

A-LEVEL

HEALTH AND SOCIAL CARE

HSC10 Diagnosis, Treatment and Preventative Strategies
Mark scheme

June 2014

Version: 1.0 Final

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

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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1	a	<p>Ref to the GP</p> <ul style="list-style-type: none"> • asking Sheila questions in order to clarify the problem AW e.g. Current medication/treatment (1) • discover Sheila's medical history (1) • help make a diagnosis AW (1) <p style="text-align: right;">max 2</p>	2	
1	b	<p>1 mark for each of the three other common methods of physical examination named plus 2 marks for each brief description of the three other methods named.</p> <p>Accept any three of the following:</p> <p>Visual examination/inspection (1)</p> <ul style="list-style-type: none"> • The G.P. would look at the affected part of the body where possible (1) • in some cases a diagnosis can be made by looking/visible problems/to observe e.g. a rash. <p>Percussion (1)</p> <ul style="list-style-type: none"> • Ref to: the G.P. holding one/two fingers(1) • on patient's chest/back(1) • tapping fingers (1) • with other hand (1) while listening (1) <p>Using a stethoscope (1)</p> <ul style="list-style-type: none"> • Ref to the stethoscope channelling sounds - via a metal dish/two tubes to ears (1) • from patient's lungs/heart/chest (1) • to identify abnormal noises AW (1) • Allow ref to no amplification / eliminates background noise (1) <p>Reflex testing (1)</p> <ul style="list-style-type: none"> • Ref to the GP detecting nerve damage/ to nerve pathways (1) • can be used to test knee reflex (patellar reflex) (1) • the leg is relaxed (1) 	9	<p>Not palpation</p> <p>Do not allow any equipment using mercury.</p>

			<ul style="list-style-type: none"> • the weight of the leg is supported by the thigh (1) • the joint is tapped using a rubber hammer (1) • no reaction/no reflex AW may suggest nerve damage (1) <p>Taking temperature (1)</p> <ul style="list-style-type: none"> • Ref to thermometer e.g. digital/oral (1) • placed in location e.g. forehead/mouth (1) • remains in place long enough to record temperature/allow given time e.g. 30 seconds (1). Ignore actual readings. <p>Taking blood pressure (1)</p> <ul style="list-style-type: none"> • use of an electrical blood pressure machine/sphygmomanometer(1) • cuff is placed around the patients arm above the elbow(1) • a pump inflates the cuff which prevents blood flowing to the artery to the hand (1)AW • air is slowly let out of the cuff leaving just enough space for the compressed artery to let blood through(1) • the pressure gauge is attached to the tube records the reading (1) • there are two readings systolic and diastolic(1) <p style="text-align: right;">max 9 3+3+3=9</p>		
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1	c	<p>Ref to:</p> <ul style="list-style-type: none"> • ultrasound scan uses a transducer/probe which produces high frequency sound waves (1) • these sound waves penetrate through soft tissue (1) • gel is put on Sheila's skin (1) • the gel is used to help the transducer/probe make better contact between the transducer and skin (1) • the transducer/probe is placed on Sheila's skin (1) • the transducer requires a receiver that detects the sound waves (1) • this is connected to a computer that processes the data from the transducer(1) • the computer creates an image (1) • ultrasound may show any abnormalities in Sheila's abdomen that may be causing her pain (1) <p style="text-align: right;">max 7</p>	7	
1	d	<p>Advantages (MAX 1 mark)</p> <ul style="list-style-type: none"> • low risk of harm/no radiation (1) • can be used when x-rays cannot (1) • produces a 'real' moving image (1) • inexpensive (1) <p>Disadvantages (MAX 1 mark)</p> <ul style="list-style-type: none"> • poorer image/unclear image (in comparison to other scanning techniques) • cannot penetrate bone (1) • therefore can't be used to scan the brain for example.AW (1) <p style="text-align: right;">max 2</p>	2	

2	a	<p>Likely points may include:</p> <ul style="list-style-type: none"> • In males, percentage of people affected by hypertension and heart attacks both increase with age • In males, percentage of people affected by hypertension declines slightly at 75-84 years • In males, percentage of people affected by heart attacks is much lower than those affected by hypertension in all ages • Valid reasons for disease incidence • Such as heart attacks are progressive /following years of coronary artery/heart disease • Hypertension is a cause of heart attack so over time the heart has to work harder and it becomes weaker • Hypertension caused by high salt intake/poor diet • which can affect all ages/heart attacks mainly affect older people • Many other factors contribute to heart attacks: smoking/high cholesterol/lack of exercise/diabetes/obesity • In females, similar trends for males in both hypertension and heart attacks • In females, there is no decline at 75-84 years with hypertension/continues to rise • In males and females, same percentage of people affected by heart attacks between 16-44 • 45-54 year old females have more heart attacks than males of same age range/only exception where more females affected by heart attack than males • Numerical manipulations of data such as percentage increases of over 2x% of males with hypertension than females at age 25-34 <p>Candidates who display appropriate knowledge and understanding and display higher QWC skills should be rewarded at the top of the mark band. However, those who display some confusion and weakness in QWC supporting knowledge and understanding should be placed at the bottom of the mark band.</p>	9	
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2	b	Accept: Blood Pressure (1)	1	Ignore systolic/diastolic
2	c	Accept any one of: <ul style="list-style-type: none"> • Infants (1) • Babies (1) • Children(1) • new borns (1) 	1	

