



# PTS 2a Mock SBA Series 2020

## *Paper 1- [Questions]- Version 3*

### Examination instructions

- Time allocated for examination: **2 hours 30 minutes**.
- You are **not permitted** to leave the examination hall in the first **90 minutes**.
- Please write your **student number** at the top of the answers page.
- You are permitted to use a Sheffield University approved **calculator** should you wish.
- The use of mobile phones or other **electronic devices is strictly prohibited** in this exam and should be handed in or switched off for the duration of the exam.
- Please complete all **100 questions** provided.
- The paper consists of **100 marks** in total.

### Disclaimer:

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Please **do not share** this document on **google drives** or **directly** to **future 2a students**, this takes away from their opportunity to complete the mock SBA in the run up to their exams when it has maximal impact as a revision resource. **This mock paper will be repeated for future years.** Thank you.

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**1. A 64-year-old man presents to A & E with central chest pain that radiates to the left shoulder, nausea and sweating. He has no allergies and takes simvastatin for high cholesterol. You commence them on oxygen and administer morphine for pain relief. Your consultant asks you prescribe an appropriate antiplatelet therapy for the patient, what do you give?**

- A. Aspirin alone
- B. Aspirin and Ticagrelor
- C. Clopidogrel alone
- D. Clopidogrel and Warfarin
- E. Dalteparin

**2. Which statement best describes the pharmacology of spironolactone?**

- A. Inhibition of aldosterone receptor in the distal tubules
- B. Inhibition of cyclooxygenase enzymes in the proximal tubules
- C. Inhibition of L-type voltage-gated calcium channels in the nephron
- D. Inhibition of sodium chloride transporter in the distal convoluted tubule
- E. Inhibition of sodium/potassium/chloride symporter in the loop of Henle

**3. Which of the following is not an associated risk factor for hypertension?**

- A. Caucasian race
- B. High caffeine consumption
- C. Sedentary lifestyle
- D. Smoking
- E. Type A personality

**4. A patient is referred to a cardiology clinic after presenting to their GP with shortness of breath after walking for 50 metres and general fatigue. on auscultation there is an audible pan-systolic murmur at the apex. What is the most likely diagnosis?**

- A. Aortic stenosis
- B. Aortic regurgitation
- C. Mitral stenosis
- D. Mitral regurgitation
- E. Tricuspid regurgitation

**5. Which of the following ECG changes is most typically seen in a patient with a myocardial infarction?**

- A. Absent P waves
- B. QT prolongation
- C. ST depression
- D. Tall, tented T waves
- E. Wide QRS complex

**6. John is a 53-year-old Caucasian gentleman who attended GP clinic 2 weeks ago for an annual check-up. In the GP practice his BP was recorded as 155/100mmHg and he was subsequently given an ambulatory blood pressure monitor for 2 weeks. His results show an average blood pressure of 138/91mmHg. What is the most appropriate management for this result?**

- A. Amlodipine
- B. Bendroflumethiazide
- C. Lifestyle changes only
- D. Losartan
- E. Ramipril

**7. An 89-year-old patient with multiple undiagnosed cardiovascular co-morbidities is brought to A&E with slurred speech, left arm weakness and a severely ataxic gait. Which underlying condition is most likely to have contributed to this presentation?**

- A. Atrial fibrillation
- B. Cor pulmonale
- C. Infective endocarditis
- D. Left bundle branch block
- E. Myocardial infarction

**8. Jane is a 68-year-old woman who has presented to her GP following a diagnosis of hypertension. She is worried that she is at increased risk of having a heart attack and wants to know how likely this is. Which framework should her GP use to calculate Jane's risk?**

- A. ABCD<sup>2</sup> score
- B. CHA<sub>2</sub>DS<sub>2</sub>-VASc score
- C. COVID19 score
- D. QRISK2 score
- E. Wells score

**9. Which of the following best describes the concept of relative risk in the context of a trial examining the efficacy of statins compared to placebo in reducing heart attacks?**

- A. The risk of a heart attack in the statin group was 1.65% compared to 2.67% in the placebo group, therefore statins decrease the risk of heart attack by 1.02%.
- B. The risk of a heart attack in the statin group was 1.65% compared to 2.67% in the placebo group, therefore statins decrease the risk of heart attack by 61%.
- C. 98 patients would need to be treated with statins to prevent 1 heart attack.
- D. 98 patients would need to be treated with placebo to cause 1 heart attack.
- E. If this study was conducted 100 times, these results would occur in 95 of the 100 times.

**10. Which of the following is the correct order for the electrical conduction of the heart?**

- A. AV node -> atria -> SA node -> bundle of His -> Purkinje fibres -> L and R bundle branches -> ventricles
- B. SA node -> ventricle -> AV node -> bundle of His -> Purkinje fibres -> L and R bundle branches -> atria
- C. bundle of His -> Purkinje fibres -> atria -> AV node -> L and R bundle branches -> ventricles -> SA node
- D. SA node -> atria -> AV node -> bundle of His -> Purkinje fibres -> L and R bundle branches -> ventricles
- E. SA node -> atria -> AV node -> L and R bundle branches -> Purkinje fibres -> bundle of His -> ventricles

**11. Judy, a 34 year-old female, presents to the GP with symptoms of hypertension despite being on a current regimen of antihypertensive medications. The junior doctor orders appropriate blood tests and the results come back which suggest a diagnosis of Conn's syndrome. She is scheduled to have an operation for an adrenalectomy. What medication is prescribed prior to her operation to stabilise her BP and K+ levels?**

