

Peer Teaching Society Phase 4 SAQ Paper 1 2024



Instructions

- You are permitted to use a University of Sheffield approved **calculator**
- This exam is **not negatively marked**
- Please complete all **20 questions** below
- This paper is out of **215 marks**

Disclaimer

The following paper **bears no reflection of the real exam**. This is a **learning tool** for students to use at **their own discretion** and this paper has **not been reviewed** by the University of Sheffield. Peer Teaching Society is **not liable** for any **errors or false information** in this paper.

Please **do not share** this document on **google drives** or **directly to future students** as this takes away from their opportunity to complete this paper in the run up to their exams when it will be of most benefit as a revision resource. **This paper will be edited, updated and repeated in future years.**

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Special Acknowledgment

Dr Olivia Stevens (FY1)

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[Question paper begins on the following page]

QUESTION 1

An 18 year old university student, Ryan, is seen by his GP with a 24 hour history of flu like illness, fever, headache and neck stiffness. He is noted to have a progressively purpuric rash. There are no known drug allergies.

a. What is the most likely diagnosis? [1 mark]

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b. Name a drug given intramuscularly that the GP should consider giving? [1 mark]

.....

c. Name the most likely conditions denoted by A, B and C from the following table: [3 marks]

CSF Findings:	A	B	C
Appearance	Cloudy, turbid	Clear	Cloudy and viscous
Predominant White Cell	Neutrophils	Lymphocytes	Lymphocytes
Protein	High	Normal / high	High
Glucose	Low	Normal	Low

A:

B:

C:

d. Name 1 absolute contraindication to performing lumbar puncture? [1 mark]

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e. Name 2 common complications Ryan is at risk of developing? [2 marks]

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f. Name 2 public health implications of the suspected diagnosis? [2 marks]

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g. If Ryan presented with confusion and changes in his behaviour alongside his fever and flu-like symptoms, what differential would be important to consider? [1 mark]

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[11 marks]

QUESTION TWO

A 65 year old lady is seen in the breast clinic. She has been aware of a mass in her right breast for 3 weeks and is worried about cancer.

- a. What clinical features may suggest that the lesion may be malignant? List 3. [3 marks]**

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- b. What does triple assessment refer to in the breast clinic? [3 marks]**

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- c. Name 2 main surgical approaches to treating breast carcinoma [2 marks]**

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- d. List 3 pieces of histological information the MDT will require for treatment planning? [3 marks]**

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- e. Who is invited for screening in the standard programme, and often does it take place? [2 marks]**

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- f. A 31 year old patient is found to be a BRCA 1 carrier, how often should she be invited for screening, and what imaging modality should be used? [2 marks]**

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[15 marks]

QUESTION 3

A 27 year old man is admitted to the surgical ward following a one week history of bloody diarrhoea. He has no previous relevant history. Abdominal examination is unremarkable.

- a. Biopsies suggest mucosal inflammation with crypt abscesses. What is the most likely diagnosis? [1 mark]**

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- b. Name 2 other biopsy findings seen in this condition? [2 marks]**

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- c. Which classes of drug might be used in treating a moderate acute flare of this condition? Name two. [2 marks]**

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- d. You see the patient with a 2nd year medical student who asks you why this is not coeliac disease. Name 2 biopsy findings which would be suggestive of coeliac disease. [2 marks]**

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- e. Some years later he presents with right upper quadrant pain, pruritus and jaundice, which associated condition is he most likely to have developed? [1 mark]**

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- f. Which imaging investigation will be most helpful in making this diagnosis? [1 mark]**

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[9 marks]

QUESTION 4

A 31 year old man, who is a known intravenous drug user, presents to A&E with malaise, fever, weight loss and night sweats. He has a temperature of 38.5oC. On examination, a pansystolic murmur is noted. You suspect a diagnosis of infective endocarditis.

- a. Name 4 additional clinical signs that may be found on examination in this patient [4 marks]**

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- b. Name the most likely causative organism in infective endocarditis. [1 mark]**

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- c. Your senior asks for blood cultures to be performed. What is the specific regime for collecting blood cultures in suspected infective endocarditis? [2 marks]**

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- d. What other investigation can be useful in making a definitive diagnosis of infective endocarditis? [1 mark]**

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- e. Other than intravenous drug abuse, name 2 other risk factors for infective endocarditis? [2 marks]**

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[10 marks]

QUESTION 5

Mary is a 75 year old lady with known atrial fibrillation. She attends A&E with painless loss of vision in her left eye, which came on over a period of less than 30 minutes. She thinks she may have had similar previous episodes that recovered. There is no associated headache.

- a. Give 3 differentials for painless sudden loss of vision? [3 marks]**

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- b. What is the name given to the transient episodes of vision loss the patient may be describing? [1 mark]**

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- c. Given the fundoscopy findings, what is the most likely diagnosis? [1 mark]**



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.....

