

# Multi-Specialty Recruitment Assessment Test Blueprint & Information

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## 1. Structure of the Multi-Specialty Recruitment Assessment

- 1.1. The Multi-Specialty Recruitment Assessment (MSRA) is a computer-based assessment which is currently being used by a number of specialties for entry into post-graduate medical training. There are two parts to the MSRA; a Professional Dilemmas (PD) paper, followed by a Clinical Problem Solving (CPS) paper.

### 1.2. Professional Dilemmas (58 items, 110 min)

- 1.2.1. The Professional Dilemmas (PD) paper is a Situational Judgement Test (SJT). This part of the assessment focuses on a candidate's approach to working as a doctor. Specifically, the paper measures one's understanding of situations that arise for doctors in the NHS (specifically during a Foundation Placement), judgement in differentiating between appropriate and inappropriate responses, and the ability to recognise the most important concerns in any situation. It focuses on appropriate behaviour with respect to interacting with patients and colleagues and in managing one's own workload. It does not require specific knowledge of experience in specialty training but does assume general familiarity with typical primary and secondary care procedures.
- 1.2.2. The test covers three core domains:
- Professional integrity
  - Coping with pressure
  - Empathy and sensitivity
- 1.2.3. The PD paper consists of 58 items and there are 110 minutes in which to complete the test. Only 50 items account towards the final score, as 8 of the items in each test paper are for piloting purposes.

### 1.3. Clinical Problem Solving (97 items, 75 min)

- 1.3.1. In this part of the assessment, candidates are presented with clinical scenarios that require them to exercise judgement and problem solving skills to determine appropriate diagnosis and management of patients. This is not a test of knowledge per se, but rather one's ability to apply it appropriately. The items are based on Foundation-level clinical practice, and test higher level knowledge synthesis of medical knowledge.
- 1.3.2. The CPS paper consists of 97 questions and there are 75 minutes in which to complete the test. Only 86 items account towards the final score, as 11 of the items in each test paper are for piloting purposes.

## 2. Professional Dilemmas Paper

2.1. The Professional Dilemmas (PD) paper is a Situational Judgement Test (SJT). An SJT is an assessment method which measures how an applicant believes he/she should behave when posed with a challenging professional dilemma. It is not a test of knowledge of problem-solving ability, but rather aims to assess professional attributes (i.e. domains/competencies; see **2.3**) which are considered to be important for successful training progression and performance in one's job role. There is no negative marking.

### 2.2. Context/Setting

2.2.1. As the SJT is a measure of aptitude for entry to specialty training, it is set within the context of the Foundation Programme, with the candidate assuming the role of an F2 doctor. Although the candidate is asked to assume the role of a F2 doctor, each scenario is reviewed by Subject Matter Experts (SMEs) to ensure that the scenario does not contain any knowledge of procedures or policies that would only be learned in certain localities or that are very UK-specific, as this would disadvantage certain candidates (i.e. International Medical Graduates).

2.2.2. In order to ensure that the SJT is relevant to candidates applying to any specialty, and to increase the overall face validity of the test, the blueprint also requires that items are based within a range of contexts and rotations that a Foundation Doctor would realistically find themselves in. Therefore, there is a mixture of items based in hospital settings (across a variety of wards/placements), general practice, out-of-hours clinics, as well as a few based outside of a medical context (where relevant).

2.2.3. Even where a setting is specified in the question, this has only been chosen to provide a context, but the judgement required to answer the question is not specific to that setting.

