

Peer Teaching Society Phase 4 SAQ Paper 3 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 **200 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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[Question paper begins on the following page]

QUESTION 1

Yan is a 19 year old university student, who presents with a 8 day history of persistent sore throat and general malaise. He has now developed a widespread erythematous rash. 2 days ago he took some antibiotics he had left over at home. You suspect a diagnosis of infectious mononucleosis.

a. Give 2 clinical signs you may find on examination [2 marks]

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.....

b. What is the causative organism for this condition [1 mark]

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c. What is the mode of transmission for this condition [1 mark]

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d. What test would confirm the diagnosis? [1 mark]

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e. Give 2 complications of this condition? [2 marks]

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f. What antibiotic do you expect Yan took? [1 mark]

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g. Infectious mononucleosis is not a notifiable disease. Name 2 diseases that should be reported, as per the Health Protection (Notification) Regulations 2010 [2 marks]

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[8 marks]

QUESTION 2

Mr Jones is a 60 year old man who comes to see you in the Well Man clinic. He has no symptoms and urine dipstick testing is negative. He has no past medical history. His blood pressure is 150 systolic, 98 diastolic.

- a. What would be your initial approach to this blood pressure result? [1 mark]**

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- b. Which class of antihypertensive should be offered first line? [1 mark]**

.....

- c. If Mr Jones had type 2 diabetes mellitus, which class of antihypertensive should be offered first line? [1 mark]**

.....

- d. When diagnosing hypertension, the GP should always assess for target organ damage. Name two investigations the GP could carry out. [2 marks]**

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.....

- e. What is the target blood pressure that Mr Jones should aim for at the next clinic appointment? [1 mark]**

.....

- f. What scoring system can be used to assess his risk of having a heart attack or stroke in the next 10 years? [1 mark]**

.....

- g. Specialist evaluation of secondary causes of hypertension should be considered in patients under what age (regardless of symptom status)? [1 mark]**

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- h. Name 2 secondary causes of hypertension [2 marks]**

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[10 marks]

QUESTION 3

Ted is a 21 year old who had been eating at a new Indian restaurant when he suddenly developed a swollen tongue and shortness of breath. Hospital monitoring demonstrates hypotension and tachycardia. You suspect he is having an anaphylactic reaction.

- a. Name one difference between stridor and wheeze? [1 mark]

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- b. What is the mechanism of an anaphylactic reaction? [2 marks]

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- c. Into what position should Ted be encouraged and why? [2 marks]

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You decide that Ted requires adrenaline

- d. What dose should be given? [1 mark]

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- e. After how long should a second dose be given, if there is an inadequate response to the first? [1 mark]

.....

- f. If there is no response after two doses, who should be involved with caring for this patient and why? [2 marks]

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.....

- g. Once Ted stabilises, what blood test should be performed? [1 mark]

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[10 marks]

QUESTION 4

You are the paediatric SHO working in A+E and your next patient is a 6 week old baby boy, George, who has been brought in by his very distressed mother. She tells you that he has been violently vomiting after feeding and is not putting weight on like her other children did.

a. Name your top differential diagnosis [1 mark]

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b. What is the pathophysiology behind this condition? [2 marks]

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.....

c. Name the most likely finding upon palpation of the abdomen and where in the abdomen you would expect to find it? [1 mark]

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d. You decide to do a blood gas on George. What clinical picture would you expect? [1 mark]

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e. What is your investigation of choice for this condition? [1 mark]

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f. What is the definitive management of this condition? [1 mark]

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g. Name one complication of this treatment [1 mark]

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h. Following successful treatment, your consultant tells you to remind mum that George's 8 weeks vaccinations will be due soon. One of these is the 6 in 1 vaccine. Name 2 conditions which this vaccine helps to protect against [2 marks]

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i. Name the other 2 vaccinations which George will receive at this time [1 mark]

.....

[10 marks]

QUESTION 5

Dave is a 46 year old man who is being investigated for Cushing's syndrome, a disorder relating to the adrenal glands.

a. Complete the table below [4 marks]

Part of the Adrenal Gland	Hormone Secreted
	Aldosterone
	Cortisol
	Androgens
	Adrenaline / Noradrenaline

b. What is the pathological basis of Cushing's disease? [2 marks]

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.....

c. Name 2 symptoms, and 2 signs that he may have presented with [2 marks]

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.....