- A. Aspirin
- B. Furosemide
- C. Ramipril
- D. Spironolactone
- E. Warfarin

**12. Jeremy presents to your GP for review of his recent blood test results. They show raised Renin and raised Aldosterone levels. What is the most likely diagnosis?**

- A. Addison's disease
- B. Catatonic state
- C. Hypertension
- D. Secondary hyperaldosteronism
- E. Pseudo pseudohypoparathyroidism

**13. Which of following signs would someone with a suspected diagnosis of Cushing's syndrome most likely present with?**

- A. Abdominal striae
- B. Hypotension
- C. Hyperpigmentation
- D. Vertigo
- E. Weight loss centrally

**14. Loss of which of the following feedback system results in an increase of cortisol in the body?**

- A. Hypothalamo-pituitary-adrenal axis
- B. Hypothalamo-adrenal-pituitary axis
- C. Hypothalamo-pituitary-thyroid axis
- D. Hypothalamo-thyroid-pituitary axis
- E. Hypothalamo-pituitary axis

- 15. Luke presents with symptoms of polyuria, polydipsia and dehydration. You suspect the diagnosis to be Diabetes Insipidus. What test would you perform to differentiate whether the cause is cranial or nephrogenic?**
- A. Alcohol deprivation test
  - B. Blood glucose
  - C. Dexamethasone suppression test
  - D. ECG
  - E. Water deprivation test with desmopressin
- 16. James's HbA1c levels are tested in order to determine whether he has Diabetes Mellitus or not. Which of the following values will prove diagnostic?**
- A.  $\geq 6.5$  mmol/mol
  - B.  $\geq 11.1$  mmol/mol
  - C.  $\geq 24$  mmol/mol
  - D.  $\geq 42$  mmol/mol
  - E.  $\geq 48$  mmol/mol
- 17. Which of the following is not a cause of hypercalcaemia?**
- A. Down's syndrome
  - B. Familial benign hypocalciuric hypercalcaemia
  - C. Malignancy
  - D. Sarcoidosis
  - E. Thyrotoxicosis
- 18. Which of the following is most likely to be present on an ECG with someone who has been hyperkalaemia?**
- A. Narrow QRS complex
  - B. Small T waves
  - C. Tall T waves
  - D. Tall P waves
  - E. U waves
- 19. Due to his excessive alcohol intake, Martin developed pancreatitis. Recently he started to feel thirsty and complained of having to wake up during the night to go the toilet. What is the most likely cause of his symptoms?**
- A. Addison's disease
  - B. Conn's disease
  - C. Excessive alcohol intake
  - D. Gilbert's syndrome
  - E. Pancreatogenic Diabetes

**20. Molly has come into GP complaining of diarrhoea, heart palpitations and feeling quite flushed. She has also noticed a change in mood but thinks this is due to her being recently fired from her job. What is the most likely explanation for her symptoms?**

- A. Carcinoid syndrome
- B. Depression
- C. Hypertension
- D. Hypothyroidism
- E. Pituitary tumour

**21. Steve, a 23-year-old male, presents to the GP with a 6 week history of diarrhoea. He tells the GP he goes four times a day but often feels as if he has to go more. He says he is very tired, has lost weight and has general abdominal cramping. He experienced a bout of diarrhoea similar to this a year ago lasting for two months, where he also noticed blood in his stool and some mucus. However this time there is none. On examination, Steve looks pale with some swollen red patches at the corners of his mouth. What would you expect to find on colonoscopy and biopsy?**

- A. Continuous mucosal inflammation throughout the large bowel which stops abruptly at the ileocecal junction.
- B. Mucosal inflammation limited to the rectum, with evidence of superficial ulceration and crypt abscesses.
- C. Patches of transmural inflammation throughout large bowel and terminal ileum, with evidence of granulomas and deep ulceration.
- D. Continuous mucosal inflammation with contact bleeding from the rectum to the descending colon at the splenic flexure, with evidence of goblet cell depletion.
- E. Diffuse inflammation throughout the large bowel, with evidence of granulomas and faecal leukocytes. Crypt architecture is normal.

**22. Jane is a 15-year-old female who has come to the GP with her mother regarding her weight. In the past month she has lost 7 kg unintentionally and has also complained of feeling excessively tired. On further questioning, Jane reveals she has also had diarrhoea three times a day for the past two months. When asked to describe her bowel movements she explains that they looked paler and smellier than usual and were difficult to flush away. Her mother is concerned, as Jane's periods still have not started and thinks it could be linked. Given your suspected diagnosis, what is the most appropriate initial test ?**

- A. Faecal Calprotectin
- B. Stool sample for microbiology
- C. Ferritin
- D. IgA tissue transglutaminase or IgA endomysial antibody
- E. Erythrocyte sedimentation rate and C-reactive protein

**23. Trevor, a 67-year-old male, has come to the GP regarding some difficulty swallowing for three months. He explains that initially it felt like certain food like toast was getting stuck in his throat, but now softer food like mashed potato was causing him pain during swallowing for the past month. He has been treated for 'reflux' in the past, but feels the medication isn't helping and that his symptoms have become worse and has noticed some persistent coughing. In the past week he has been unable to keep food down after meals and mentioned there was some blood in the vomit. Trevor drinks 3 glasses of whiskey every night and has smoked a pipe for the past 45 years. He admits his diet isn't brilliant, having frequent takeaways and that he's always been 'a bit more on the heavy side'. Despite this, he thinks he might have lost around 9kg in the last month without trying. On examination, there is no gurgling heard during palpation of Trevor's neck and no halitosis. What is the most likely diagnosis?**

