

## **INTERCOLLEGIATE MRCS PARTS 1 AND 2 SAMPLE MULTIPLE CHOICE QUESTIONS**

### **PART 1 - APPLIED BASIC SCIENCES**

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- This is a three hour examination consisting of two sections of multiple choice questions; multiple true/false (MTF) and single best answer (SBA).  
**Note:** Commencing in September 2006 each consecutive Part 1 paper will include an increasing number of questions in the SBA format to gradually replace the current MTF section; every MTF removed being replaced with two SBAs.

The programme of change up to and including January 2008 is below:

- April 2007 – 35 MTF + 110 SBA
- September 2007 – 20 MTF + 140 SBA
- January 2008 – 180 SBA

#### **Multiple true/false format**

- Each question contains a variable number of items. You should mark each item as being either true or false on your answer sheet, following the example given on the answer sheet.
- It is possible for the items in any one question to be all true, all false or any other combination.
- Because the number of items per question varies, you will not necessarily need to fill in every box on the answer sheet.

#### **Single best answer format**

- Each question contains a variable number of possible answers of which there is only one correct answer. You should mark only one box for each question on your answer sheet, following the example on the answer sheet.
- MARKS WILL NOT BE DEDUCTED FOR A WRONG ANSWER. HOWEVER, YOU WILL NOT GAIN A MARK IF YOU MARK BOTH TRUE AND FALSE (MULTIPLE TRUE/FALSE) OR MORE THAN ONE BOX (SINGLE BEST ANSWER) FOR THE SAME ITEM OR QUESTION.
- ONLY ANSWERS THAT ARE CLEARLY STRUCK HORIZONTALLY ACROSS THE CORRECT RESPONSE WILL GUARANTEE A MARK.
- FEINT MARKING MAY BE MISREAD.

### Example questions and recommended method for answering questions.

First you should decide whether each item is true or false. When you are satisfied with your decision, **record your answer on the answer sheet**. If you believe a choice to be true, blacken the box marked T (TRUE). If you believe the choice to be false, blacken the box marked F (FALSE).

1 The conditions that cause Raynaud's phenomenon include:

- ✓ A frost bite
- ✓ B scleroderma
- ✓ C vibrating tools
- ✓ D polycythaemia
- ✗ E leukaemia

	A	B	C	D	E	F	G	H
1	<input checked="" type="checkbox"/> T <input checked="" type="checkbox"/> F	<input checked="" type="checkbox"/> T <input checked="" type="checkbox"/> F	<input checked="" type="checkbox"/> T <input checked="" type="checkbox"/> F	<input checked="" type="checkbox"/> T <input checked="" type="checkbox"/> F	<input type="checkbox"/> T <input checked="" type="checkbox"/> F	<input type="checkbox"/> T <input type="checkbox"/> F	<input type="checkbox"/> T <input type="checkbox"/> F	<input type="checkbox"/> T <input type="checkbox"/> F
2	<input type="checkbox"/> T <input type="checkbox"/> F	<input type="checkbox"/> T <input type="checkbox"/> F	<input type="checkbox"/> T <input type="checkbox"/> F	<input type="checkbox"/> T <input type="checkbox"/> F	<input type="checkbox"/> T <input type="checkbox"/> F	<input type="checkbox"/> T <input type="checkbox"/> F	<input type="checkbox"/> T <input type="checkbox"/> F	<input type="checkbox"/> T <input type="checkbox"/> F

If you were to decide that items A, B, C, and D are true and that item E is false you would record this by making heavy black marks horizontally on the answer sheet as shown above. In this example above, no marks should appear in the boxes under F, G or H, as the question only has options A–E.

### Example multiple true/false

1 Metastatic calcification:

- A occurs in normal tissue
- B is characterised by psammoma bodies
- C is associated with hyperparathyroidism
- D characteristically occurs in osteoarthritis

2 Complications of an above-knee amputation include:

- A mental depression
- B Sudek's atrophy
- C myoglobinuria
- D neuroma formation
- E amyloid deposition

3 The cephalic vein:

- A begins in the region of the anatomical snuffbox
- B at the elbow is deep to the lateral cutaneous nerve of the forearm
- C ends by joining the brachial vein
- D is medial to the biceps muscle in the arm
- E has no valves

- 4 Pathological fractures occur in patients with:
- A osteomyelitis
  - B osteoporosis
  - C osteomalacia
  - D osteitis fibrosa cystica
- 5 Occlusion of the right posterior cerebral artery produces:
- A blindness of the right eye
  - B right homonymous hemianopia
  - C bitemporal hemianopia
  - D an absent light reflex
  - E extraocular muscle paralysis
- 6 The adductor (subsartorial) canal contains the:
- A vastus lateralis muscle in its lateral aspect
  - B profunda femoris vessels
  - C femoral arterial branch which takes part in the anastomosis around the knee
  - D nerve to the vastus medialis muscle
  - E saphenous nerve