An overnight suppression test is organised for Dave to screen for Cushing's syndrome.

d. What blood test does he need, and what time of the day should it be done? [2 marks]

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.....

[10 marks]

QUESTION 6

A 32 year old woman presents to A+E with a deterioration in her vision in her right eye over the last 48 hours with pain when looking up and down. She also reports some difficulty seeing certain colours.

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

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- b. What would you expect to find when conducting the ‘swinging light test? [1 mark]**

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- c. What treatment should be initiated to treat this? [1 mark]**

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Upon further questions, she states that this is the third time this has happened this year. She also describes some shooting electric shock pains which travel down her spin and legs when she moves her neck sometimes.

- d. What sign is she describing? [1 mark]**

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

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- f. Which cells in the CNS are damaged in this condition? [1 mark]**

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- g. What criteria would be used to confirm this diagnosis? [1 mark]**

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- h. What choice of imaging should be used for this and what would you expect to see on CSF analysis? [2 marks]**

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- i. What is the most common form of this condition? [1 mark]**

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[10 marks]

QUESTION 7

Victoria is a 21 year old university student with altered vaginal discharge. She has had 8 male sexual partners in the last 6 weeks and barrier contraception has not been used consistently. She was alerted by one of the partners to attend a sexual health clinic for gonorrhoea testing.

A full history is taken and Victoria is then asked to swab inside her vagina with 2 different swabs.

- a. The first swab is a NAAT swab, what does this test for? [1 mark]**

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- b. The second swab is a high vaginal charcoal media swab, name 4 infections that this can test for [2 marks]**

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- c. Fill in the table below: [3 marks]**

Sexually Transmitted Infection	Causative Bacterium
Gonorrhoea	
Chlamydia	
Syphilis	

- d. Name 3 signs / symptoms that would indicate Victoria has developed pelvic inflammatory disease? [3 marks]**

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.....
.....

- e. If Victoria also presented with stiff, painful, swollen knees and ankles, what diagnosis should be considered, excluding septic arthritis? (1 mark)**

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[10 marks]

QUESTION 8

You are a FY1 on A&E. You see the case notes for Sally, a 59 year old female who has presented with a painful red eye.

After talking to Sally, you discover that this pain came on whilst watching Mr Bean's Holiday on TV in a dark room. She also states that she is feeling quite sick and has vomited. On examination, you find a hard red eye with a hazy cornea and reduced visual acuity. You suspect acute angle closure glaucoma.

- a. Give 2 other causes of an acutely painful red eye [2 marks]

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- b. What is the pathophysiology that underlies this condition? [4 marks]

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- c. Whilst waiting for urgent ophthalmology review, name 1 simple measure you could take to make Sally more comfortable [1 mark]

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- d. What does tonometry measure? [1 mark]

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- e. A medication called Timolol may be prescribed for Sally. How does it work? [1 mark]

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- f. What is the definitive surgical management of this condition? [1 mark]

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[10 marks]

QUESTION 9

Dina is a 50 year old lady who presents with troublesome symptoms in her right hand for the last few months, namely pain and tingling. She has no other problems with her joints and otherwise feels well. You suspect a diagnosis of carpal tunnel syndrome (CTS).

a. Name 2 features of the pain associated with CTS [2 marks]

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b. Which nerve is affected in CTS and what are the nerve roots? [2 marks]

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c. Why is sensation usually preserved over the palm in this condition? [2 marks]

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d. Tapping lightly on Dina's wrist elicits the pain and tingling she has been experiencing. What test is this a positive finding in? [1 mark]

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e. CTS is often idiopathic but can be associated with other conditions or risk factors. Name 3 of these. [3 marks]

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[10 marks]

QUESTION 10

You have been asked to clerk Dune, a 45 year old woman who has presented with pain in her right upper abdomen. You establish that the pain came on around 8 hours ago after finishing a Friday night fish and chips takeaway. She has tried to sleep it off but the pain has become too intense, hence coming to hospital. She has had pain in this area before but it has never been this severe and would only last an hour.