### 2.3. Target Domains

2.3.1. The test covers three core domains/competencies. Behavioural indicators linked to each competency are outlined below:

#### 2.3.2. Professional integrity

- *Open and honest with others; willing to admit own mistakes.*
- *Treats others with respect and dignity and knows where personal/professional boundaries lie.*
- *Able to balance ethical tensions in relation to demand, resources and expectations.*

- *Strives for quality and manages risk.*
- *Works proactively and is inquisitive in approach.*
- *Takes responsibility for self, others and the health of the wider population.*
- *Demonstrates a commitment to equality of care for all and strives to act in the patients' best interests.*

#### 2.3.3. **Coping with Pressure**

- *Understands and manages own emotions; understands the impact of these on decision making.*
- *Willing to admit when experiencing difficulties and seek assistance where needed.*
- *Readily employs tactics for managing own stress and pursues a healthy work/life balance.*
- *Maintains a professional demeanour; remains calm under pressure.*
- *Demonstrates self-awareness, understanding own limitations and how behaviour may affect others.*
- *Accepts and manages uncertainty and change; responding flexibly when required.*
- *Is resilient, managing criticism well.*
- *Able to take on multiple complex roles and effectively balance differing responsibilities and commitments.*
- *Capable of modifying behaviour to adapt to differing roles or skills required in the future.*

#### 2.3.4. **Empathy and Sensitivity**

- *Employs a caring approach towards patients and colleagues.*
- *Capacity and motivation to view situations from the patient/colleague perspective.*
- *Demonstrates an understanding of others situation and circumstances.*
- *Takes a holistic approach to patient care and considers social, psychological and emotional factors as well as the wider healthcare system.*
- *Empowers patients through involvement in their own care.*
- *Acknowledges and explores the patient's wants and needs.*
- *Takes a patient-centred approach, treating patients as individuals.*
- *Acts in an open and non-judgemental manner.*

### 2.4. **Item Types/Formats**

- 2.4.1. There are 58 items in the PD paper. Around half of the items are ranking items and the other half of the items are multiple choice. As with the CPS paper, there is no negative marking.

2.4.2. Responses to scenarios are usually actions taken to address the situation. Response options will be realistic and the 'best response' will always be included. For scenarios where the candidate is asked to consider the appropriateness of actions (whether ranking or multiple choice), there will be a mixture of good, acceptable and poor responses to the situation. However, completely implausible responses are not included as an option, as judged by SMEs.

#### 2.4.3. Ranking items

- Candidates are asked to judge the appropriateness of four or five independent actions, i.e. *'Rank in order the following actions in response to this situation (1= Most appropriate; 5= Least appropriate)'*. These scenarios require the candidate to think about the appropriateness of each of the different options presented.
- **For these scenarios the actions are discrete actions, and should not be thought of as chronological.**
- An example is presented below.

You are a Foundation (F2) doctor working on a busy orthopaedic ward. During an evening shift one of the nurses asks to speak to you in confidence. She is concerned about one of your F2 colleagues, James. The nurse tells you that she has observed James making several mistakes today and when she told him this he burst into tears and said he couldn't cope with his workload.

*Rank in order the following actions in response to this situation (1=Most appropriate; 5= Least appropriate).*

- A. Discuss distribution of workload with the junior medical team
- B. Speak to James about the nurse's concerns
- C. Suggest the nurse advises James to make an appointment with occupational health as soon as possible
- D. Suggest that the nurse contacts your consultant to discuss her concerns about James
- E. Seek advice from your seniors as to how to support James

#### 2.4.4. Multiple Choice items

- Candidates are asked to select three most appropriate actions to be done in combination out of a total of 8 plausible actions, i.e. *'Select the THREE most appropriate actions to take in this situation'*. These scenarios require the candidate to think about the appropriateness of each of the different options presented.
- **The three most appropriate actions taken together should fully resolve the situation.**
- An example is presented below.

You are a Foundation (F2) doctor working in urology. You have just led a teaching session with the medical students. You had prepared a presentation especially for the session. Your consultant tells you that the feedback from the medical students was poor.

Choose the **THREE most appropriate actions** to take in this situation.

- A. Ask for feedback from your F2 colleagues on your teaching skills.
- B. Ask the consultant for more detailed feedback.
- C. Arrange training on presentation skills from the hospital IT department.
- D. Ask an F2 colleague to help you practice your next teaching session.
- E. Do more reading on the subject in preparation next time.
- F. Ask your consultant to observe you in your next teaching session.
- G. Include this experience as a reflective entry in your Foundation portfolio\*.
- H. Discuss this experience with your educational supervisor.

