



**General Certificate of Education**

**Health and Social Care  
8621/8623**

**HC15**

**Mark Scheme**

*2008 examination – June series*

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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### **Quality of written communication**

The quality of written communication is assessed in all assessment units where candidates are required to produce extended written material. Candidates will be assessed according to their ability to:

- Select and use a form and style of writing appropriate to purpose and complex subject matter
- Organise relevant information clearly and coherently, using specialist vocabulary when appropriate
- Ensure that text is legible, and that spelling, grammar and punctuation are accurate, so that meaning is clear.

The assessment of quality of written communication must be included in questions **2 (c)**.

**HC15 Mark Scheme**

Question 1

1(a) *Down's syndrome usually results in a learning disability. Give four physical signs or symptoms of Down's syndrome.* (4 marks)

1 mark per symptom, up to 4.

Likely symptoms include: slanting eyes; eyelid folds; small mouth; protruding tongue; small face; small ears/low on head; flattened back of head; cleft between toes; short/stubby hands; single palm crease.

1(b) *Outline how Down's syndrome is caused.* (3 marks)

1 mark for indication that this is a chromosomal disorder; plus 2 marks for detail, likely to include points from the following: extra chromosome; on 21st/trisomy 21; resulting from abnormality in sperm or egg; age of mother also a factor.

1(c) *Outline two other ways in which learning disabilities can be acquired by children.* (4 marks)

1 mark each (up to 2) for identifying ways, plus 1/2 mark each for detail.

Likely answers:

Birth trauma (1) lack of oxygen/hypoxia/anoxia (1) leading to death of brain cells/nerve cells/neurons (1) Head injuries (1) resulting from accidents (1) Infectious disease (1) e.g. meningitis (1) causing swelling of meninges/ pressure on brain (1) damage to brain cells (1) premature (1) excessive alcohol/drugs damaging foetus (1)

1(d) *Name and outline one test that can be used to diagnose Down's syndrome before birth.* (4 marks)

1 mark for naming an appropriate test, plus up to 3 marks for description, depending on detail and accuracy. Likely answers

Chorionic villus sampling (1). A sample is taken of the (lining of the) placenta (1) either using a needle through the woman's abdomen or a catheter through the cervix (1) positioned with the aid of an ultrasound scan (1). at around 10 weeks into pregnancy (1) The tissue sample is tested for chromosomal abnormalities. (1)

Amniocentesis (1). A needle is inserted through the woman's abdomen into the uterus / and amniotic sac (1) positioned with the aid of an ultrasound scan (1). A sample of the amniotic fluid in the sac is taken (1) at around 15/16 weeks into pregnancy (1) The tissue sample is tested for chromosomal abnormalities. (1)

1(e) *Discuss the issues arising from testing for Down's syndrome.* (5 marks)

Up to 2 marks factual information: One purpose is to reduce the incidence/prevent child with Down's syndrome being born (1) positive test often leads to decision to abort the child (1).

Up to 4 marks for discussion, which might include ethical arguments including the potential quality of life for the child; abortion as taking human life, and counter-arguments. Also credit points about the risks involved in the procedures i.e. CVS- risk of death or malformation of foetus or Amnio – risk of miscarriage.

## Question 2

*2(a) Aids and adaptations used by people with disabilities include: Hearing induction loops in public buildings, Utensil cuffs, Callipers. For each of these aids name a disability for which the aid would be appropriate, and outline why this disability requires the aid.*  
(6 marks)

1 mark for identification of relevant disability, plus 1 mark for specific reason.

- Deafness/hearing impairment (1) because there is often a lot of background noise (which is excluded by switching the aid to the induction loop setting )/to T position (1)
- (osteo)arthritis/multiple sclerosis (1) because of pain/tremor/difficulty in gripping objects (1)
- muscular dystrophy (1) to aid standing/mobility (1)

*2(b) People with disabilities sometimes face barriers resulting from: ignorance, prejudice, and discrimination. Explain what is meant by each of these terms.*  
(6 marks)

Up to 2 marks for defining each term. In each case a basic definition plus some elaboration, possibly including an example is acceptable. Likely answers:

(Ignorance) – lack of knowledge (1) e.g. because of lack of contact/lack of education/learning of inaccurate stereotypes (1)

(Prejudice) – negative attitude (1) featuring dislike/avoidance/discrimination (1) judging before meeting someone, based on stereotype(1)

(Discrimination) treating disabled people less favourably (1) e.g. in recruitment (1)

*2(c) Discuss how ignorance, prejudice and discrimination relating to people with disabilities can be reduced.*  
(8 marks)

Award 1 mark for each relevant and appropriate suggestion, plus 1 mark for accurate detail of how this could be put into practice, plus up to 2 marks for discussion e.g. analysis of the effect of the suggestion, specific link ignorance or prejudice or discrimination, and recognition of the limitations of the suggestion.