- d. The medical student with you asks about age related macular degeneration, which caused his grandfather to lose his vision. What is the name of the yellow deposits that can be seen on fundoscopy in this condition? [1 mark]**

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e. Other than increasing age, give 2 risk factors for the development of age-related macular degeneration [2 marks]

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f. What is the name of the first line medication given in wet age related macular degeneration, and what complication does it aim to prevent? [2 marks]

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[10 marks]

QUESTION 6

A 69 year old man presents to a neurology clinic with a 2 year history of gradually reducing mobility, and finding it increasingly difficult to manage at home. You ultimately diagnose the patient with idiopathic Parkinson's disease.

a. Name 3 other causes of Parkinsonism [3 marks]

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b. What are the cardinal features of Parkinson's disease? [3 marks]

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c. What is the pathological basis of Parkinson's disease? [2 marks]

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d. Apart from nausea and GI upset, list 2 common side effects of treatment with L-DOPA [2 marks]

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e. What drug should be prescribed with L-DOPA to reduce these side effects? [1 mark]

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f. Name 2 other drugs used to treat Parkinsonism [2 marks]

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g. If this patient was found to have a vertical gaze palsy alongside Parkinsonism, what diagnosis would you suspect? [1 mark]

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[14 marks]

QUESTION 7

Tracey is a 30 year old lady who has recently been diagnosed with systemic lupus erythematosus (SLE).

- a. Name 4 signs or symptoms that she may have presented with [4 marks]

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- b. Name 2 antibodies, that are highly specific to SLE, that Tracey may have tested positive for [2 marks]

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- c. Define the terms 'sensitivity' and 'specificity' [2 marks]

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- d. Which disease-modifying anti-rheumatic drug (DMARD) tends to be offered first line in SLE? [1 mark]

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- e. Name 2 common complications associated with SLE [2 marks]

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Tracey mentions in her consultation that she and her husband have been trying to start a family for 2 years, however she has unfortunately had a number of miscarriages.

- f. What syndrome should she be tested for? [1 mark]

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[12 marks]

QUESTION 8

A 68 year old man is admitted to AMU with left sided pleuritic chest pain with crepitations in the left base. You suspect he has a diagnosis of pneumonia. He tells you that 3 months beforehand he was diagnosed as having a carcinoma of the lung and has been receiving chemotherapy.

a. Name the 3 histological types of non-small cell lung cancer [3 marks]

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b. List 4 common presenting symptoms of lung carcinoma [4 marks]

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c. Which antibiotics are generally considered for patients with no allergies with a CURB score of 1? [2 marks]

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d. Which pathogen is the most common cause of community acquired pneumonia and what would be seen on gram staining? [2 marks]

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[11 marks]

QUESTION 9

A 66 year old lady underwent an elective total hip replacement for osteoarthritis of the right hip. The operative procedure was uneventful. She has increasing pain and swelling in her left calf 3 days following surgery. You suspect a deep vein thrombosis.

a. Name the 2 most significant risk factors in this case [2 marks]

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b. What are the 3 factors which influence venous thrombosis, known as Virchow's triad? [3 marks]

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c. Name 2 prophylactic measures that are recommended to prevent DVT formation after total hip replacement [2 marks]

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d. Name 2 symptoms that might indicate that this patient has subsequently developed a PE? [2 marks]

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e. How long would this patient require anticoagulation, if she were to develop a PE? [1 mark]

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[10 marks]

QUESTION 10

You are asked to review Sophie who is vomiting fresh blood. Her abnormal observations are a pulse of 122 bpm and BP 84/48mmHg.

- a. Which scoring system can be used to stratify with upper GI bleed, to assess if they can be managed as outpatients? [1 mark]

.....

As the FY1, you take a brief handover from the nurse looking after Sophie and ask for bloods to be taken for cross-match, FBC, U&Es and clotting studies.

- b. Suggest 3 steps you would take in your initial management of this patient in the first 15 minutes after arrival on the ward [3 marks]

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Sophie is diagnosed with a gastric ulcer caused by H.pylori infection

- c. List 3 other common causes of severe upper GI blood loss [3 marks]

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- d. Name the vessel which is most likely to be causing the bleeding [1 mark]

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- e. What would be an appropriate treatment regime for the H.pylori infection? [3 marks]

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- f. What is the investigation of choice for assessing whether the infection has been eradicated in 8 weeks time? [1 mark]

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[12 marks]

QUESTION 11

A 21 year old asthmatic man arrives in A&E with an acute exacerbation. He has become increasingly short of breath.