## 2.5. Item Development

- 2.5.1. A well-established team of trained SME item writers have responsibility for developing new items year on year, which are then piloted alongside the tests used live. At present this team includes predominately GPs, as well as Psychiatrists and more recently Ophthalmologists. As new specialties join the MSRA, they are invited to participate and engage with the process in order to enhance the overall validity of the test.
- 2.5.2. All new SJT items undergo a thorough review process that includes a review by experts in SJT design and development (i.e. WPG). This is followed by a further review and refinement by the team of SME item writers, with input from relevant specialty trainees with regards to item keys<sup>1</sup>. At each stage, items are reviewed for fairness and relevance. Reviews also take place to ensure that each item is appropriate for all applicants in terms of the language used (thus items undergo an English Not First Language review) and that locality-specific knowledge is avoided. This ensures that the SJT is fair to all applicants.
- 2.5.3. Once items are piloted, they are reviewed again by an expert statistician on the basis of their psychometric performance and undergo a further review from the SMEs. Consideration is given to how the best performing candidates keyed the items and the consensus between this and the key derived from the first two stages. In addition, other information is taken into account, such as: the item's correlation with live test performance, its level of difficulty and ability to differentiate applicants' performance', and whether it appears to be favouring any particular demographic groups (i.e. differential item functioning).

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<sup>1</sup> The item key refers to the response which has been defined as appropriate for the item.

- 2.5.4. There is then one final step before an SJT item can enter the operational item bank. Items have to go through a concordance panel, which involves SMEs (who are independent from the item writing/reviewing process), completing an SJT consisting of all pilot items. Following best practice in SJT design, the aim of a concordance stage is to identify a high level of consensus between experts on the scoring key (correct answer). Those items that exhibit high levels of consensus can move into the item bank. Those items exhibiting low levels of consensus are reviewed first to see if an alternative key may be more appropriate (at which point a clinician is consulted), otherwise they are put to one side for further review with changes made if necessary.

## 2.6. Scoring Process

- 2.6.1. SJT items are scored against pre-determined keys that have been derived from consultations with multiple SMEs, so that the scoring of the test is standardised and fair to all candidates.

### 2.6.2. Scoring ranking items

- 2.6.2.1. The items in Part One of the paper require candidates to rank a series of options in response to a given situation. Answers are marked by comparing a candidate's response to the model response determined by an expert panel (i.e. SMEs). The closer the response is to the model response, the more marks are awarded. A perfect match generally receives 20 marks, and a candidate does not need to get every option exactly in the correct order to obtain a good score on an SJT item.

- 2.6.2.2. **It is important to note that this marking convention means that even if a candidate were to answer a ranking item completely out of order, they would score a minimum of 8 marks for that question. Skipping or missing an item, however, results in a score of 0 marks for that question.**

2.6.2.3. The table and example below illustrate the scoring system in more detail.

Key Rank	Candidate Rank				
	1 (C)	2 (D)	3 (A)	4 (E)	5 (B)
1 (B)	4	3	2	1	0
2 (C)	3	4	3	2	1
3 (A)	2	3	4	3	2
4 (D)	1	2	3	4	3
5 (E)	0	1	2	3	4

**Example:** Imagine you are answering a ranking SJT question in the PD paper. You are given a list of five actions/options and are then asked to *rank in order the following actions in response to this situation (1 = most appropriate; 5 = least appropriate)*. The predetermined key for this question is *BCADE*. Option *B* has thus been predetermined by multiple SMEs to be the ‘most appropriate’ option (and in other words, ranked as 1 out of 5). If you then select Option *B* as the most appropriate action you would be awarded 4 full marks for this part of the question. Instead, if you select the option that has been predetermined as the second most appropriate action, Option *C*, you would still be awarded 3 points. If you were to select Option *A*, you would be awarded 2 points, and if you were to select Option *D* you would only be awarded 1 point. You therefore get allocated marks based on the *proximity* of how you rank each of the possible options in accordance to the pre-determined key. So for example, if you were to answer this question using the key *CDAEB* instead, you would get 12 marks ( $3 + 2 + 4 + 3 + 0 = 12$ ).