- A. Oesophageal cancer
- B. Gastric cancer
- C. Pharyngeal pouch
- D. Crohn's disease
- E. Peptic ulcer

**24. Sally is a 19-year-old female who has turned up to A&E with acute abdominal pain. Upon questioning, she explains that it started around 6 hours previously and gestures to the umbilical region. Then, in the past 3 hours it has spread to over to her right lower abdomen. She also mentions she started feeling nauseous 5 hours ago and has been sick 3 times in the past 3 hours (there was no blood or bile in her vomit). She also mentions she has not had bowel movements in the past two days, and her urinary frequency remains the same. The only medication she takes is the oral contraceptive pill, and she has no other medical history. Her observations show that she is tachycardic and has a temperature of 38.2°C. On examination of her abdomen, she shows guarding and presents some rebound tenderness. On palpation of her left iliac fossa, she complains of pain in her right iliac fossa. From the following list, which diagnosis is most likely?**

- A. Ectopic pregnancy
- B. Cholecystitis
- C. UTI
- D. Crohn's disease
- E. Appendicitis

- 25. Sharon is a 55-year-old female who has come to the GP regarding variable bowel movements. She explains that over the past 6 months she has suffered periods of both constipation and diarrhoea. She also experiences crampy abdominal pain and often some bloating, which usually comes on after eating but is relieved by defecation. She has never noticed any blood in her stool, and her weight has remained stable in this time. When questioned about her social history, she mentions that she has been very stressed recently due to being fired and trying to find a new job and has not travelled abroad recently. What treatment would be useful for Sharon?**
- A. Following a gluten-free diet
  - B. Increasing exercise and altering fibre and fluid intake
  - C. Prednisolone
  - D. Antibiotics
  - E. Surgery and Chemotherapy
- 26. Geoff, a 57-year-old male, has come to the GP regarding pain in his chest. Over the past 6 months he has been experiencing a 'burning' pain which rises up from the epigastric region into his chest behind the sternum. He denies any chest tightness or pain in the jaw and left arm. The pain seems to come on after every meal and is worse on lying down. He also notes he has noticed it is becoming painful to swallow which makes it difficult. When questioned about his lifestyle, he explains he smokes 10 cigarettes a day, 4 pints of beer per night, and is aware that his weight is well above average. What is most likely to be seen on endoscopy?**
- A. The distal oesophageal epithelium undergoing metaplasia from squamous to columnar
  - B. The proximal oesophageal epithelium undergoing metaplasia from squamous to columnar
  - C. The distal oesophageal epithelium undergoing metaplasia from columnar to squamous
  - D. The gastro-oesophageal junction sliding upwards into the chest cavity
  - E. A bulge of the stomach rising up into the chest cavity alongside the oesophagus
- 27. Bob, a 30-year-old male, presents to the GP with a burning pain in his epigastric region which gets worse when he is hungry or just after meals. He has become more reluctant to eat and as a result has noticed some weight loss. Bob smokes 5 cigarettes a day and drinks 3 glasses of red wine each night. He is told to reduce his alcohol intake and to stop smoking and is prescribed a PPI, however he comes back after 4 weeks with his symptoms unchanged. You undertake a carbon-13 urea breath test and the results come back positive. What is the first line treatment?**
- A. Add Gaviscon
  - B. Continue with PPI alone
  - C. Add a H<sub>2</sub> Blocker
  - D. H<sub>2</sub> Blocker + Amoxicillin + Clarithromycin/Metronidazole
  - E. PPI + Amoxicillin + Clarithromycin/Metronidazole



- 28. Doris has been suffering from dyspepsia for the past 4 weeks, and after trying lifestyle management her GP decides to try her on a Proton pump inhibitor (PPI). Which cells do PPIs act on?**
- A. G cells
  - B. Parietal cells
  - C. Mucous neck cells
  - D. Chief cells
  - E. ECL cells
- 29. A 39-year-old male presents to A&E with right sided loin pain. He says it came on quite suddenly and that it comes and goes. When the pain is there, it is the worst pain he has ever felt and complains that he can't get comfortable and it radiates down to his groin. What is the gold standard investigation to undertake?**
- A. Abdominal ultrasound
  - B. Contrast CT of kidney, ureter and bladder
  - C. Non-contrast CT of kidney, ureter and bladder
  - D. Urine dipstick
  - E. X-Ray of the kidneys, ureter and bladder
- 30. What is the most common composition of renal stones?**
- A. Ammonium Phosphate
  - B. Calcium Oxalate
  - C. Calcium Phosphate
  - D. Cystine
  - E. Uric acid
- 31. A 45-year-old painter presents to the GP with blood in his urine. He says he has the urge to go to the bathroom more been going to the bathroom more often than normal and there isn't any pain when he goes. He states he has noticed he has lost some weight over the last few weeks without trying to, but he has been quite happy about that. What is the most likely diagnosis?**
- A. Bladder cancer
  - B. IgA Nephropathy
  - C. Prostate cancer
  - D. Renal cell carcinoma
  - E. Urinary tract infection
- 32. Alan, a 72-year-old male, has recently been diagnosed with Benign Prostatic Hyperplasia. Which of the following symptoms is he least likely to have presented with?**
- A. Haematuria
  - B. Nocturia
  - C. Poor stream
  - D. Post-micturition dribbling
  - E. Urgency incontinence

