



## Final Examination for the Fellowship in Clinical Oncology (Part A)

### Sample SBA Questions

Each single best answer (SBA) question comprises a stem, which ends with either a question of a statement, and five items (answers), which are labelled (a) to (e). You are asked to decide which single item represents the best answer to the question (or best completes the statement) in the stem of each SBA question.

The examination is not negatively marked; the marking system used is as shown below. Candidates should offer an answer to all questions.

For each question answered correctly:	+1
For each question answered incorrectly:	0

Normal ranges, abbreviations and chemotherapy regimens are listed on the *Candidate Reference Sheet*.

- 1 A 55-year-old woman had a complete macroscopic resection of a Grade I ependymoma extending from the seventh cervical to the first dorsal vertebrae. She was neurologically intact.

What is the most appropriate management?

- (a) observation with serial scanning and chemotherapy if evidence of relapse
- (b) observation with serial scanning and radiotherapy if evidence of relapse
- (c) post-operative chemoradiation
- (d) post-operative chemotherapy
- (e) post-operative radiotherapy

- 2 A 60-year-old woman presented with a two month history of abdominal pain and distension. Ultrasound showed a 3-cm liver metastasis and ascites. Her CA125 was 500 U/ml(<35); CEA was 25 µg/L (<10). Liver biopsy showed adenocarcinoma with the immunoprofile: CK7 +ve, CK20 -ve and TTF1 +ve.

What is the most likely primary site?

- (a) breast
- (b) colon
- (c) lung
- (d) ovary
- (e) thyroid

- 3 A 65-year-old man presented with dysphagia. Endoscopy showed a 6-cm adenocarcinoma of the lower third of the oesophagus. Endoscopic ultrasound showed a 2-cm para-oesophageal node. PET-CT scan showed no evidence of metastatic disease.

What is the most appropriate treatment?

- (a) neoadjuvant chemotherapy followed by surgery
- (b) palliative chemotherapy
- (c) pre-operative radiotherapy followed by surgery
- (d) radical chemoradiotherapy
- (e) surgery

- 4 A 60-year-old man underwent radical chemoradiation for a T3 N0 M0 squamous cell carcinoma of the oesophagus at 22-27 cm. Six months later, he underwent an endoscopy because of worsening swallowing function. A stricture was seen at the site of his previous tumour. Biopsy confirmed squamous cell carcinoma in a background of fibrotic tissue. Repeat CT scan of the chest and abdomen showed no evidence of metastatic disease.

What is the most appropriate management?

- (a) high dose rate brachytherapy
- (b) investigations with a view to surgical salvage
- (c) oesophageal stent insertion
- (d) palliative chemotherapy
- (e) repeated oesophageal dilatation

- 5 A 20-year-old man presented with a 2-cm painless lymph node in the left supraclavicular fossa. He had no other symptoms or abnormal signs. Fine needle aspiration of the node showed lymphoid cells. Chest x-ray was normal.

What is the most appropriate next step in management?

- (a) core biopsy
- (b) examination under anaesthesia, tonsillectomy and blind biopsies of tongue and nasopharynx
- (c) excision of the node
- (d) radical neck dissection
- (e) repeat fine needle aspiration

- 6 A 20-year-old man was undergoing prophylactic cranial irradiation for acute lymphoblastic leukaemia. On the first day of treatment, the TLD (thermoluminescent dosimetry) measurements for his right and left eyes were 0.3 Gy and 0.4 Gy respectively.

What is the most appropriate management?

- (a) move eye shielding posteriorly
- (b) reduce planned treatment dose
- (c) repeat TLDs
- (d) take no action
- (e) warn patient of a high risk of cataract

- 7 An 83-year-old woman presented with a twelve month history of ulceration of the skin over the left tibia. Her WHO performance status was 2. She had hypertension and diabetes.

On examination, she had a 3-cm ulcer over the anterior aspect of her shin. Biopsy revealed basal cell carcinoma.