- a. You wonder if Dune has cholangitis. What is the classical triad seen in this condition and what are the symptoms? [2 marks]

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- b. What initial imaging can be done to investigate the cause? [1 mark]

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- c. The registrar agrees with your diagnosis of cholangitis. Dune looks increasingly unwell. She is showing a temperature of 39.2°C, a blood pressure of 90/40 and a heart rate of 120 bpm. What multi-step management should be carried out immediately? [3 marks]

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The team successfully stabilises Dune and she is listed to undergo endoscopic retrograde cholangiopancreatography (ERCP) the following day.

- d. A few days later Dune complains of severe epigastric pain which radiates to her back. What single blood test would help diagnose the most likely complication? [1 mark]

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- e. What is the pathophysiology behind Mirizzi syndrome? [3 marks]

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[10 marks]

QUESTION 11

A 19 year old man has been in a fight outside a pub. He has received at least one blow to the left side of his head from a baseball bat. He localises and opens his eyes to pain. He is able to make sounds but has incoherent speech. You are concerned about an extradural haematoma.

a. What is his GCS score? [1 mark]

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b. What urgent investigation does he need [1 mark]

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c. What are the three components of the Cushing's reflex? [3 marks]

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d. Describe 3 signs of an expanding EDH as it enlarges and before it ultimately results in coning [3 marks]

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e. What is coning? [2 marks]

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[10 marks]

QUESTION 12

Chloe is currently pregnant for the first time. Pre-pregnancy, she was reasonably fit and well, although her BMI was 32 and she has hypertension. She is told she will need testing for gestational diabetes.

a. Name 2 risk factors for gestational diabetes [2 marks]

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.....

b. When will the screening for gestational diabetes take place? [1 mark]

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c. If this woman had gestational diabetes in a previous pregnancy, when should screening for gestational diabetes take place? [1 mark]

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d. What levels will indicate gestational diabetes? [1 mark]

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e. Name 2 foetal complications of gestational diabetes? [2 marks]

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f. You see another woman in your clinic who has a history of type 2 diabetes for which she takes metformin and gliclazide who is now 8 weeks pregnant. What medication changes would you make? [1 mark]

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g. What medication (including dose) would you advise all women with Diabetes Mellitus to take before trying to conceive? [1 mark]

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h. What test must all pregnant women with established T2DM undergo during pregnancy to monitor for diabetes complications? [1 mark]

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[10 marks]

QUESTION 13

Javid is a 44 year old doctor, who takes himself down to A&E with severe pain in his left side radiating down towards his groin, that has come on in waves. He also has some blood in his urine. He admits that sometimes he can go a full 12 hour shift on AMU without more than a few sips of water. When you ask what he thinks the problem is, he suggests renal stones.

a. What is the most common composition of a renal tract stone? [1 mark]

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b. Stones are most likely to impact in the narrowest parts of the urinary tract. What are the 3 naturally narrowed points? [3 marks]

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c. Name 1 other differential for haematuria? [1 mark]

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d. What is the gold standard imaging for diagnosis of renal stones? [1 mark]

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e. What is the preferred management option for a large staghorn calculi, which fills the renal pelvis? [1 mark]

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f. A complication of renal or ureteric stones is infection. Name the classic triad of symptoms that would indicate pyelonephritis? [1 mark]

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g. Another complication is a post-renal acute kidney injury (AKI). Name 2 other causes of of a post-renal AKI [2 marks]

