

PTS Phase 1 Mock SAQ 2023

Paper 2 – [Questions]



Examiner Instructions:

- Time allocated for examination: 2 hours.
- You are **not permitted** to leave the examination hall in the first 90 minutes and last 10 minutes.
- 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 12 questions
- The paper consists of 120 marks total.

Disclaimer:

The following paper has been written **for students by students** and bears no reflection on the real exam. This is a learning tool that has not been reviewed by the University of Sheffield and therefore the use of this paper for learning are at the student's discretion.

Chief Exam Editor:

Raneem Alhalabi

Any questions:

ralhalabi1@sheffield.ac.uk

peerteaching@sheffield.ac.uk

(Question 1)

Mrs Jones has come to the GP complaining of hot flushes and vaginal dryness, she is diagnosed with menopause (10 Marks)

- 1) What is the function of FSH? (1 Mark)**
 - 2) Where is FSH secreted from? (2 Marks)**
 - 3) After menopause, why are women more likely to develop osteoporosis? (2 Marks)**
 - 4) State the cells that LH acts on in: (3 Marks)**
 - a. Males**
 - b. Females**
 - 5) Give two differences between spermatogenesis and oogenesis (2 Marks)**
-

(Question 2)

Mr Clarkson has muscle weakness, polyuria, and resistant hypertension. Investigations show an increased Aldosterone-Renin ratio and the doctor consequently diagnoses him with Conn's syndrome for which the treatment is laparoscopic removal of the adrenal gland (10 Marks)

- 1) What shape are the right and left adrenal glands? (2 Marks)**
- 2) What is the embryonic origin of the adrenal glands? (1 Mark)**
- 3) State the area of the adrenal glands which produce: (2 Marks)**
 - a. Glucocorticoids**
 - b. Aldosterone**
- 4) Describe the pathway for the stimulation of aldosterone secretion (5 Marks)**

(Question 3)

This question is about public health. A patient has come to the GP complaining of a raspy cough. They have been a smoker for the past 20 years but further questioning reveals that they would like to stop smoking and they would like some advice on this. (10 Marks)

- 1) Define the term sick role behaviour (2 Marks)
 - 2) Describe the Health Belief Model (3 Marks)
 - 3) State another model of behavioural change (1 Mark)
 - 4) Give two examples of methods to help a patient stop smoking (2 Marks)
 - 5) State two laws that have been implemented to reduce smoking in the UK (2 Marks)
-

(Question 4)

An 8-year-old boy presents to the emergency department with a hives and itching following peanut exposure at a school party. The doctors say he has had an anaphylactic reaction and he is given adrenaline. (10 Marks)

1. State 3 natural barriers of infection that the body has. (3 Marks)
2. Briefly describe the differences between adaptive and innate immunity. (4 Marks)
3. What is the predominant mediator of a type I hypersensitivity reaction? (1 Mark)
4. Describe the course of action of a type I hypersensitivity reaction. (2 Marks)
5. Give 2 examples of type I hypersensitivity reactions (2 Marks)

(Question 5)

A 48 year old man presents to the emergency department with severe dehydration after having food poisoning with extensive diarrhoea and vomiting. He is given IV fluid replacement after the diagnosis of acute kidney injury. (10 Marks)

- 1. State and describe 2 ways GFR is regulated. (4 Marks)**
 - 2. Give 4 factors determine the rate of which a molecule crosses the filtration barrier. (4 Marks)**
 - 3. Name 2 forces that oppose glomerular filtration. (2 Marks)**
-

(Question 6)

Miss Chapman is a 52 yo lady who presents to her GP with complete hearing loss in 1 ear. She frequently goes to concerts and listens to music through her headphones when she is running. She is diagnosed with noise-induced hearing loss. (10 Marks)

- 1. What structure within the ear is damaged by loud noise? (2 Marks)**
- 2. Name the bones within the ear (3 Marks).**
- 3. What is the name and number of the cranial nerve associated with hearing? (2 Marks)**
 - a. Which foramen does this cranial nerve pass through? (1 Mark)**
 - b. Which other cranial nerve passes through this foramen? (2 Marks)**