What is the most appropriate management?

- (a) close observation
- (b) cryotherapy
- (c) radiotherapy
- (d) surgical resection
- (e) topical 5FU cream

- 8 A 65-year-old woman was brought to the chemotherapy department distressed and complaining of a "blocked throat". The symptoms had started 20 minutes earlier when she was drinking a gin and tonic. She had lung metastases from colorectal cancer and had received her third cycle of oxaliplatin and 5-fluorouracil chemotherapy ten days earlier.

On examination, her temperature was 36.9 °C, respiratory rate was 22 breaths per minute, pulse was 80 bpm and blood pressure was 125/85 mmHg. There were no abnormal chest signs. Chest x-ray showed lung metastases. Her neutrophil count was  $0.5 \times 10^9/L$  (1.5-7.0).

What is the most appropriate management?

- (a) anticoagulation
- (b) glyceryl trinitrate spray
- (c) high dose steroids
- (d) intravenous antibiotics
- (e) no active treatment

- 9 A 58-year-old woman presented with a six month history of increasing low back pain. On examination, she was tender over the sacrum. There was a 2-cm palpable mass in the right breast. The left breast was normal. There were no palpable axillary nodes. Biopsy of the breast lesion showed infiltrating ductal carcinoma, Grade 2, ER positive. Isotope bone scan showed increased uptake in the sacrum and several ribs, compatible with metastatic disease. Chest X-ray and liver ultrasound scan were normal.

Her pain improved after a single fraction of radiotherapy to the sacrum and she was commenced on a bisphosphonate.

What is the most appropriate next step in management?

- (a) anastrozole
- (b) 5-fluorouracil, epirubicin and cyclophosphamide chemotherapy
- (c) mastectomy, axillary node dissection and anastrozole
- (d) tamoxifen
- (e) wide local excision, axillary node dissection and tamoxifen

- 10 A 79-year-old man presented with frank haematuria. His past medical history included diabetes mellitus for ten years, a right total hip replacement five years previously and coronary artery bypass surgery two years previously. His WHO performance status was 1.

Cystoscopy showed a 5-cm sessile tumour at the dome of the bladder. Histology from transurethral resection showed moderately differentiated transitional cell carcinoma invading superficial muscle. CT scan of abdomen showed no pelvic or para-aortic lymphadenopathy. Chest x-ray was normal.

What is the most appropriate radiotherapy prescription for his bladder tumour?

- (a) 30 Gy in 10 fractions, opposed AP-PA fields
  - (b) 50 Gy in 20 fractions, anterior and two lateral fields
  - (c) 52.5 Gy in 20 fractions, anterior and two posterior oblique fields
  - (d) 54 Gy in 30 fractions, anterior and two posterior oblique fields
  - (e) 64 Gy in 32 fractions, anterior and two lateral fields
- 11 A 26-year-old woman presented with progressive shortness of breath, sweating and a dry cough 3 years after treatment for a stage I dysgerminoma of the ovary. Chest X-ray showed bilateral hilar lymphadenopathy and pulmonary infiltrates.

What is the most likely diagnosis?

- (a) adenocarcinoma of the lung
- (b) bleomycin pneumonitis
- (c) bronchoalveolar carcinoma
- (d) metastatic dysgerminoma
- (e) sarcoidosis

- 12 A 60-year-old man presented with a 3-day history of fever and purulent cough. His WHO performance status was 1. Chest X-ray showed a lesion in the left upper zone. His respiratory symptoms resolved completely after a course of antibiotics. There were no abnormal physical signs. Further investigations suggested a T2 N0 M0 squamous cell carcinoma involving the left main bronchus. Spirometry showed a FEV1 of 1.1 litres and a FVC of 1.9 litres.

What is the most appropriate management?