- a. Give 4 clinical factors you should establish in the examination of the patient in order to assess the severity of her attack. [4 marks]**

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- b. His peak flow measures 55% of his normal range. How would you classify this asthma attack? [1 mark]**

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- c. What does hypercapnia indicate in the context of an asthma attack? [1 mark]**

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- d. Name 3 drugs, along with their doses, that should be given immediately? [3 marks]**

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[9 marks]

QUESTION 12

Amy, a 13 year old girl, is referred to CAMHs due to weight loss. She is a very active teenager, playing netball and hockey. She also regularly goes hiking with her family. She is very happy with her current weight, and states that she has not been trying to lose any - it must just be all the exercise.

On examination you find that at 5'5" Amy weighs 41.5kg and is hypotensive. You also learn that Amy had a few periods but recently they have stopped again. This has concerned her mother, who brought her to the appointment, but not Amy who thinks it's great. You offer some talking therapy to Amy but she is adamant she doesn't need it and her mother is resistant to force her to do anything she isn't keen on.

a. What is the most likely diagnosis? [1 mark]

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b. What abnormality would you expect to find in her blood tests? [1 mark]

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You get Amy to agree to an appointment with you in 3 months time for a check-in. When you see her again her weight has dropped to 37kg. She is still in excellent spirits and continuing to play sports. She continues to deny the need for any treatment.

c. Given her age, what guidance would you consider using, and could you force treatment? [2 marks]

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d. Given her risks, you arrange an emergency admission for refeeding. Give 2 risk factors for refeeding syndrome? [2 marks]

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e. Give a brief overview of refeeding syndrome [4 marks]

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[10 marks]

QUESTION 13

While working on a medical ward, you are asked to assess Frida, a 73 year old lady, who was admitted to hospital with sudden onset weakness in the right arm and leg. On examination you confirm the weakness and also find that the muscle tone in the right arm and leg is increased, Sensation is reduced on the right side. She appears to understand speech but produces incomprehensible sounds.

- a. What changes do you expect in the tendon reflexes on the right leg? [1 mark]**

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- b. What do you expect the right plantar reflex to be? [1 mark]**

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- c. Which cranial nerve is the most likely one to be affected? [1 mark]**

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- d. What visual field abnormality might you expect to find on examination? [1 mark]**

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- e. What type of aphasia results from lesions in Broca's area, and which type is associated with lesions in Wernicke's area? [2 marks]**

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- f. What type of aphasia is the patient exhibiting? [1 mark]**

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[7 marks]

QUESTION 14

Betty, a 78 year old woman arrives at A&E having been found on the floor at home. She complains of pain in the right leg and is unable to weight bear. You suspect a fractured neck of femur. Prior to this injury, she was independent with activities of daily living and walked her dog daily.

- a. What 2 features would you look for on inspection of the legs to confirm your diagnosis? [2 marks]**

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- b. The x-ray demonstrates a displaced intra-articular fracture of the right hip. What is the anatomical significance of a fracture at this site? [2 marks]**

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- c. What classification system is used for intra-articular fractures? [1 mark]**

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- d. What surgical procedure would be most appropriate in this case? [1 mark]**

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You are concerned about a diagnosis of osteoporosis so arrange for a DEXA scan.

- e. How should a T score of -2.3 be interpreted? [1 mark]**

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Betty is ultimately diagnosed with osteoporosis and offered bisphosphonates.

- f. What is the mechanism of action of bisphosphonates? [2 marks]**

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- g. Name 2 important side effects of bisphosphonates that patients should be counselled on [2 marks]**

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[11 marks]

QUESTION 15

A 74 year old man presents with a 2 month history of rectal bleeding and a change in bowel habits. He has no past medical or surgical history. Examination reveals a hard mass 6cm from the anal verge.

a. What is the most likely diagnosis? [1 mark]

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b. What is the most common histological subtype of this diagnosis? [1 mark]

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c. Give 2 other possible causes of rectal bleeding in a 70 year old man [2 marks]

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d. What urgent investigation is required to confirm your likely diagnosis? [1 mark]

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e. Which blood marker can be used to monitor response to treatment in the most likely diagnosis? [1 mark]

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f. What is the name of the surgery that may be offered to this patient? [1 mark]

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g. If surgery was an option for this patient, he may be left with a stoma. Aside from location, name 2 different ways to differentiate between an ileostomy and a colostomy on clinical examination [2 marks]

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[9 marks]

QUESTION 16

A 77 year old lady has been treated for mild heart failure for a number of years. She is admitted to hospital as an emergency one night with a 36 hour history of worsening shortness of breath. On examination you find her coughing up pink frothy sputum, tachycardic and there are fine crackles at both lung bases. No murmurs are audible. You make an initial diagnosis of left ventricular failure.