### 2.6.3. Scoring multiple choice items

- 2.6.3.1. The items in Part Two of the paper require candidates to select three from a maximum of eight possible responses to a given situation. As with ranking items, answers are marked by comparing the response to the model response determined by an expert panel. Multiple choice items are worth a maximum of 12 marks. Each of the three individual responses is worth 4 marks.



### 3. Clinical Problem Solving Paper

3.1. The Clinical Problem Solving (CPS) paper is an assessment which measures the candidate's ability to apply clinical knowledge in a relevant context, and make clinical decisions in everyday practice. The items are based on Foundation-level clinical practice, and test aptitude to synthesise and apply medical knowledge (not just purely fact-recall).

#### 3.2. Context/Setting

3.2.1. CPS items are based in 12 clinical topic areas relevant to general medicine and each test paper includes a balance of items which cover all 12 topics. The topics covered include:

- Cardiovascular
- Dermatology/ENT/Eyes
- Endocrinology/Metabolic
- Gastroenterology/Nutrition
- Infectious disease/Haematology/Immunology/Allergies/Genetics
- Musculoskeletal
- Paediatrics
- Pharmacology & Therapeutics
- Psychiatry/Neurology
- Renal/Urology
- Reproductive
- Respiratory

3.2.1. The majority of items are currently based in a primary care setting, however, items based in other settings are now being piloted in order to expand the bank to bring in more scenarios based in secondary care.

3.2.2. Even where a setting is specified in the question, this has only been chosen to provide a context, but the judgement required to answer the question is not specific to that setting.

#### 3.3. Target Domains

3.3.1. The test covers five core domains/competencies. The competencies and their definitions are provided below:

- 1) **Investigation:** *specific investigations that are carried out in order to obtain a more conclusive diagnosis, or rule out possible causes of illness/injury*

- 2) **Diagnosis:** *identification of a condition, disease or injury made by evaluating the symptoms and signs presented by a patient*
- 3) **Emergency:** *potential serious illness requiring an immediate response (recognising patient risk based on suggested factors)*
- 4) **Prescribing:** *advising, authorising or reviewing the use of medicine/drugs as part of a patient's clinical management plan*
- 5) **Management (non-Prescribing):** *advising, authorising or reviewing the use of other forms/methods of treatment (not medicinal/drug-related) as part of a patient's clinical management plan*

### 3.4. Item Types/Formats

3.4.1. There are 86 items in the CPS paper. Around half of the items are Extended Matching Questions (EMQ) and the other half are Single Best Answers (SBA), including a few Multiple Best Answers (MBA). EMQs can cover more than one clinical topic and refer to multiple clinical scenarios that are linked to the same set of response options.

#### 3.4.2. Extended Matching Question (EMQ)

- Candidates are presented with a list of 7-10 plausible response options, which have multiple questions linked to this response set. Candidates will need to select the most appropriate or likely answer for each clinical presentation, i.e. *'For each patient, please select the most appropriate drug to prescribe.'* Each response option can be selected once, more than once or not at all. An example is presented below.

#### ***Tremor and tingling***

- |    |                 |    |                    |
|----|-----------------|----|--------------------|
| A. | Acromegaly      | E. | Hypoadrenalism     |
| B. | Diabetes        | F. | Hypoparathyroidism |
| C. | Hyperthyroidism | G. | Hypopituitarism    |
| D. | Hypothyroidism  |    |                    |

*For each patient, what is the **SINGLE** most likely diagnosis?*

*Select **ONE** option only from the list above. Each option may be selected once, more than once, or not at all.*

1. A 58 year old woman develops a tremor, and has repeated episodes of breathlessness associated with tachycardia.
2. A 44 year old woman develops tingling in her fingers 3 days after a total thyroidectomy for papillary carcinoma of the thyroid.