- (a) high-dose palliative radiotherapy
  - (b) left pneumonectomy
  - (c) platinum-based chemotherapy
  - (d) radical radiotherapy
  - (e) upper left lobectomy
- 13 A 65-year-old man presented with a large right pleural effusion. He had a past history of significant asbestos exposure 30 years earlier. He was a lifelong smoker.

On examination, he had clubbing of his fingers. Chest X-ray showed a cavitating lesion in the right upper zone. Pleural aspiration showed malignant cells.

Investigations:

haemoglobin	11.5 g/dL (13.0-18.0)
white cell count	$4.9 \times 10^9/L$ (4.0-11.0)
neutrophil count	$2.9 \times 10^9/L$ (1.5-7.0)
platelet count	$196 \times 10^9/L$ (150-400)

sodium	131 mmol/L (137-144)
potassium	3.9 mmol/L (3.5-4.9)
urea	6.9 mmol/L (2.5-7.5)
creatinine	72 $\mu$ mol/L (60-110)
calcium	3.1 mmol/L (2.20-2.60)
albumin	32 g/L (37-49)
AST	40 U/L (5-35)
alkP	100 U/L (45-405)

What is the most likely diagnosis?

- (a) adenocarcinoma of lung
- (b) mesothelioma with bony metastasis
- (c) mesothelioma with bronchiectasis
- (d) small cell carcinoma of lung
- (e) squamous cell carcinoma of lung

- 14 A 45-year-old man with acromegaly had a MR scan of brain, which showed suprasellar extension of his tumour. His visual fields were assessed prior to surgery.

What is the earliest visual field defect?

- (a) bitemporal hemianopia
- (b) lower nasal quadrantanopia
- (c) lower temporal quadrantanopia
- (d) upper nasal quadrantanopia
- (e) upper temporal quadrantanopia

- 15 A 54-year-old woman presented with a 2-month history of progressive dysphagia. She had no significant past medical history. Her WHO performance status was 1.

Endoscopy and biopsy revealed a squamous cell carcinoma arising at 26 cm from the incisors and extending over 4 cm. Endoscopic ultrasound and CT scan showed a 2-cm subcarinal node and a 1.5-cm node at the coeliac axis. There was no evidence of liver or lung metastases.

What is the most appropriate management?

- (a) neo-adjuvant chemotherapy followed by oesophagogastrectomy
- (b) oesophagogastrectomy
- (c) palliative chemotherapy with 5FU/cisplatin
- (d) palliative radiotherapy
- (e) radical chemoradiation with 5FU/cisplatin

- 16 A 60-year-old man presented with a 4-month history of anaemia, weight loss, nausea and abdominal pain. Clinical examination revealed a 10 cm x 15 cm x 12 cm mass in his upper abdomen. CT scan of abdomen revealed a necrotic retrogastric mass displacing the stomach forwards. There were no other abnormalities.

What is the most likely diagnosis?

- (a) carcinoma of the stomach
- (b) gastrointestinal stromal tumour
- (c) metastatic carcinoma of the pancreas
- (d) non-Hodgkin's lymphoma
- (e) retroperitoneal liposarcoma

- 17 A 60-year-old man presented with rectal bleeding. He had longstanding diarrhoea from diverticular disease.

Rigid sigmoidoscopy showed a 2-cm sessile lesion on the posterior wall of the rectum. The distal edge was 1 cm proximal to the dentate line. Biopsy confirmed poorly differentiated adenocarcinoma. MR scan of pelvis showed that the tumour extended just through the muscularis propria. The tumour was 5 mm away from the mesorectal fascia. There was no radiological evidence of lymphadenopathy or distant metastases. He wished to avoid a stoma if possible.

What is the most appropriate treatment for this patient?

- (a) abdominoperineal excision
  - (b) chemoradiation
  - (c) cryotherapy
  - (d) low anterior resection
  - (e) transanal resection
- 18 A 32-year-old woman presented with a 4-cm moderately differentiated adenocarcinoma of the anorectal junction. MR scan showed that the tumour has penetrated into the muscularis propria. There were no visible perirectal lymph nodes.