(Question 7)

Mr James, a 66yo man, has a past medical history of hypertension and type 2 diabetes mellitus. He presents to the GP with chest pain and palpitations. After an ECG, he is diagnosed with atrial fibrillation and commenced on verapamil and aspirin. (10 Marks)

- 1. In an ECG, what do the P wave and QRS complex represent and how long should they last? (5 Marks)**
 - 2. Define tachycardia. (1 Mark)**
 - 3. Describe 2 differences between left sided and right sided heart failure. (4 Marks)**
-

(Question 8)

Sarah Jones, an 8 year old girl, presents to A&E with a broken leg. An X - ray is performed to view the break and she is referred to surgery to have a rod put in place before plaster casting. (10 Marks)

- 1. Which type of ossification occurs in fracture healing? (1 Mark)**
- 2. State two types of fracture (2 Marks)**
- 3. Other than bony callus formation, list the stages of fracture healing. (3 Marks)**
- 4. Briefly describe how a bony callus forms during fracture healing (4 Marks)**

(Question 9)

Mr Morris is a 78 year old man who presents to his GP with concerns of headaches and tunnel vision. (10 Marks)

- 1. What is the name for a lack of peripheral vision? (2 Marks)**
 - 2. Pressure on which structure is usually associated with tunnel vision? (1 Mark)**
 - 3. Name a pathology which is usually associated with tunnel vision. (1 Mark)**
 - 4. Which lobe is the primary visual cortex located in, and which sulcus is it located near? (2 Marks)**
 - 5. Lesions of this sulcus tend to cause vision loss on the same side of each eye, with sparing of the macula. Why is the macula spared? (2 Marks)**
 - 6. Name the two loops which carry information back to the visual area (2 Marks)**
-

(Question 10)

Mr Pollard, a 75 year-old man has come into see the GP after reporting needing to go to the toilet more frequently, especially in the middle of the night. He is sent to complete a urine sample, and upon further examination is diagnosed with Prostate Cancer. (10 Marks)

- 1. Name three urinary buffers (3 Marks)**
- 2. What foetal cells are responsible for secreting testosterone and during what week of development? (2 Marks)**
- 3. Why does the Müllerian duct degenerate? (2 Marks)**
- 4. What part of the trilaminar disc are the bladder and urethra formed from? (1 Mark)**
- 5. What is the function of dihydrotestosterone? (2 Marks)**

(Question 11)

Ms Holt, a 42-year-old is referred to a renal clinic for a transplant review with a renal Consultant after undergoing some tests for her chronic kidney disease. (10 Marks)

- 1- How much of the total cardiac output do the Kidneys receive? (1 Mark)**
 - 2- What substance can be used to clinically estimate eGFR? (1 Mark)**
 - 3- In what 2 ways is eGFR regulated? (2 Mark)**
 - 4- What 2 hormones are secreted by the Kidney? (1 Mark)**
 - 5- What 2 cell types are found in the Collecting Duct? (2 Marks)**
 - 6- What 3 things make up the Glomerular Filtration Barrier? (3 Marks)**
-

(Question 12)

A GP practice has found there to be an increase in the number of diabetic patients with eye complications in the past 10 years. They are hoping to produce materials to better promote the diabetic eye screening service in an attempt to reduce this rise in case numbers. (10 Marks)

- 1. What is screening in health care? (2 Marks)**
- 2. Apart from diabetic eye screening, name 1 other screening service offered by the NHS and the age range screening occurs. (2 Marks)**
- 3. The Willson and Jungner criteria for screening highlight the important features of any screening program should include. Write 3 points that are included in the criteria. (2 Marks)**
- 4. Write 1 potential positive and negative for screening tests. (2 Marks)**
- 5. The diabetic eye screening service is found to have a low sensitivity. How would the sensitivity of the screening test be calculated? (1 Mark)**

END OF PAPER