- 33. A man comes in for a medication review. One of the medications he is on is tamsulosin to treat his BPH. Which of these is a potential side effect which you need to ask about?**
- A. Erectile dysfunction
  - B. Haematuria
  - C. Nausea and vomiting
  - D. Postural hypotension
  - E. Weight loss
- 34. Which of these is not a common bacterial cause of urinary tract infections?**
- A. E. coli
  - B. Proteus mirabilis
  - C. Klebsiella pneumoniae
  - D. Staphylococcus saprophyticus
  - E. Streptococcus pneumoniae
- 35. A 12-year-old boy with minimal change disease presents to the nephrology clinic for a review. Which of the following clinical pictures fits correctly for minimal change disease?**
- A. Haematuria, hypoalbuminaemia and peripheral oedema
  - B. Hyperlipidaemia, haematuria and hyperalbuminaemia
  - C. Hypoalbuminaemia, peripheral oedema and proteinuria
  - D. Proteinuria, haematuria and oliguria
  - E. Proteinuria, hyperalbuminaemia and peripheral oedema
- 36. A patient presents to A&E with left sided loin pain. An abdominal x-ray shows a stone blocking the ureter on the left side. Monitoring of the patient's urine output shows it has been less than 0.5ml/kg/hr for over 6 hours leading to a diagnosis of AKI. Which of the following U&E components should we be most concerned about?**
- A. Chlorine
  - B. Creatinine
  - C. Potassium
  - D. Sodium
  - E. Urea
- 37. Michael, a 91 year old Asian gentleman, has a diagnosis of Chronic Kidney Disease (CKD). His GFR is recorded as 75. What CKD stage is this?**
- A. Stage 1
  - B. Stage 2
  - C. Stage 3a
  - D. Stage 3b
  - E. Stage 4
- 38. Furosemide is a diuretic indicated for patients with pulmonary oedema and chronic heart failure. Which of the following correctly describes furosemide's pharmacology?**
- A. It is a loop diuretic which acts on the ascending limb of the loop of Henle
  - B. It is a loop diuretic which acts on the descending limb of the loop of Henle
  - C. It is a potassium sparing diuretic which acts on the proximal convoluted tubule
  - D. It is a potassium sparing diuretic which acts on the distal convoluted tubule
  - E. It is a thiazide-like diuretic which acts on the distal convoluted tubule

- 39. A 24-year-old female presents to her GP with a single mass in her lower neck. It first appeared about 2 months ago. She recently moved to a new house and attributed her recent weight loss and night sweats to the stress of this. However, the lump in her neck has started to grow and she is getting worried as it now has a 3 cm diameter. On a recent girls night out, she found that it was very painful after drinking alcohol. What is the most likely diagnosis?**
- A. Hodgkin's lymphoma
  - B. Multiple myeloma
  - C. Non-Hodgkin's lymphoma
  - D. Polycythaemia Ruba Vera
  - E. Stomach Cancer
- 40. A 55-year-old male is asked to attend a haematology clinic due to his recent diagnosis of chronic myeloid leukaemia. He has some initial investigations prior to his appointment. What is most likely to be found?**
- A. Auer rods
  - B. Decrease in the number of basophils
  - C. Increase in haemoglobin
  - D. Philadelphia chromosome
  - E. Reed-Steinburg cells
- 41. A 76-year-old female has been diagnosed Non-Hodgkin's lymphoma. She has nodal involvement on both sides of her diaphragm. What stage is she classified under using the Ann-Arbor Classification?**
- A. 1
  - B. 2
  - C. 3
  - D. 4
  - E. 4+B
- 42. A 50-year-old woman is investigated for weight loss and anaemia. She has no past medical history of note. On clinical examination, the GP finds splenomegaly and pale conjunctivae. Her blood test results are below:**
- > **Haemoglobin: 10.9g/dl (12 – 165)**
  - > **Platelets:  $702 \times 10^9/l$  (150 – 450)**
  - > **White cell count:  $56.6 \times 10^9/l$  (4 – 11)**
  - > **Blood film: Leucocytosis seen with all stages of granulocyte maturation seen. What is the most likely diagnosis?**
- A. Acute lymphoblastic leukaemia
  - B. Chronic lymphocytic leukaemia
  - C. Chronic myeloid leukaemia
  - D. Myelodysplasia
  - E. Myeloma

