis of responses (for example, how many say yes or no etc.)
 - Disadvantages – if questions are too specific, they may miss important issues that the patients wish to convey. Closed question surveys will almost certainly require targeted questions for each subgroup: patients, carers, health workers etc.
- The use of inappropriate quantitative data collection techniques will result in inaccuracies that may be critical in the understanding of the research and miss important issues regarding the prescription of assistive walking devices.
- Data collected can be analysed and information used to improve aspects of assistive walking device provision evidenced from the data analysis process.

AO3: Discussion to include reasoned judgments and conclusions of a wide range of qualitative data collection from patients, health workers, carers, etc. who engage with your department. Analysing the advantages and limitations of each, for a variety of data collecting scenarios, may include:

- Such analysis and evaluation of qualitative statistical techniques may include the following:
 - Focus groups can be used for obtaining qualitative data, where the researcher needs to understand the variety of implications of particular assistive walking device interventions. As the opinions of patients, carers health workers etc. form part of this research, several focus groups may be required. These may be difficult to create and facilitate as the issues may be different between the groups providing data and within the groups providing data.
 - The advantages are that the discussions can enable collectively thought responses, which may provide more insight into the departments assistive walking device provision and their format, the choice of questions style of focus group can be replicated or changed for different patient groups: age, sex etc., carers and health workers.

- Disadvantages are that the focus group can bring into the process irrelevant information and also make confused responses. Contradictions can be difficult to accurately analyse, and these may be within groups or between groups (users, carers health workers etc.).
- Open-question surveys/interviews can provide qualitative information on assistive walking device provision as well as provide information in relevant areas not previously considered by the researcher.
- It is advantageous to ensure that there is careful planning to create open ended questions that capture all possible scenarios for all groups (users, carers health workers etc.). The questions may first be piloted to assess their effectiveness.
- Disadvantages are that the focus group can bring into the process irrelevant information regarding the provision of assistive walking aids and make confused responses. Contradictions can be difficult to accurately analyse.
- Closed question surveys/interviews are suitable for trying to elicit a specific effect of assistive walking device intervention and careful planning of closed questions is important, reducing the possibility of issues being omitted. Closed question surveys may be piloted first to assess their effectiveness. Closed questions may need to be changed for the perceptions of carers, health workers etc., from those used for patients as the perceptions may be different.
- Disadvantages are that all possible scenarios may not be captured limiting the scope and usefulness for the research.
- Accurate/meaningful data collection from any chosen data collection technique will contribute optimally to the discussion and conclusion for the provision of assistive walking devices as well as possibly impact on the direction of future changes to the production and prescription of assistive walking devices.
- Mixtures of closed and open questions may be provided, with the advantages that where multifactorial responses are needed then the question styles can be changed to suit.
- The analysis of the data collected may have a more widespread relevance and could be used as evidence of best practice for other departments offering a similar service. Such data may be disseminated via inter departmental/hospital reports, conferences or peer reviewed journals.

Accept any other suitable response.

QWC

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms are used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms are used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms are used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

Section D: Regulatory and professional frameworks

This section is worth **21** marks, plus **3** marks for quality of written communication (QWC) and use of specialist terminology.

23 State two quality management policies and procedures that facilitate continuous service improvement in hospital departments.

[2 marks]

AO1 = 2 marks

Award **one** mark for each quality management policy and/or procedure stated, up to a maximum of **two** marks:

- use of a mission statement (1)
- standard operating procedures (SOPs) (1)
- establishing an evidence base for practice (1)
- planning and monitoring service provision (1)
- analyse quality-based information (1)
- audit cycle (1)
- verify compliance (1)
- regular service quality improvement meetings (1)
- evaluating, identifying and improving improvements (corrective and preventative action (CAPA) process (1)
- enforcing legislative requirements (1).

Accept any other suitable response.

24 You are checking cleaning procedures in your sample analysis laboratory and notice that some work areas are not being regularly cleaned and prepared for use.

Explain how a lack of regular cleaning may affect the validity of the samples in a sample analysis laboratory.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- Keeping sample laboratory work areas clean and tidy (prepared for use) will reduce the possibility of contamination/cross contamination of samples (1). This will reduce the likelihood of creating inaccurate or invalid results such as false positives (1).
- Keeping work areas clean and tidy (prepared for use) makes it easier for the worker to keep track of individual samples (1). This will minimise the risk of samples being mixed up (1).

Accept any other suitable response.

25 You are working in a vaccine storage facility and you discover that some vaccines have been stored at the wrong temperature.

Assess how this may impact on the quality of these vaccines.