Likely suggestions include:

Greater integration/awareness (e.g. education in mainstream schools, effects of NHS & CC Act)

Public education (e.g. greater exposure of people with disabilities in sport/media)

Legislation (e.g. DDA, acting against discrimination in employment, access to buildings etc)

**6-8 marks** Answers that make appropriate, realistic and practical suggestions, elaborate these in a way that reveals good technical knowledge, specifically relate these suggestions to ignorance or prejudice or discrimination and feature appropriate evaluation/analysis.

**3-5 marks** Answers that include practical suggestions and some relevant technical detail or evaluation/.analysis.

**1-2 marks** Answers that contain some relevant information, but which are poorly focussed on the question or lack specific detail.

**Quality of written communication applied to this question only**

Answers not expressed in continuous prose, e.g. mainly in unexplained bullet points – maximum 4 marks

Answers featuring frequent errors in spelling/ sentence construction/ grammar so that meaning is obscured – maximum 5 marks

Answers featuring repeated communication errors, but where meaning is still clear **or** answers that are rambling, long-winded and unfocussed – maximum 6 marks.

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Question 3

**3(a) As a result of a stroke, Margaret is unable to speak, although she can still understand speech. Outline what is meant by a stroke. (2 marks)**

1 mark per point, up to 2. Likely points:

Loss of blood supply to (part of) the brain (1) caused by a blood clot/thrombosis (1) link to brain (1) or by bleeding/haemorrhage (into the brain) (1).

**3(b) State two lifestyle factors that increase the risk of strokes. (2 marks)**

1 mark each, up to 2. Likely answers: poor diet; lack of exercise; smoking, excessive/binge drinking of alcohol.

**3(c) Name the speech area of Margaret's brain that is likely to have been damaged by the stroke and give its location. (3 marks)**

Broca's area (1) frontal lobe (1) left hemisphere/side (1).

**3(d) The stroke has also damaged the motor area in one hemisphere of Margaret's brain. Outline the likely effect of this damage on Margaret's appearance and/or abilities. (4 marks)**

Loss of movement/paralysis (1) on the opposite(1) one side of the body/right arm/leg (1) limiting mobility (1) ability to feed herself etc (1) sagging appearance in one side of face (1) poor balance(1)

**3(c) Give three life quality factors Margaret is likely to lack as a result of her stroke. For each factor suggest one way this factor could be provided by a carer. (9 marks)**

1 mark for identifying a relevant LQF (up to 3) plus 2 further marks, one of which can be awarded for explanation why this is lacking, plus 1 mark for suggestion.

Alternatively 2 marks may be awarded for a suggestion given in detail.

No LQF – no mark.

Several LQFs could be made relevant, including; autonomy, psychological security, effective communication, physical safety/hygiene, exercise, physical comfort.  
Accept others if made relevant e.g. occupation.

Others are Stimulation, choice, equitable treatment, social contact, social support, approval, privacy, dignity, confidentiality, nutrition, freedom from pain

## Question 4

4(a) *Describe two physical effects of cystic fibrosis.*

(4 marks)

1 mark for identification of effect (up to 2), plus 1 mark each for detail. Likely answers:

1. Poor lung function (1) caused by thick sticky mucus (1) leading to risk of respiratory disease e.g. pneumonia (1) and fibrous cysts in the lungs (1)
2. Digestive problems (1) because mucus obstructs pancreas (1) preventing enzymes reaching intestines (1) leading to poor weight gain (1)
3. Sterility (1) in males (1).

4(b) *Describe two common treatments for people with cystic fibrosis. Refer to appropriate practitioners in your answer.*

(6 marks)

Up to 3 marks for each treatment, of which 1 must be for specifying the treatment and 1 must be for specifying practitioner. Third mark for accurate detail. Likely answers:

Percussion (1) on the back (1) to dislodge mucus (1)  
carried out by physiotherapist (1)

Antibiotics (1) to control lung infections (1) prescribed by GP (1)

Provision of dietary advice (1) diet high in protein/calories/vitamins/pancreatic enzymes (1)  
given by a dietician (1)

4(c) *Explain in detail how cystic fibrosis is caused.*

(10 marks)

CF is a genetic disorder (1) carried on a recessive gene (1) the CFTR/cystic fibrosis transmembrane conductance regulator gene (1) on chromosome 7 (1).

The normal gene regulates sodium ion concentration (1) the recessive gene fails to regulate this, leading to excess NaCl in the body (1)

This is only expressed if the person has a pair of recessive genes (1) so both parents have to be carriers of this gene (1)

A carrier has no symptoms of the condition (1)

The relevant gene pair in each carrier contains one dominant and one recessive gene (1) and there are 4 possible combinations of these (1) so there is a 25% chance of a child not carrying the gene (1) a 50% chance of being a carrier (1) and a 25% chance of the child having CF (1)

When one parent is a carrier, 50% chance of child being unaffected (1) 50% chance of child being a carrier (1)

Some of the above points can be made by using a diagram, however if the diagram is used instead of a written description, a maximum of 6 marks can be given.

**Not** linked to sex chromosome. Do not credit material about the effects or progress of the condition, or differences between ethnic groups.