- 43. Which of the following is not a risk factor for a deep vein thrombosis?**
- A. Dehydration
  - B. Malignancy
  - C. Nausea
  - D. Obesity
  - E. Varicose Veins
- 44. A 45-year-old man has come into hospital after recently having day surgery on his knee with a swollen calf. After taking a history the FY1 finds out that he has also recently been to America and got back 3 days ago. The most likely diagnosis is a DVT. What is the gold standard investigation?**
- A. CT Scan
  - B. D-dimer
  - C. Doppler ultrasound scan
  - D. Venography
  - E. XR
- 45. A 15-year-old girl presents to the GP with heavy periods. The GP starts the girl on the oral combined contraceptive pill but is worried that she may have developed iron deficiency anaemia as a result of the blood loss. Which of the following findings would you least expect to find in a patient with iron deficiency anaemia?**
- A. Brittle hair and nails
  - B. Koilonychia
  - C. Pale conjunctivae
  - D. Reduced reflexes
  - E. Systolic flow murmur
- 46. A 35-year-old vegan presents to her GP with peripheral neuropathy. In her past medical history, the GP also notes that she has coeliac disease that has been troubling her over the past 2 months. She orders a blood test and finds that she has megaloblastic anaemia. What is the most likely cause?**
- A. Folate deficiency anaemia
  - B. Iron deficient anaemia
  - C. Fanconi anaemia
  - D. Sickle cell disease
  - E. Vitamin B12 deficient anaemia
- 47. A patient recently started ceftriaxone for meningitis which has caused haemolysis, what would you expect to see on assessment of the patient?**
- A. Decreased reticulocyte count
  - B. Decreased serum albumin
  - C. Decreased serum phosphate
  - D. Increased Haemoglobin
  - E. Presence of dark urine

- 48. Which of the following is not a cause of iron deficiency anaemia?**
- A. Chronic kidney disease
  - B. GI bleed
  - C. NSAIDS
  - D. Pregnancy
  - E. Sickle cell disease
- 49. What is the definition of pharmacodynamics?**
- A. Action of the body on the drug.
  - B. Action of the drug on the body.
  - C. Action of the liver on the drug.
  - D. Action of the renal system on the drug.
  - E. The toxic effects of a medication
- 50. What is the definition of pharmacokinetics?**
- A. Action of the body on the drug.
  - B. Action of the drug on the body.
  - C. Action of the liver on the drug.
  - D. Action of the renal system on the drug.
  - E. The toxic effects of a medication
- 51. Mrs Smith is a 38-year-old lady recently diagnosed with fibromyalgia. Her GP prescribes amitriptyline, a tricyclic antidepressant, to manage her pain alongside CBT. Which of the following is not a known side effect of amitriptyline?**
- A. Blurred Vision
  - B. Confusion
  - C. Dry Mouth
  - D. Urinary retention
  - E. Yellowing of nails
- 52. What is the mechanism of action for penicillin antibiotics?**
- A. Inhibits bacterial cell wall synthesis
  - B. Inhibits phosphodiesterase type 5
  - C. Inhibits protein synthesis by bacteria
  - D. Inhibits the action of COX enzyme
  - E. Interferes with bacterial DNA replication and transcription
- 53. Mr Jones is a 67-year-old gentleman who has recently been started on warfarin for AF and subsequently must monitor his INR regularly. An excess of which of the following foods would decrease warfarin's effect?**
- A. Bananas
  - B. Beetroot
  - C. Cranberries
  - D. Grapefruit
  - E. Spinach

- 54. Rosie is a 19-year-old female. She has been brought into A&E by her housemates as she has a severe headache and fever. The doctor suspects meningitis. Rosie is known to have suffered from angioedema when previously exposed to penicillin. Which of the following drugs does she have a contraindication to receiving?**
- A. Ceftriaxone
  - B. Chloramphenicol
  - C. Co-amoxiclav
  - D. Paracetamol
  - E. Sodium Chloride 0.9% solution for infusion
- 55. Which of the following medications are licensed for use in the UK to treat heroin addiction?**
- A. Diclofenac
  - B. Methadone
  - C. Metformin
  - D. Oxycodone
  - E. Tramadol
- 56. Which of the following is not a component of antibiotic stewardship?**
- A. Educating staff about the safe and appropriate prescription of antibiotics.
  - B. Prescribing antibiotics in bacterial infections at appropriate doses.
  - C. Prescribing antibiotics in viral infections at appropriate doses.
  - D. Reassessing treatment when culture results are available.
  - E. Switching from IV to oral options after 48 hours in a septic patient who has stabilised.
- 57. James, a 38-year-old golfer, is diagnosed with a pheochromocytoma and is scheduled for surgery in several weeks. What is the first drug his endocrinologist should prescribe to him to prepare him for the upcoming surgery?**
- A. Atenolol
  - B. Atorvastatin
  - C. Carbimazole
  - D. Insulin
  - E. Phenoxybenzamine
- 58. Which of the following is a complication of Clostridium Difficile infection?**
- A. Ascending cholangitis
  - B. Diverticulitis
  - C. Ischaemic colitis
  - D. Peptic ulcer
  - E. Pseudomembranous colitis
- 59. Which symptom would not be seen in a patient with severe infective gastroenteritis?**
- A. Bloody diarrhoea
  - B. Coffee-ground vomitus
  - C. Fever
  - D. Headache
  - E. Reduced skin turgor

**60. Which of the following organisms does not cause atypical pneumonia?**

- A. Chlamydia psittaci
- B. Coxiella burnetii
- C. Legionella pneumophila
- D. Mycobacterium avium complex
- E. Mycoplasma pneumoniae

**61. Which medication is not used in the management of pulmonary TB?**

- A. Erythromycin
- B. Ethambutol
- C. Isoniazid
- D. Pyrazinamide
- E. Rifampicin

**62. Which antibiotic is not indicated in Staphylococcus Aureus infection?**

- A. Ampicillin
- B. Cefotaxime
- C. Clarithromycin
- D. Flucloxacillin
- E. Vancomycin

**63. Which heart valve is most commonly affected in infective endocarditis?**

- A. Aortic
- B. Coronary
- C. Mitral
- D. Tricuspid
- E. Pulmonary

**64. Which of the following is a Gram-negative diplococcus?**

- A. Enterococcus spp.
- B. Escherichia coli
- C. Mycobacterium tuberculosis
- D. Neisseria spp.
- E. Staphylococcus aureus