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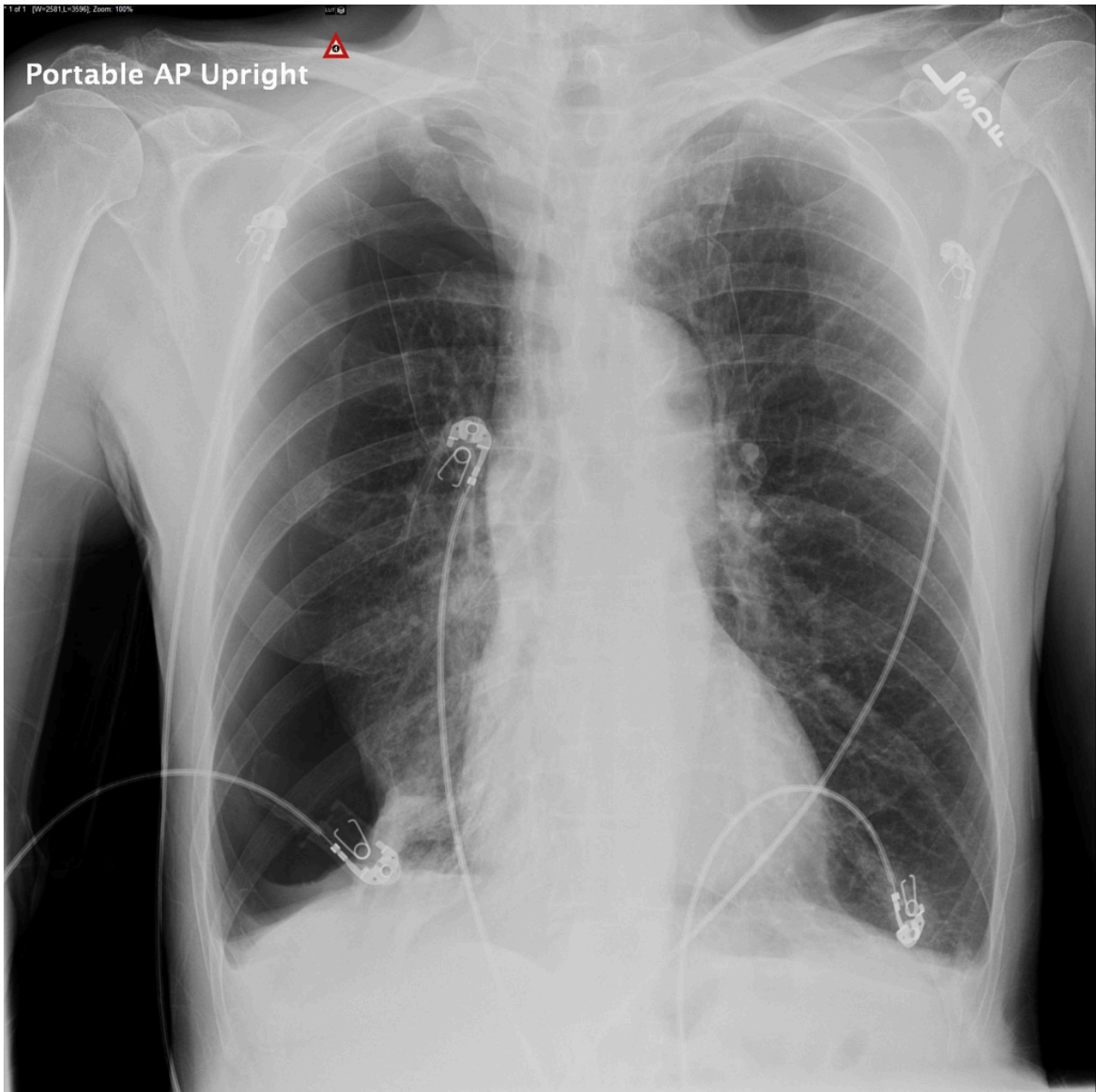
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[10 marks]

QUESTION 14

Respiratory - Pneumothorax

Karim is a 22 year old man, who is generally fit and well. He suddenly developed chest pain and became breathless whilst watching television and was brought in by ambulance to A&E. A portable chest x-ray is obtained, as below.



Case courtesy of Adam Eid Ramsey, MD, Radiopaedia.org, rID: 71579

a. What is the most likely diagnosis? [2 marks]

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- b. Name 3 clinical signs you would expect to find on respiratory examination [3 marks]**

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Over the next hour, Karim becomes increasingly breathless and distressed.