[3 marks]

AO3 = 3 marks

Award **one** mark for each assessment point, up to a maximum of **three** marks:

- The quality of the vaccine will be reduced (1) , vaccines will have to be recalled and new ones sent out causing delays (1). This increases costs and inconvenience to patients, who may also be recalled for new vaccinations (1).
- The quality of the vaccine will be reduced (1), such that the vaccine will not confer immunity to the patient (1). This could be critical resulting in serious illness and or death to patients, should the patient become infected thinking they are vaccinated (1).

Accept any other suitable response.

26 You are working in a wheelchair workshop that stores manufacturing materials and chemicals. You realise that due to poor stock management, both structural materials and chemicals are out of date.

Assess how poor stock management could affect manufacturing process.

[3 marks]

AO3 = 3 mark

Award **one** mark for each assessment point, up to a maximum of **three** marks:

-
- Poor stock management will interrupt the manufacturing process (1) New stock will need to be ordered, causing delays (1) Replacing stock will increase costs (1)
- Poor stock management will negatively affect the manufacturing process (1) Using out of date stock may lead to substandard products (1) Faulty products may be harmful to patients, this would lead to expensive product recalls (1)

Accept any other suitable response.

27 Explain one effective technique for monitoring the quality of service provision in a genetic material sampling facility.

[2 marks]

AO2 = 2 marks

Award **one** mark for each suggestion point, up to a maximum of **two** marks:

- Analyse quality-based information by looking at data/KPIs/metrics from the facility (1); this could be for example number of samples tested, the average time taken, the percentage of samples tested late, number of incidents, or near incidents (1).
- Use periodic audit cycles to check quality-based information every (any suitable number) days/weeks/months (1) to ensure the quality of service is maintained over a period of time (1).
- Arrange external 'good clinical practice' inspections or visits from professionals outside of the facility (1); these can be used to verify compliance with processes (such as SOPs and ISO standards access to latest procedure manuals used within the sampling facility (1).

Accept any other suitable response.

28	<p>You are working in a department which makes orthopaedic wrist supports that help people suffering from arthritis to complete daily activities.</p> <p>Discuss how relevant aspects of good manufacturing practice can work alongside a robust system, enabling fault finding, and the rapid recall of products.</p> <p>Your response must include reasoned judgements.</p> <p style="text-align: right;">[9 marks, plus 3 marks for QWC]</p>
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AO1 = 3 marks

AO2 = 3 marks

AO3 = 3 marks

QWC= 3 marks

Band	Marks	Descriptor
3	7-9	<p>AO3: Discussion of how relevant aspects of good manufacturing practice can assist with the rapid recall of products, fault-finding and restoration as well as discuss the importance of having robust systems in place is: comprehensive, effective and relevant, showing detailed understanding and logical and coherent chains of reasoning throughout. Informed conclusions are fully supported with rational, balanced, and reasoned judgements, with most of the relevant arguments evident.</p> <p>AO2: Applied all relevant knowledge of how relevant aspects of good manufacturing practice can assist with the rapid recall of products, fault-finding and restoration as well as applied the importance of having robust systems in place shows a detailed, functional understanding of the implications of non-compliance.</p> <p>AO1: Demonstrates a wide range of understanding of how relevant aspects of good manufacturing practice can assist with the rapid recall of products, fault-finding and restoration as well as demonstrates the importance of having robust systems in place which is accurate and detailed.</p> <p>The answer demonstrates comprehensive breadth and/or depth of understanding.</p>
2	4-6	<p>AO3: Discussion of how relevant aspects of good manufacturing practice can assist with the rapid recall of products, fault-finding and restoration as well as discuss the importance of having robust systems in place is in most parts effective and mostly relevant, showing mostly logical and coherent chains of reasoning. Conclusions supported by reasoned judgements that consider most of the relevant arguments are evident.</p> <p>AO2: Applied mostly relevant knowledge of how relevant aspects of good manufacturing practice can assist with the rapid recall of products, fault-finding and restoration as well as applied the importance of having robust systems in place and shows mostly functional understanding of how such impacts can be applied in this scenario.</p>