### 3.4.3. Multiple Best Answer (MBA)

- Candidates are asked to select two or three most appropriate or likely answers out of 6-8 plausible responses for one clinical presentation, i.e. *'Select the **THREE** most appropriate treatment options from the list below'*. An example is presented below.

A 50 year old woman attends your general practice surgery with a 2 day history of cough, fever and breathlessness. She had previously been well.

Which **THREE** of the following suggest that her illness requires hospital admission? Select **THREE** options only.

- A. BP 90/56
- B. Confusion
- C. History of a renal transplant
- D. Oral temperature 38° Celsius
- E. Respiratory rate of 20 per minute
- F. Scattered crepitations on auscultation of the chest

### 3.4.4. Single Best Answer (SBA)

- Candidates are asked to select the single most appropriate or likely answer out of 5- 8 plausible responses for one clinical presentation, i.e. *'Select the **SINGLE** most appropriate diagnosis from the list below'*. An example is presented below.

A 17 year old student suddenly develops chest pain and dyspnoea after a morning swim. His trachea is deviated to the left. There is hyper-resonance and decreased breath sounds on that side.

Select the **SINGLE** most likely **diagnosis** from the list below. Select **ONE** option only.

- A. Asthma
- B. Left ventricular failure
- C. Pneumothorax
- D. Pulmonary Embolus
- E. Pulmonary haemorrhage

## 3.5. Item Development

- 3.5.1. A well-established team of trained SME item writers have responsibility for developing new items year on year, which are then piloted alongside the operational tests. This is the same team that produces the SJT items.

- 3.5.2. All new CPS items undergo a thorough review process that includes a review by a nominated clinician, and further review and refinement by the team of SME item writers. At each stage, items are reviewed for fairness and relevance. Reviews also take place to ensure that each item is appropriate for all applicants in terms of the language used (thus items undergo an English Not First Language review) and that locality-specific knowledge is avoided. This ensures that the CPS is fair to all applicants.
- 3.5.3. Once items are piloted, they are reviewed again by an expert statistician on the basis of their psychometric performance and undergo a further review from the SMEs. Consideration is given to how the best performing candidates keyed the items, how candidates responded to each of the distractors (i.e. incorrect response options), the item's correlation with live test performance, the item's level of difficulty and ability to differentiate applicants' performance, and whether it appears to be favouring any particular demographic groups (i.e. differential item functioning). Following satisfactory performance, successful CPS items can enter the operational item bank.

### 3.6. Scoring Process

- 3.6.1. For each item, 1 mark is awarded for choosing the correct response. For each Multiple Best Answer (MBA) item, multiple marks are awarded for each correct response applicants select (up to a maximum of 3 marks). There is no negative marking.

## 4. Preparation Hints

- You can take a generic tutorial to familiarise yourself with the controls and screen layouts in advance – see Pearson VUE or Oriel for details.
- Papers are NOT negatively marked so **make sure you answer all the questions**. It is important to note that the marking convention for the PD ranking items means that even if a candidate were to answer a ranking item completely out of order, they would score a minimum of 8 marks for that question. **Skipping or missing an item, however, results in a score of 0 marks for that question.**
- Read the instructions and questions carefully. There may be times when you would like more information to answer questions. Just give your best answer given the information provided.
- For the SJT it is important to bear in mind that often there are no absolute right or wrong answers, and that answers provided for the ranking items in particular are marked against a predetermined key, based on a near-miss approach. Your performance on the test as a whole will be used to determine your level of situational judgement, rather than your performance on individual test questions.
- Read the example questions carefully. If you feel you would benefit from revisiting some areas of knowledge or practice in order to be better able to show your capability, then you should do this before the assessment. Some example questions can be accessed [here](#).
- We will provide a glossary where questions use terms or medical abbreviations which are not in universal use or may be misunderstood by some candidates.