**65. Which of the following antibiotics does not inhibit cell wall synthesis?**

- A. Benzylpenicillin
- B. Cefotaxime
- C. Erythromycin
- D. Teicoplanin
- E. Vancomycin

- 66. Which is the most common cause of bacterial pneumonia?**
- A. Haemophilus influenzae
  - B. Moraxella catarrhalis
  - C. Pseudomonas aeruginosa
  - D. Staphylococcus aureus
  - E. Streptococcus pneumoniae
- 67. Which of the following results would not score a point when assessing the severity of community-acquired pneumonia?**
- A. 72-year old patient
  - B. New onset confusion
  - C. Respiratory rate: 28/min
  - D. Systolic blood pressure: 87mmHg
  - E. Urea: 11mmol/L
- 68. Which of these deformities is not typically seen in Rheumatoid Arthritis?**
- A. Bouchard
  - B. Boutonniere
  - C. Ulnar Deviation
  - D. Swan Neck Deformity
  - E. Z thumb
- 69. In a patient with Pseudo-Gout what would be seen under light microscopy?**
- A. Needle shape and negative bi-fringent
  - B. Needle shape and neutral bi-fringent
  - C. Needle shape and positive bi-fringent
  - D. Rhomboid shape and negative bi-fringent
  - E. Rhomboid shape and positive bi-fringent
- 70. An 86-year-old lady has been diagnosed with osteoporosis. Which of these would be second line treatment for the condition?**
- A. AdCal
  - B. Alendronic acid
  - C. Allopurinol
  - D. Corticosteroids
  - E. Denosumab
- 71. What is the mechanism of action for bisphosphonates?**
- A. Increases osteoblast activity and bone formation
  - B. Increases osteocyte and osteoblast activity
  - C. Inhibit bone resorption through the inhibition of enzyme (Farnesyl Pyrophosphate synthase) which reduces osteoclast activity
  - D. Inhibits bone resorption through increasing osteoclast activity
  - E. Works as a monoclonal antibody for RANK ligand leading to inhibited osteoclast activity.



- 72. A 58-year-old male presents with sudden painful inflammation of his big toe. What is the treatment?**
- A. Allopurinol
  - B. Colchicine
  - C. Diclofenac
  - D. Febuxostat
  - E. IV antibiotics
- 73. Which of these diseases is associated with joint stiffness that gets worse during the day?**
- A. Ankylosing Spondylitis
  - B. Gout
  - C. Osteoarthritis
  - D. Psoriatic Arthritis
  - E. Rheumatoid Arthritis
- 74. A 32-year-old woman presents to clinic with a history of stiff hands and wrists which are worse on the morning. On examination her PIPJ joints are warm and swollen. You suspect she has Rheumatoid Arthritis. Which of the following investigations is the best for confirming this diagnosis?**
- A. Anti-citrullinated peptide antibody (anti-CCP)
  - B. C-reactive protein
  - C. MRI
  - D. Rheumatoid Factor Levels
  - E. X-Ray
- 75. A 72-year-old lady presents to the GP with worsening pain in her left knee that is stopping her from getting around the house and getting to sleep at night. Which of the following describes what would be seen on an X-Ray of the left knee?**
- A. Bony erosions and joint subluxation
  - B. Increased joint space, osteophytes, subchondral sclerosis and subchondral cysts
  - C. Normal X-Ray
  - D. Reduced joint space, osteopenia and soft tissue swelling
  - E. Reduced joint space, osteophytes, subchondral sclerosis and subchondral cysts
- 76. A 19-year-old man presents to A&E with a 1-day history of a red, swollen painful left knee. He is feeling generally unwell and has had a fever since yesterday. What is the most appropriate management of this patient?**
- A. Analgesia and send home
  - B. Aspirate the joint and send blood cultures
  - C. Immobilise joint
  - D. IV antibiotic treatment
  - E. X-Ray left knee

- 77. A 26-year-old male presents to rheumatology clinic with progressive lower back and hip pain that has been going on for the past 2 months. He mentioned that pain and stiffness is worse in the morning and has also noticed that his left heel is also hurting most days. Recent blood tests show a raised ESR and CRP. What is the most appropriate first line treatment?**
- A. Bed rest
  - B. Bisphosphonates
  - C. Physiotherapy only
  - D. Physiotherapy and NSAIDS
  - E. Steroid injections
- 78. A young patient is rushed to A&E following a sudden loss of consciousness after a period of vomiting and complaining of a headache. You take a history from his girlfriend who lives with him and says he is usually fit and well and he had been playing cricket earlier that day. You enquire about recent injuries and she explains how he got hit in the head earlier with a cricket ball but seemed fine following the injury. You perform a CT head and see a biconvex hypodense haematoma on the brain. Which injury to a blood vessel has caused this image?**
- A. Blood clot in the circle of Willis
  - B. Blood clot in the middle cerebral artery
  - C. Rupture of a berry aneurysm
  - D. Rupture of the bridging veins
  - E. Rupture of the middle meningeal artery
- 79. A 41-year-old woman visits her GP complaining of recurrent headaches. She says that the pain is often just on one side of her head and feels as though her head is throbbing. She has tried to take some paracetamol which helps a little bit but not enough and these headaches are starting to interrupt her daily life. She is worried about driving because she has experienced some really strange feelings for a few minutes before the headaches start. She said these are quite hard to explain. What would be the 1<sup>st</sup> line treatment for this patient?**
- A. Amitriptyline
  - B. Aspirin
  - C. Ibuprofen
  - D. Topiramate
  - E. Withdrawal of current medication
- 80. A 6-year-old girl is brought into her GP for an emergency appointment. Her parents are concerned because she has developed a fever over the last 24 hours and has been complaining of a stiff neck and legs. She has now started complaining of a headache that is made worse by bright lights. The GP suspects meningitis and gives IM benzylpenicillin before requesting a lumbar puncture. Which of these is not a causative organism for Meningitis?**
- A. Listeria monocytogenes
  - B. Neisseria meningitis
  - C. Pseudomonas aeruginosa
  - D. Streptococcus agalactiae
  - E. Streptococcus pneumonia