2	d	<p>1 mark for PKU is testing for:</p> <ul style="list-style-type: none"> • Phenylalanine/amino acid (1) <p>Plus 3 marks for any three of the following:</p> <ul style="list-style-type: none"> • Heel prick/Guthrie test (1) • Blood sample is taken from baby's heel (1) • Blood is collected (on a piece of filter paper) and sent to laboratory for analysis (1) • Where levels of phenylalanine amino acid will be measured (1) • If levels are unusually high (1) • a second blood sample will be taken to confirm diagnosis (1) • Test carried out during first week of baby's life (1) • Baby must be on full milk feeds for 3 days before testing (1) <p style="text-align: right;">max 4</p>	4	
2	e	<p>Ref to:</p> <ul style="list-style-type: none"> • Uses x-rays/ionising radiation (1) • Taken of each breast one at a time/separately (1) • Breast placed on X-ray machine and gently/firmly compressed with a clear plate (1) • Two x-rays are taken of each breast at different angles/one from above and one from side (1) • X-ray results/mammogram viewed as images/examined by radiologist/radiographer (1) • Results sent to patient/discussed with patient (1) <p style="text-align: right;">max 5</p>	5	

3	a	<p>1 mark for each of the two diseases named plus 2 marks for each brief description of the two named diseases</p> <p>Accept any two from the following:</p> <p>Diphtheria (1)</p> <ul style="list-style-type: none"> • Corynebacterium diphtheriae (1) • bacterial infection (1) • spreads through respiratory droplets (by a cough or sneeze)/ droplets of their saliva enter another person’s mouth or nose AW (1) • of an infected person or someone who carries the bacteria (1) • Diphtheria can also be spread by contaminated foods (1) • Once infected toxins produced by the bacteria spread through bloodstream (1) to other organs e.g. the heart causing damage.(1) • Main symptoms high temperature/sore throat/breathing difficulties (1). • Causes foul smelling blood stained mucus AW (1) <p>Pertussis/whooping cough (1)</p> <ul style="list-style-type: none"> • Bordetella pertussis (1) • bacterial infection (1) • in the lungs and airways (1) • The condition causes a persistent dry/intense cough (1) • cough makes a 'whooping' noise (1) • spreads through respiratory droplets (by a cough or sneeze)/ droplets of their saliva enter another person’s mouth or nose AW (1) • symptoms- runny nose/raised temperature/vomiting (after coughing) (1) 	6	
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		<p>Tetanus (lockjaw) (1)</p> <ul style="list-style-type: none"> • <i>C. tetani</i> (1) • bacterial infection (1) • lives in soil/dust/manure (1) • Caused when a flesh wound/injury becomes contaminated (1) • untreated may cause death (1) • symptoms include spasms/stiffness/lockjaw/difficulty in swallowing (1) <p>Measles (1)</p> <ul style="list-style-type: none"> • (Paramyxovirus) viral infection (1) • very infectious/the virus spreads very easily (1) • can cause blindness (1) • death (1) • common in children aged between one and four years old (1) • contained in the millions of tiny droplets (1) • that come out of the nose and mouth (1) • when an infected person coughs or sneezes (1) • caused by breathing in infected droplets/by touching a surface that has been contaminated with the droplets (1) • then placing hands near nose or mouth (1) • symptoms appear cold-like/red eyes and sensitivity to light/fever/greyish white spots in the mouth and throat (1) • After a few days a red-brown spotty rash will appear usually starts behind the ears (1) • and the rest of the body (1) <p>Mumps (1)</p>		
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		<ul style="list-style-type: none"> • a contagious viral infection (1) • common in children (1) • spreads like a cold/flu/ from close personal contact with someone who is infected with the virus (1) • contaminated surfaces or by the droplets released when someone infected coughs or sneezes (1) • symptoms includes painful swellings (1) • at the side of the face/ under the ears (1) • "hamster face" appearance (1) • Other symptoms include headache/joint pain/high temperature (1) <p>Rubella (German Measles) (1)</p> <ul style="list-style-type: none"> • viral infection (1) • common in children(1) • airborne/transmitted through the air AW (1) • Symptoms a distinctive red-pink skin rash/swollen glands (nodes)/cold-like symptoms such as a sore head and runny nose (1) <p style="text-align: right;">2+4 = max 6</p>		
3	b(i)	Accept: Salmonella typhi (1)	1	
3	b(ii)	Accept any two from: <ul style="list-style-type: none"> • Faeco-oral route (1) • (ingested) contaminated food (1) • (drank) contaminated water (1) • Sewage contaminated with bacteria getting into water used for drinking/washing (1) 	2	