- a. Name 2 other signs which you may see on examination of this patient [2 marks]**

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- b. What 2 immediate interventions would you make to improve her breathlessness? [2 marks]**

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- c. What medication should be prescribed to more definitively improve her SOB? [2 marks]**

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- d. You arrange a chest X-ray. Name 3 abnormalities that would support your diagnosis? [3 marks]**

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.....

- e. She improves and you are now able to hear a pansystolic murmur at the apex. What cardiac abnormality is likely to be responsible for this? [1 mark]**

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- f. Name 2 lifestyle modifications which heart failure patients should be encouraged to make? [2 marks]**

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g. Name the 2 classes of drugs used first-line for heart failure which help to reduce mortality [2 marks]

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h. Name a medication often used for diabetes which is now encouraged to be prescribed for heart failure to improve outcomes [1 mark]

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[15 marks]

QUESTION 17

81 year old Harpreet is found collapsed on her bedroom floor by the sheltered housing warden the day after a trip to her bingo. A CT scan of the brain reveals an area of ischaemia in the left parietal cortex, consistent with a recent cerebral infarct. She is badly bruised and has an obvious weakness on the right side of her body. She is confused and her speech sounds slurred.

- a. What is the definition of a stroke? [1 mark]**

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- b. Suggest 4 risk factors for stroke [4 marks]**

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.....
.....

- c. Given this lady's symptoms, which is the most likely artery to have been affected by this stroke? [1 mark]**

.....

After a short time on the ward, Harpreet begins pointing at her arms and legs and wincing in pain. You notice her catheter bag contains a very small amount of dark brown / red urine.

- d. What diagnosis should you consider, given these symptoms? [1 mark]**

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- e. What potentially dangerous electrolyte abnormality should you monitor for? [1 mark]**

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- f. Aside from U&Es, what is the single most useful blood test that would confirm the likely diagnosis? [1 mark]**

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[9 marks]

QUESTION 18

Mrs Plum is a 54 year old who presents to her GP with a 6-month history of fatigue. In view of marked pallor you check her full blood count.

This shows:

- **Hb 5.4g/dl (Normal range 13.5-18g/dl)**
- **MCV 112 fl (Normal range 80-95 fl)**

a. You suspect B12 deficiency. How would this type of anaemia be classified? [2 marks]

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b. What other conditions could produce a high MCV? Suggest 2 [2 marks]

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c. Give 3 causes of B12 deficiency [3 marks]

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.....

d. Where is intrinsic factor secreted? [1 mark]

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e. Where in the gut is B12 absorbed? [1 mark]

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f. If Mrs Plum was also found to be deficient in folate, how should this be managed, and why? [2 marks]

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[11 marks]

QUESTION 19

Mark and Mel attend their GP as they would like to have a baby, but are struggling to conceive.

- a. What is the definition of infertility? [2 marks]**

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- b. What is the difference between primary and secondary infertility? [2 marks]**

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- c. List 2 modifiable risk factors for infertility in women [2 marks]**

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After trying for a baby with no success for 12 months, Mark and Mel are referred for specialist input and ultimately begin IVF treatment. Shortly after, Mel presents with severe bloating, nausea and vomiting, and shortness of breath.

- d. What is the most likely diagnosis? [1 mark]**

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- e. What is the pathological basis behind the shortness of breath in this condition? [3 marks]**

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[10 marks]

QUESTION 20

A 26 year old female presents to her GP with a 3 day history of “terrible dizziness” and ringing sensation in her ears. She is usually fit and well and takes the combined contraceptive pill, but no other regular medication. She works in a nursery. On examination she appears ‘bunged up’ and has coryzal symptoms. Otoscopy is normal.

- a. How can labyrinthitis and vestibular neuronitis be differentiated clinically? [1 mark]**

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- b. What test can be performed to confirm a peripheral cause of vertigo? [1 mark]**

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- c. Given the most likely diagnosis, what direction nystagmus would you expect to elicit in your examination? [1 mark]**

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- d. What are the 3 main structures in the inner ear? [3 marks]**

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The patient mentions that her mother has Ménière’s disease.

- e. What is the pathological basis of this condition? [2 marks]**

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- f. What type of hearing loss is associated with Ménière’s disease? [1 mark]**

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- g. What medication can be used as prophylaxis in Ménière’s disease? [1 mark]**

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[10 marks]

[END OF PAPER]

Note: Please do not be disheartened if you find the questions difficult and remember this is a revision resource for you to identify gaps within your knowledge and practice SAQ style questions.

Answers - Please see separate document: PTS Phase 4 SAQ Paper 1 2024 - Answers

Feedback Form - Please fill in the feedback form below to give us an indication of whether you found this paper useful, your mark (so we know if it was too hard/easy) and any suggestions for improvements. We will use this feedback to alter the paper for future years.

<https://forms.gle/ZDV8nrcdKNfLxoeb6>

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