- 81. A 52-year-old man visits the walk-in centre complaining of pain and pins-and-needles in his left hand. He can't pinpoint exactly where it is, but he knows it doesn't feel as bad in the palm of his hand. It is worse in the morning than at night, and it usually feels quite numb when he first wakes up until he starts to move it around more. You lightly tap the area just below the palm in the middle of the wrist with your finger and he gets the same sensation of the pins and needles he has been experiencing. Which nerve is responsible for these symptoms?**
- A. Axillary nerve
  - B. Brachial nerve
  - C. Median nerve
  - D. Radial nerve
  - E. Ulnar nerve
- 82. A 19-year-old girl visits her GP because she has started needing the toilet much more than usual and feeling numb in various parts of her body. She tells you that recently her hands have started shaking and she feels generally very weak. She is experiencing pain from random things including some pain in her eyes, and whenever she goes in the shower everything feels ten times worse. This will occur for about a week, and then she will start to feel better again. What is the likely diagnosis based on the clinical history?**
- A. Creutzfeldt-Jakob disease
  - B. Duchenne Muscular Dystrophy
  - C. Motor Neurone disease
  - D. Multiple Sclerosis
  - E. Myasthenia Gravis
- 83. A 45-year-old man visits you in your GP practice. He has previously been diagnosed with upper motor neuron disease and is coming for a review of his progression. He has become much weaker than when you have previously seen him and is now having trouble swallowing. You decide to insert a PEG tube to ensure he is getting enough nutrition. He finds this very distressing but accepts that it is for the best. Which of these is not a usual symptom of upper motor neurone disease?**
- A. Babinski reflex
  - B. Fasciculations
  - C. Increased muscle tone
  - D. Muscle weakness
  - E. Overactive reflexes
- 84. A 42-year-old was diagnosed with Huntington's disease 7 years ago. He has come to visit his GP for a medication review because his symptoms are no longer managed by the current dose. He hasn't suffered with chorea for about a year but has now started experiencing random jerks of his limbs again, and he gets very embarrassed about it in public and would like to know if he can increase his dose of the medication that controls this. What medication is used to control the jerky movements described above?**
- A. Gabapentin
  - B. Haloperidol
  - C. Prednisolone
  - D. Risperidone
  - E. Sertraline

- 85. A 32-year-old woman had been recovering from a chest infection, and then started presenting with tingling and numbness in her fingers and toes. Now, 3 weeks later, the weakness has spread further along her limbs and she is starting feel unsteady on her feet. A lumbar puncture is performed, and a diagnosis of Guillian-Barre syndrome is made. What is the treatment for Guillian-Barre syndrome?**
- A. Low dose aspirin
  - B. Dexamethasone
  - C. IV immunoglobulin
  - D. SC Sumatriptan
  - E. Pyridostigmine
- 86. A patient is complaining of a recurring headache that lasts about an hour each time and presents as a tight pain going around the head like a band. There is no nausea or vomiting, but some sensitivity to light. Which of the following is not a cause of tension headaches?**
- A. Depression
  - B. Lack of sleep
  - C. Missed meals
  - D. Dehydration
  - E. Stress
- 87. A 64-year-old woman goes to A&E because she is really worried about a rash that has developed along the side of her arm. She says it is painful and she also feels quite unwell. A history is taken, and she had recently been in contact with her granddaughter who had chicken pox. Which is the most useful investigation?**
- A. Blood culture
  - B. CT head
  - C. Immunofluorescence
  - D. Lumbar puncture
  - E. Viral PCR
- 88. A 10-year-old girl presents to her GP with her mother. She has had ongoing shortness of breath for the last year, differing in severity over the course of the year. Which one of the following is not indicative of a diagnosis of asthma?**
- A. A history of other atopic conditions such as eczema
  - B. Bilateral widespread wheeze
  - C. Clubbing of the fingers
  - D. Diurnal variability
  - E. Triggered by exercise and animals
- 89. Which cause of pneumonia is most typically associated with AIDS?**
- A. Haemophilus influenzae
  - B. Legionella pneumophila
  - C. Pneumocystis jirovecii
  - D. Pseudomonas aeruginosa
  - E. Streptococcus pneumoniae

**90. A 55-year-old man presents to A&E with sudden onset chest pain and shortness of breath. He woke up today with a swollen, painful right leg. Upon further enquiry, you discover the gentleman has metastatic prostate cancer which is deemed inoperable. He has no previous history of DVT/PE and has not coughed up blood. You calculate his Wells score to be 7. You provide the patient with appropriate analgesia and oxygen and decide to admit. Checking his obs chart, you see the following:**