**Example SBA (commencing September 2006; Part 1 paper)**

- 76 A 67-year-old woman is brought to the Emergency department having fallen on her left arm. There is an obvious clinical deformity and X-ray demonstrates a mid-shaft fracture of the humerus. She has lost the ability to extend the left wrist joint. Which nerve has most likely been damaged with the fracture?
- A The axillary nerve
  - B The median nerve
  - C The musculocutaneous nerve
  - ✓ D The radial nerve
  - E The ulnar nerve

You should decide which option from the list is the single most likely. When you are satisfied with your decision, **record your answer on the answer sheet**. In the example above, the answer is D; you would record your answer by making a heavy black mark in the box labelled D on line 76.

76	A	B	C	D	E
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
77	A	B	C	D	E
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## PART 2 - CLINICAL PROBLEM-SOLVING

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- This is a three hour examination consisting of one hundred and eighty extended matching items.
- Questions consist of a theme, a list of options (labelled alphabetically), an instruction and a variable number of clinical situations.
- For each of the clinical situations, you should choose the **single most likely option** according to the instruction.
- It is possible for one option to be the answer to more than one of the clinical situations.
- Marks will not be deducted for a wrong answer. Equally, you will not gain a mark if you mark more than one option.
- Only answers that are clearly struck horizontally across the correct response will guarantee a mark.
- Feint marking may be misread.

### Example question and recommended method for answering questions.

First, you should decide which option is correct for each clinical situation, indicating your decision by annotating the question booklet alongside the clinical situation. When you are satisfied with your decisions, **record your answers on the answer sheet** by blackening the box containing the letter corresponding to the option.

Theme: Chest injuries

Options:

- |   |                      |
|---|----------------------|
| a | Tension pneumothorax |
| b | Aortic rupture       |
| c | Haemothorax          |
| d | Aortic dissection    |
| e | Ruptured spleen      |
| f | Cardiac tamponade    |

For each of the situations below, select the **single** most likely diagnosis from the list of options above. Each option may be used once, more than once or not at all.

- 61     A 24-year-old man is brought into the Emergency department having been  
*f*     stabbed with a screwdriver. He is conscious. On examination he is tachypnoeic and has a tachycardia of 120 beats/minute. His blood pressure is 90/50 mmHg. He has a small puncture wound below his right costal margin. A central venous line is inserted with ease, and his central venous pressure is 17 cm. A chest X-ray shows a small pleural effusion with a small pneumothorax. He has received two units of plasma expander, which has failed to improve his blood pressure.
- 62     A 42-year-old man is admitted following a road traffic accident complaining  
*b*     of pains throughout his chest. He was fit and well prior to the incident. He is

tachypnoeic and in considerable pain. His brachial blood pressure is 110/70 mmHg and his pulse rate is 90 beats/minute. Both femoral pulses are present though greatly diminished. A chest X-ray shows multiple rib fractures and an appreciably widened upper mediastinum. Lateral views confirm a fractured sternum. An ECG shows ischaemic changes in the V-leads.

61	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D	<input type="checkbox"/> E	<input checked="" type="checkbox"/> F	<input type="checkbox"/> G	<input type="checkbox"/> H	<input type="checkbox"/> I	<input type="checkbox"/> J
62	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D	<input type="checkbox"/> E	<input type="checkbox"/> F	<input type="checkbox"/> G	<input type="checkbox"/> H	<input type="checkbox"/> I	<input type="checkbox"/> J

If you decide that the answer to the first situation is option F record this by making a heavy black mark in the box labelled F on line 61. If you decide that the answer to the second description is option B record this by making a heavy black mark in the box labelled B on line 62.

### Example extended-matching

Theme: Swollen, painful joints

Options:

- a Osteoarthritis
- b Gout
- c Rheumatoid arthritis
- d Tuberculous arthritis
- e Neuropathic joint disease

For each of the patients described below, select the **single** most likely diagnosis from the options listed above. Each option may be used once, more than once or not at all.

- 61 A 35-year-old woman progressively develops pain, swelling and stiffness of her hands. On examination, 2 years after the onset of her joint complaints, she is found to have swelling and tenderness in relation to the metacarpo-phalangeal joints. X-rays of the affected joints show diminution of joint space, as well as osteoporosis and marginal erosions of the articulating bones.
- 62 A 60-year-old woman complains of pain and swelling of gradual onset in both her knees over a period of 2 years. On examination there is evidence of excess synovial fluid and synovial thickening in both knee joints and local tenderness. Standing X-rays of her knees show diminution of joint space, sclerosis and cysts in the adjacent bones. Osteophytes are also seen at the articular margins.