				max 2	
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3	b(iii)		<p>Ref to:</p> <ul style="list-style-type: none"> • Fever/high temperature/39-40 degrees Celsius (1) • Abdominal pain (1) • Constipation or diarrhoea (1) • Vomiting (1) • Dry cough (1) • Dull headache (1) • Severe mental confusion (1) • Skin rash (1) • Swollen abdomen (1) • Slow heartbeat (1) • Loss of appetite (1) • Weight loss (1) • Physical exhaustion AW e.g. fatigue (1) • Rapid breathing (1) • Psychotic mental state(1) <p style="text-align: right;">max 4</p>	4	
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3	c		<p>Scientific principles should include :</p> <ul style="list-style-type: none"> • Vaccines are dead/weakened pathogens/microorganisms • Of that specific disease • which are injected • produce antibodies • Memory cells made 	7	
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			<ul style="list-style-type: none"> • On second exposure memory cells produced antibodies/recognise pathogens AW • Antibodies produced rapidly/more produced • Antibodies destroy pathogen • Protected against the disease in the future AW • Herd effect/fewer people pass on disease <p>Candidates who display appropriate knowledge and understanding and display higher QWC skills should be rewarded at the top of the mark band. However, those who display some confusion and weakness in QWC supporting knowledge and understanding should be placed at the bottom of the mark band.</p> <p>0 marks No response worthy of credit.</p> <p>1 - 2 marks Generally vague and repetitive answers covering 1-3 points with little detail. There will be little use of appropriate terminology.</p> <p>3 - 4 marks Answers that are more detailed covering 4-5points with generally appropriate terminology. Answers may lack precision but are organised.</p> <p>5 - 7 marks Answers cover 6 or more points or more points and are well structured and in good detail. There will be good use of appropriate terminology hroughout.</p>		
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4	a(i)	<p>Ref to:</p> <ul style="list-style-type: none"> • non-prescription drugs being over the counter AW (1) • safe for purchase/not as strong as prescription drugs (1) • without medical supervision/not prescribed by the GP/without GP prescription (1) <p style="text-align: right;">max 2</p>	2	
4	a(ii)	<p>Any two of:</p> <ul style="list-style-type: none"> • chemical may be damaged by digestion AW (1) • may take too long to be absorbed into the bloodstream – needed quickly (1) • drug needs to be applied locally not generally (1) • unable to swallow – not conscious (1) <p style="text-align: right;">max 2</p>	2	
4	a(iii)	<p>Any three of:</p> <ul style="list-style-type: none"> • injection (1) • spray (1) • creams/topical (1) • Ointments (1) • Suppositories/anal/rectum (1) • Pessaries/vagina (1) • drops (1) • inhalation (1) <p style="text-align: right;">max 3</p>	3	Allow via an IV drip
4	a(iv)	<p>Accept:</p> <ul style="list-style-type: none"> • the brand name (1) • generic name (1) <p style="text-align: right;">max 2</p>	2	

4	a(v)	<p>Ref to:</p> <ul style="list-style-type: none"> • Usman could take bed rest (1) • drink plenty of fluids (1) • keep warm (1) <p style="text-align: right;">max 2</p>	2	
4	b	<p>3 marks for ref to:</p> <ul style="list-style-type: none"> • microbe free AW practices (1) • to avoid wound contamination (1) • during/post-surgery (1) <p>Plus 1 mark for any one of the following examples:</p> <ul style="list-style-type: none"> • sterilisation of implements/use disposables (1) • disinfectant use (1) • Filtered ventilation systems <p style="text-align: right;">max 4</p>	4	
4	c	<p>Ref to:</p> <ul style="list-style-type: none"> • using drugs/chemicals (1) • to block nerve pathways (1) • no loss of consciousness AW (1) • localised area numbed/pain free AW (1) <p style="text-align: right;">max 4</p>	4	
4	d	<p>Accept any one of the following examples:</p> <ul style="list-style-type: none"> • Dental treatment (1) • epidurals for childbirth (1) • skin lesions/moles/stiches (1) • eye surgery (1) • endoscopy (1) • Brain surgery (1) 	1	