- > **Blood pressure: 127/84**
- > **Heart Rate: 86**
- > **Temperature: 37.4**
- > **Saturation: 96% on 15L non rebreath.**
- > **AVPU: The patient is alert but in pain**

**Radiology confirm your likely diagnosis.**

**What is the next appropriate course of action?**

- A. Commence thrombolysis such as streptokinase
- B. Perform a D-Dimer
- C. Start a DOAC such as apixaban
- D. Referral for urgent CTPA
- E. Start on Warfarin

**91. A 45-year-old man is diagnosed with TB and started on appropriate medication. 2 months into his regime, he starts to experience pins and needles in his legs and muscle weakness. His GP suggests this is likely a side effect of his current TB medication. Which of the following is the likely cause?**

- A. Rifampicin
- B. Isoniazid
- C. Pyridoxine
- D. Ethambutol
- E. Pyrazinamide

**92. A 21-year-old male presents to A&E after developing sudden shortness of breath and right sided pleuritic chest pain. This came on whilst playing football. You perform an erect chest X ray, confirming your diagnosis. Whilst conferring with your colleagues, a nurse alerts you that the patient has gone into tachycardia. You perform a quick respiratory examination, finding reduced air entry on the right side. You also note tracheal deviation towards the left side of the chest. What is the most appropriate action?**

- A. No treatment required, follow up in 2-4 weeks
- B. Immediate decompression via large bore canula
- C. Insert a chest drain into the 'triangle of safety'
- D. Oxygen if required and observation
- E. Needle aspiration

**93. A consultant on a post take ward round shows you this arterial blood gas taken on admission. What is the correct description of the following arterial blood gas?**

- > **pH: 7.30 (7.35-7.45)**
  - > **pCO<sub>2</sub>: 8.3 kPa (4.5-6.0)**
  - > **PaO<sub>2</sub>: 9.2 kPa (10-14)**
  - > **HCO<sub>3</sub><sup>-</sup>: 29 mEq/L (22-26)**
- A. Metabolic acidosis with partial respiratory compensation
  - B. Metabolic alkalosis with partial respiratory compensation
  - C. Respiratory acidosis with no compensation
  - D. Respiratory acidosis with partial metabolic compensation
  - E. Respiratory acidosis with full metabolic compensation

**94. What drug group cause bronchodilation by blocking acetylcholine receptors which normally cause contraction of bronchial smooth muscle?**

- A. H<sub>1</sub> receptor antagonists
- B. Inhaled corticosteroids
- C. Leukotriene receptor antagonists
- D. Long-acting muscarinic antagonists
- E. Short acting beta-adrenergic receptor agonists

**95. CURB65 is commonly used as a severity index for patients with pneumonia in hospital. What is the correct breakdown of CURB65?**

- A. Confusion, Underlying Medical Condition, Respiration Rate, Blood (sputum), age 65
- B. Confusion, Urea, Raised Temperature, Blood Pressure, age 65
- C. Confusion, Urea, Respiration Rate, Blood Pressure, age 65
- D. Confusion, Underlying Medical Condition, Respiration Rate, Blood Pressure, age 65
- E. Confusion, Urea, Raised Temperature, Blood (in sputum), age 65

**96. A 28-year-old woman presents with a dry cough and shortness of breath for the last 8 months. She also has a persistent rash on her shins (see picture below). A chest X ray shows bilateral hilar lymphadenopathy. A biopsy is done to confirm diagnosis. Which shows non-caseating granulomas with epithelioid cells. Which of the following electrolyte disturbance is most indicative of the above diagnosis?**



- A. Hyperkalaemia
- B. Hypercalcaemia
- C. Hyponatraemia
- D. Hypocalcaemia
- E. Hypokalaemia

- 97. What is the antibody involved in Goodpasture's Syndrome?**
- A. Antiphospholipid
  - B. Anti-smooth muscle
  - C. Anti-TPO
  - D. Anti-citrullinated cyclic peptide
  - E. Anti-glomerular basement membrane
- 98. You are an infectious disease doctor working in the RHH. You have just confirmed a diagnosis of COVID 19 in a patient and subsequently inform Public Health England due to the fact this is a notifiable disease. Which of the following is NOT a notifiable disease in the UK?**
- A. Enteric fever
  - B. HIV
  - C. Leprosy
  - D. Measles
  - E. Tuberculosis
- 99. A standard bottle of Pinot Grigio contains 750ml and its alcohol by volume (ABV) is 12.5%. Mr Smith drinks a quarter of a bottle every evening with his meal. How many units is he consuming each week? (to the nearest unit)**
- A. 12
  - B. 13
  - C. 14
  - D. 15
  - E. 16
- 100. A mother attends a GP clinic with her baby for the first injection of the 6-in-1 vaccine. Which of the following is not included in this vaccine?**
- A. Haemophilus influenzae type B (HiB)
  - B. Hepatitis B
  - C. Meningococcal group B
  - D. Polio
  - E. Tetanus

[END OF PAPER 1]

**Answers-** see separate document for PTS 2a Mock SBA Series- Paper 1- ANSWERS

**Scores/Feedback-** When you have marked your paper please complete the Paper 1 Google Form to record your scores and feedback on questions when you have marked your paper. This is found here and on the answer sheet: <https://forms.gle/R2Ti4734oQj3jnyz7>

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