What is the most appropriate management?

- (a) abdominoperineal resection
  - (b) anterior resection
  - (c) pre-operative long-course chemoradiation and anterior resection
  - (d) pre-operative short-course radiotherapy and abdominoperineal resection
  - (e) transanal microsurgery
- 19 A 22-year-old man was admitted with shortness of breath and a dry cough 10 days after his first cycle of ABVD chemotherapy for stage IIB Hodgkin's lymphoma.

Investigations:

haemoglobin	9.8 g/dL (13.0-18.0)
white cell count	$0.8 \times 10^9/L$ (4.0-11.0)
neutrophil count	$0.1 \times 10^9/L$ (1.5-7.0)
platelet count	$70 \times 10^9/L$ (150-400)
sodium	148 mmol/L (137-144)
potassium	5.1 mmol/L (3.5-4.9)
urea	15 mmol/L (2.5-7.5)
creatinine	140 $\mu\text{mol/L}$ (60-110)

What is the most likely diagnosis?

- (a) adult respiratory distress syndrome
- (b) bleomycin pneumonitis
- (c) gastrointestinal haemorrhage
- (d) septicaemia
- (e) tumour lysis syndrome

- 20 A 56-year-old man presented with tingling in the right ring and little fingers. He was found to have an epitrochlear lymph node measuring 4 cm x 4 cm. Biopsy showed a grade 1 follicular non-Hodgkin's lymphoma. He was staged at IA.

What is the most appropriate treatment?

- (a) 24 Gy in 12 fractions over 2.5 weeks with external radiotherapy
- (b) 30 Gy in 15 fractions over 3 weeks with external radiotherapy
- (c) observation with treatment on progression
- (d) rituximab, cyclophosphamide, vincristine and prednisone (RCVP)
- (e) single-agent chlorambucil

- 21 An 85-year-old woman presented with a 2 cm x 2 cm squamous cell carcinoma of the posterior auricular fold. It was 0.75- cm thick.

What is the most appropriate treatment?

- (a) 6 MeV electrons with 0.5 cm bolus, giving 55 Gy in 20 fractions over 4 weeks
- (b) 12 MeV electrons with 0.5 cm bolus, giving 55 Gy in 20 fractions over 4 weeks
- (c) 150 kV photons, giving 50 Gy in 20 fractions over 4 weeks
- (d) pinnectomy
- (e) wide excision plus grafting and radical neck dissection

- 22 A 78-year-old man presented with a palpable left inguinal node. His WHO performance status was 1. The maximum diameter of the lesion was 5 cm and its maximum depth from the skin was 3 cm. The lesion was fixed to underlying tissues but not to skin. Clinical examination showed no evidence of the primary lesion. Investigations showed no other evidence of nodal or distant metastases.

Biopsy showed moderately differentiated squamous cell carcinoma. A decision was made to treat the lesion with a direct electron field.

What is the most appropriate electron energy?

- (a) 10 MeV electrons, no bolus
- (b) 10 MeV electrons, 0.5 cm bolus
- (c) 12 MeV electrons, 0.5 cm bolus
- (d) 12 MeV electrons, 1.0 cm bolus
- (e) 15 MeV electrons, no bolus

- 23 A 69-year-old man presented with frank haematuria. His past medical history included insulin-dependent diabetes for 10 years and coronary artery bypass surgery 2 years earlier. His WHO performance status was 1.

Cystoscopy showed a 5-cm sessile tumour at the dome of the bladder. The bladder mucosa looked inflamed. Biopsy showed moderately differentiated transitional cell carcinoma invading superficial muscle. There was extensive carcinoma in situ. CT scan of chest and abdomen showed no pelvic or para-aortic lymphadenopathy and chest was normal.