Theme: Pathological fracture

Options:

- a Osteoporosis
- b Osteomalacia
- c Metastatic carcinoma
- d Osteoblastoma
- e Giant cell tumour

For each of the patients described below, select the **single** most likely diagnosis from the options listed above. Each option may be used once, more than once or not at all.

- 63 A 68-year-old woman has suffered with back pain for 4 years and developed slight kyphosis in the last year. She underwent a hysterectomy and bilateral salpingo-oophorectomy at the age of 35. She presents with a fracture of the left neck of femur after slipping at home.
- 64 A 32-year-old woman presents with pain and swelling in the right shoulder. X-ray shows a large radiolucent swelling in the head of the right humerus extending to the subchondral plate.

Theme: Nerve root/nerve injuries

Options:

- a 4<sup>th</sup> lumbar nerve root
- b 5<sup>th</sup> lumbar nerve root
- c 1<sup>st</sup> sacral nerve root
- d Sciatic nerve
- e Tibial nerve
- f Common peroneal nerve
- g Deep peroneal nerve
- h Superficial peroneal nerve

For each of the patients described below, select the **single** nerve root or nerve that is most likely to have been injured from the options listed above. Each option may be used once, more than once, or not at all.

- 65 A 40-year-old man presents with a 2-month history of lower back pain. During the last 3 weeks he has noticed that the pain radiates down the back of his left leg and that he has difficulty walking. On examination in the supine position, elevating his left leg aggravates his pain. There is diminished sensation on his left heel and along the lateral border of his left foot. The ankle jerk is absent on that side.
- 66 A construction worker has his left leg trapped under falling bricks. At a follow-up clinic 8 weeks later, it is observed that on the left side he has a foot drop and diminished sensation on the lateral aspect of his leg and the dorsum of the foot, with marginal sparing. He is unable to dorsiflex his left ankle or foot.

Theme: Conditions of the parotid gland

Options:

- a Mumps
- b Carcinoma
- c Abscess
- d Sjögren's syndrome
- e Mikulicz's syndrome
- f Pleomorphic adenoma
- g Sialiectasis

For each of the patients described below, select the **single** most likely pathological condition from the options listed above. Each option may be used once, more than once or not at all.

- 67 An 80-year-old emaciated homeless man is admitted with a hot tender swelling in the left parotid region. He is pyrexial.
- 68 An 18-year-old is admitted with bilateral testicular swelling, upper abdominal pain, fever, malaise and bilateral parotid swelling.

- 69 A 34-year-old woman presents with discomfort and swelling of the left parotid salivary gland after meals.

Theme: Raynaud's phenomenon

Options:

- a Chest X-ray with thoracic inlet views
- b MRI scan of root of the neck
- c No investigation
- d Immunological serology
- e Subclavian arteriography

For each of the patients described below, select the **single** most appropriate line of management from the options listed above. Each option may be used once, more than once or not at all.

- 70 An 18-year-old woman presents with a lifelong history of mild bilateral Raynaud's phenomenon.
- 71 A 34-year-old woman presents with a 2-month history of severe unilateral Raynaud's phenomenon.

Theme: Lower leg ulceration

Options:

- a Chronic obliterative arterial disease
- b Superficial venous dysfunction
- c Deep venous dysfunction
- d Rheumatoid arthritis
- e Squamous cell carcinoma

For each of the clinical situations listed below, select the **single** most likely diagnosis from the options listed above. Each option may be used once, more than once or not at all.

- 72 A 72-year-old man presents with a painful lower calf ulcer, marked pitting oedema and an ankle/brachial systolic pressure index of 0.2.
- 73 An 80-year-old retired chef has noticed that the edge of an ulcer situated above the medial malleolus for 17 years has recently become 'heaped up' and bleeds easily on contact.



**Theme:        Aneurysms**

Options:

- a        Immediate ultrasound
- b        Insert intravenous lines, crossmatch blood and transfer to theatre
- c        Check the pulse and blood pressure half hourly
- d        Immediate CT scan
- e        Immediate endovascular stenting

For each of the patients described below, select the single most appropriate initial line of management from the options listed above. Each option may be used once, more than once or not at all.

- 74    A 67-year-old man is admitted as an emergency with back pain. He has a systolic blood pressure of 80 mmHg and is clinically shocked. An epigastric mass is palpable and tender.
- 75    A 67-year-old man is admitted with a palpable abdominal aortic aneurysm and back pain. His blood pressure is normal and there is gross widening of the mediastinum on chest X-ray.