- c. What complication do you need to consider? [1 mark]**

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- d. Name 2 clinical signs, other than those mentioned above, that would alert you to this complication? [2 mark]**

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- e. The registrar decides to insert a chest drain in the 'triangle of safety'. What are the 3 borders of this that she needs to locate? [2 marks]**

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[10 marks]

QUESTION 15

You are called to review a 3 day old baby boy, Alfie, on the postnatal ward born via C-section at 39 weeks. You arrive at the ward and the mother tells you that his eyes have started to look a bit yellow. You examine him and suspect jaundice.

- a. What form of jaundice is this baby likely to have? [1 mark]

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- b. Name the other 2 types of jaundice seen in babies and name 1 cause for each of these [4 marks]

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- c. What would be the first line treatment for this condition? [1 mark]

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- d. What is the serious complication of untreated neonatal jaundice that parents should be warned about? [1 mark]

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Alfie is treated for his jaundice and remains in the hospital for a further 3 days. Before he is discharged, you conduct his NIPE and notice clunking of his hips.

- e. Which special tests in the NIPE can detect signs of hip pathology? [2 marks]

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- f. What should you arrange for Alfie to have now? [1 mark]

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- g. What condition is this looking for? [1 mark]

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- h. The NIPE is a form of screening examination. Name 2 criteria of the Wilson and Junger criteria for screening tests [2 marks]

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[10 marks]

QUESTION 16

A 24 year old male, Michael presents with a four week history of painless cervical lymphadenopathy. He denies any respiratory or coryzal symptoms. He has lost 6kg in weight over 2 months, has had drenching night sweats and generalised pruritus. He is a non-smoker. When asked about alcohol, he mentions that he felt ‘particularly terrible’ last weekend and the lumps in his neck became painful after a binge drinking session.

a. Name 2 differentials for neck lumps [2 marks]

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

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c. Name 2 risk factors for this diagnosis [2 marks]

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.....

d. Name 2 clinical signs that might be present [2 marks]

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.....

Michael then goes on to have a biopsy. At this appointment, he tells you that he drinks 2 750ml bottles of 13% wine a week.

e. Calculate Michael’s average number of units for the week [1 mark]

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f. What is the name of the characteristic finding from biopsy in the most likely diagnosis? [1 mark]

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g. Which classification system is used to stratify patients with the most likely diagnosis? [1 mark]

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[10 marks]

QUESTION 17

Katie is an 18 year old who presents to her GP concerned about her periods. In the past 12 months, she has had 7 periods. She takes no regular medication. Furthermore, she is upset as despite a healthy diet and regular exercise, she is struggling to lose weight. She is also unhappy with her skin, as she has lots of spots. You suspect Katie has polycystic ovarian syndrome (PCOS), so organise some blood tests and an ultrasound for her.

- a. Name 2 causes of primary amenorrhoea, and 2 causes of secondary amenorrhoea, excluding PCOS [4 marks]**

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- b. Name 2 blood tests recommended by NICE for the investigation of PCOS [1 mark]**

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- c. Which criteria system is widely used in the diagnosis of PCOS? [1 mark]**

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- d. Which medication is used first line for the management of acne in PCOS? [1 mark]**

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- e. Discuss the impact of PCOS on oestrogen and progesterone levels and how this relates to an increased risk of endometrial cancer [3 marks]**

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[10 marks]

QUESTION 18

58 year old Tina presents to A&E with haemoptysis. A full panel of bloods are performed and you notice abnormalities within her U&Es:

	Today	4 months ago (routine drug monitoring)	Reference Range
Sodium	133	140	133 - 146 mmol/L
Potassium	6.0	4.0	3.5 - 5.3 mmol/L
Urea	11	5.5	2.5 - 7.8 mmol/L
Creatinine	129.6	54	45 - 84 μ mol/ L

a. According to her creatinine level, what stage of acute kidney injury does Tina have? [1 mark]

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b. You suspect that Tina has glomerulonephritis. List 2 features of nephritic syndrome [2 marks]

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.....

c. Assuming that the haemoptysis is related to her renal pathology, what is the most likely diagnosis? [1 mark]

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d. What serological finding is diagnostic in this condition? [1 mark]

.....

e. Name 2 other causes of glomerulonephritis [2 marks]