What is the most appropriate treatment for his bladder tumour?

- (a) intravesical BCG weekly for 6 weeks
- (b) intravesical mitomycin C weekly for 6 weeks
- (c) palliative radiotherapy
- (d) radical cystectomy
- (e) radical radiotherapy

- 24 A 58-year-old man presented with a 2-month history of poor urinary flow and a 2-week history of dysuria and nocturia. He had longstanding lower back pain but no other past medical history.

On examination, there was no focal spinal tenderness. On rectal examination the prostate was moderately enlarged, firm and tender, but there were no palpable nodules. His PSA concentration was  $32 \mu\text{g/L}$  ( $<4$ ), but other blood results were normal. A post-micturition ultrasound of the bladder showed a residual volume of 50 mL.

What is the most appropriate next step in his management?

- (a) bone scan
  - (b) lumbar spine X-ray
  - (c) MR scan of pelvis
  - (d) repeat PSA after 2 weeks of ciprofloxacin
  - (e) transrectal ultrasound and biopsy of prostate
- 25 A 65-year-old man with myelofibrosis was referred for splenic irradiation for massive splenomegaly extending 18 cm below the left costal margin. He lived 62 miles from the radiotherapy centre. It was planned to treat him with 8 MV photons using a pair of parallel opposed fields.

What is the most appropriate dose, fractionation and time schedule for his radiotherapy?

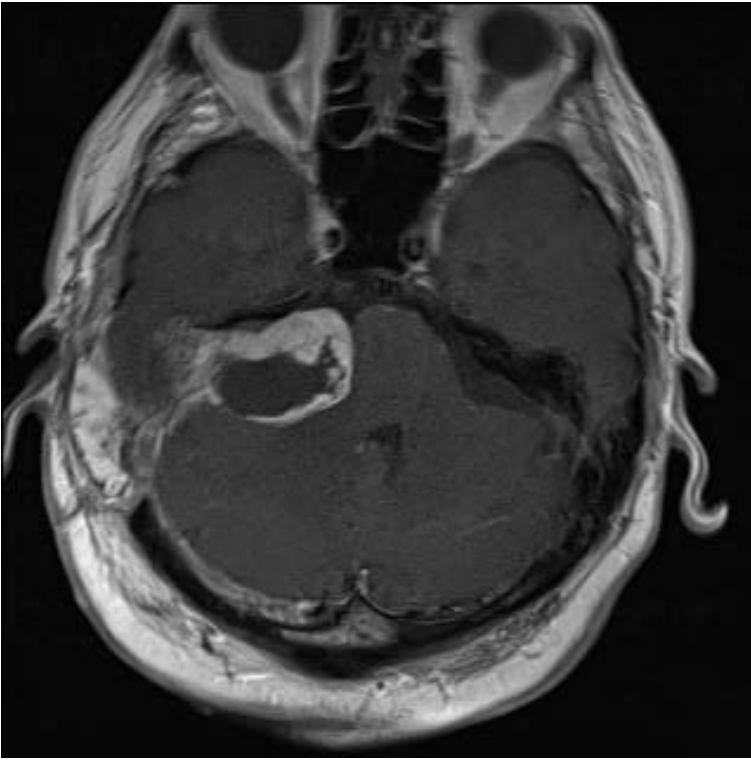
- (a) 16 Gy, eight weekly fractions over 7 weeks
  - (b) 20 Gy, ten daily fractions, 14 days
  - (c) 25 Gy, five fractions (alternate days), 12 days
  - (d) 30 Gy, ten daily fractions, 14 days
  - (e) 45 Gy, 25 daily fractions, 35 days
- 26 A 68-year-old man had a 2-year history of right-sided hearing loss and balance problems.

An MR scan of brain demonstrated a right cerebo-pontine angle enhancing tumour with a cystic component, consistent with an eighth nerve schwannoma. An axial slice is shown below.

What is the most appropriate management?