		<p>AO1: Demonstrates a sufficient range of understanding of how relevant aspects of good manufacturing practice can assist with the rapid recall of products, fault-finding and restoration as well as demonstrates the importance of having robust systems in place which is mostly accurate and detailed.</p> <p>The answer demonstrates reasonable breadth and/or depth of understanding, with occasional inaccuracies and/or omissions.</p>
1	1-3	<p>AO3: Discussion of how relevant aspects of good manufacturing practice can assist with the rapid recall of products, fault-finding and restoration as well as discuss the importance of having robust systems in place is in some parts effective and of some relevance, with some understanding and reasoning taking the form of generic statements with some development. Brief conclusions supported by reasoned judgements that consider only basic arguments and show little relevance to the question aims are evident.</p> <p>AO2: Applies limited knowledge of how relevant aspects of good manufacturing practice can assist with the rapid recall of products, fault-finding and restoration as well as applies the importance of having robust systems in place and shows a lack of functional understanding of the underpinning legislation.</p> <p>AO1: Demonstrates a limited range of understanding of how relevant aspects of good manufacturing practice can assist with the rapid recall of products, fault-finding and restoration as well as demonstrates the importance of having robust systems in place which is limited in accuracy and detail.</p> <p>The answer is basic and shows limited breadth and/or depth of understanding, with inaccuracies and omissions.</p>
	0	No creditworthy material

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list nor a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1: Demonstrates good manufacturing practice in the processes below, which will work alongside a robust product recall and fault-finding system may include:

- Documentation practices clearly record all processes in manufacturing.
- All processes are clear, defined and controlled.
- Changes to standard process are evaluated and then recorded.
- All personnel in the manufacturing process are trained in recording processes.
- Production and distribution records must be retained.
- Distribution means and channels must minimise risk to product quality.
- Recall system must be in place.

AO2: Applies good manufacturing practice in the processes below, which will work alongside a robust product recall and fault-finding system may include:

- Defective wrist supports will need to be recalled if there are faults.
- Patients may not remember when and where they received the wrist support – hence the need for the manufacturer to keep good records.
- Patients may be at risk of further injury if using a faulty wrist support – need for quick recall.
- Patients may not realise wrist support is not working as it should – need for quality control/fault finding before products are released to the public.

AO3: Assesses how good manufacturing practice can work alongside the processes below required for a robust product recall and fault-finding system may include:

- Arthritis is a chronic and degenerative disease, patients may experience worsening symptoms despite good products, and this can make fault finding more difficult.
- Essential that documentation practices clearly record all processes such as receiving stock, storage use of stock, manufacturing process, to ensure the process at fault can be immediately isolated, thereby not interfering with those process that have not contributed to the problem.
- All processes are clear, defined, controlled and are documented so each employee uses the same processes and paperwork to simplify the means of isolating the fault without interfering with other processes.
- All personnel in the manufacturing process are trained in recording processes and manufacturing processes, so that all are using the same tracking systems and workshop practices. This will minimise recall due to inconsistency in manufacturing processes.
- Production and distribution records must be retained, so that if there is any issue, those items from for example: a batch of faulty materials can be recalled, and appropriate restorative processes put in place as soon as possible.
- Distribution means and channels must minimise risk to product quality by ensuring every movement of products is traced and recorded.
- Recall system must be in place that can be rapidly invoked and can rapidly identify those products that need to be recalled minimising further inconvenience/harm to patients.

Accept any other suitable response.

QWC

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms are used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms are used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms are used effectively.

0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.
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Assessment Objective Grid

Section A

Question Number	AO1	AO2	AO3	Maths	QWC	Total
1	2*					2
2	2*					2
3		4				4
4			3			3
5		2				2
6		2				2
7		4				4
8			6			6
9	3	3	3		3	12
Total	7	15	12		3	37
Totals required	7–9 marks	13–15 marks	11–13 marks			
Kil	4	0	0			

Section B

Question Number	AO1	AO2	AO3	Maths	QWC	Total
10	2*					2
11		4				4
12		4				4
13	2					2
14		2				2
15			6			6
16 (a)	2*					2
16 (b)			3			3
17	3	3	3		3	12
Total	9	13	12		3	37
Totals required	7–9 marks	11–14 marks	10–12 marks			
Kil	4	0	0			

Section C

Question Number	AO1	AO2	AO3	Maths	QWC	Total
18	1*					1
19 (a)		2				2
19 (b)		2				2
20			3			3
21		4				4
22	3	3	3		3	12
Total	4	11	6		3	24
Totals required	3–6 marks	9–13 marks	4–8 marks			
Kil	1	0	0			

Section D

Question Number	AO1	AO2	AO3	Maths	QWC	Total
23	2*					2
24		2				2
25			3			3
26			3			3
27		2				2
28	3	3	3		3	12
Total	5	7	9		3	24
Totals required	4–7 marks	7–10 marks	7–10 marks			
Kil	11	0	0			
Whole Paper Totals	25	46	39		12	122

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