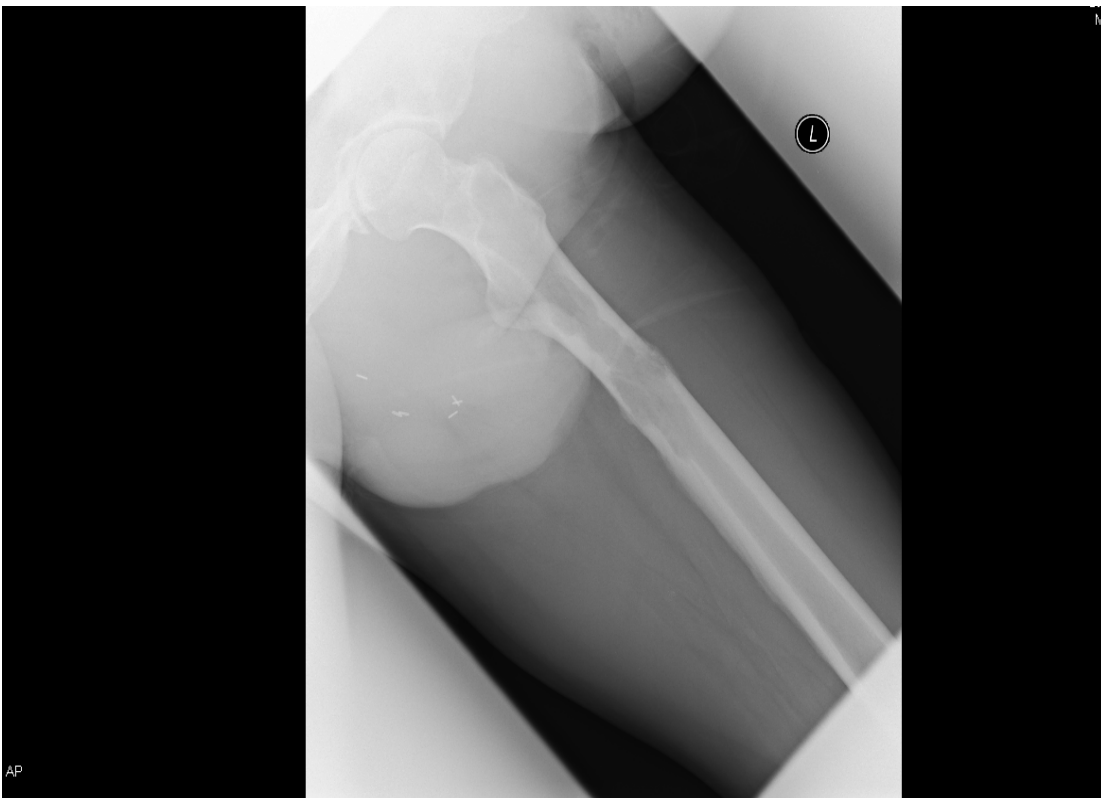
- (a) Observation with repeat MR scan of brain in 12 months
- (b) Surgical resection
- (c) Fractionated Stereotactic radiotherapy
- (d) Stereotactic radiosurgery
- (e) Biopsy





27 A 55 year old man developed increasing pain in his left thigh and a marked limp, over 3 weeks. Three years previously he had underwent nephrectomy for a renal cell carcinoma.

An isotope bone scan showed metastases in the right lateral ribs and left femur and he had been taking sunitinib. A plain X-ray of the left femur is shown below.



What is the most appropriate next step in his management?

- (a) Bisphosphonate infusions
- (b) External beam palliative radiotherapy
- (c) Stop sunitinib
- (d) Strontium 89 isotope therapy
- (e) Surgical intervention

**Correct Answers:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
B	C	A	B	C	D	D	E	A	C
<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
E	D	E	E	C	B	A	A	D	A
<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>			
A	E	D	D	A	B	E			