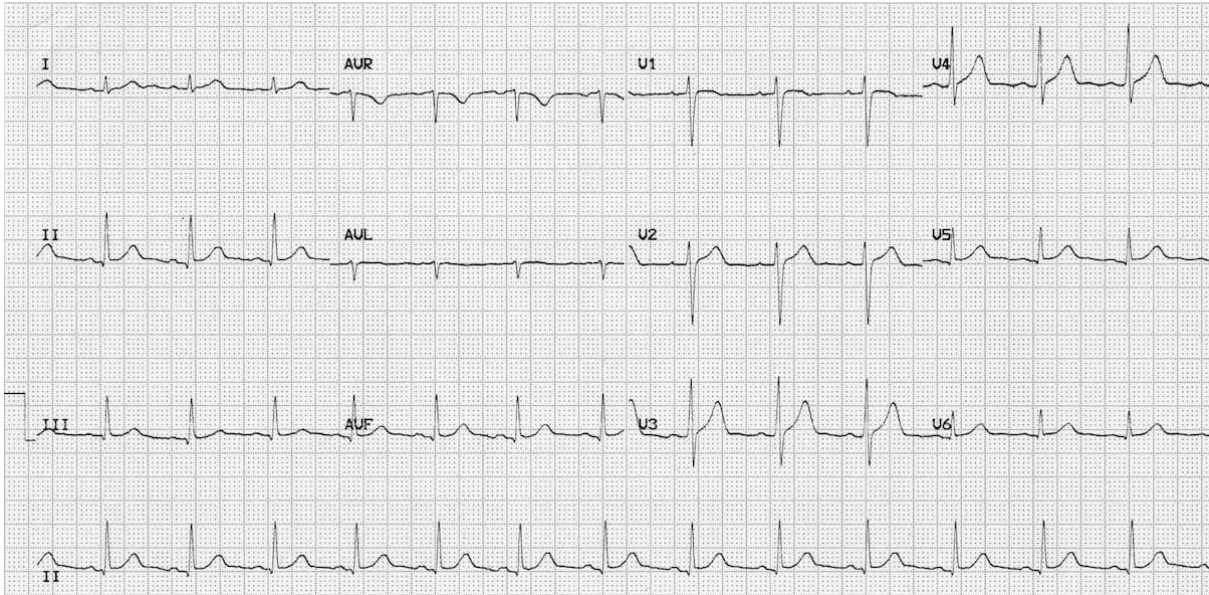
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f. How can a definitive cause be found in glomerulonephritis? [1 mark]

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The hyperkalaemia found on Tina's U&Es prompted an ECG to be performed, as found below:



Life in the Fast Lane: Ed Burns and Robert Buttner: Mar 11, 2021, ECG library

g. What medication should be given first, in order to manage the hyperkalaemia, and what is the rationale behind this? [2 marks]

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[10 marks]

QUESTION 19

Sandra is a 36 year old woman who recently gave birth to her first child (G2P1). Her partner Reggie has brought her to the GP after becoming concerned about her mental health since giving birth. He reports that Sandra's mood has been fluctuating to extremes frequently and this is very out of character. One hour she is withdrawn, anxious and low in mood, and the next she is restless, elated and talkative.

- a. Name one difference between baby blues and postnatal depression. [1 mark]

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.....

- b. What questionnaire or scale could you use to screen for depression in postnatal women who are at risk of developing a mental health condition? [1 mark]

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The GP asks Sandra if she hears any voices, and she informs them that sometimes voices directly talk to her and she has conversations with them. Reggie also informs you that Sandra has shared with him on more than one occasion that she thought their baby was dangerous and would hurt her in her sleep.

- c. What specific types of psychotic symptoms is Sandra displaying? [2 marks]

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.....

- d. The GP suspects Sandra is suffering from postpartum psychosis. Name 2 risk factors associated with developing postpartum psychosis. [2 marks]

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- e. The GP decides to urgently refer Sandra to hospital, for her baby's and her own safety. Where in the hospital should she be treated? [1 mark]

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- f. While in hospital, Sandra is started on Haloperidol, a first-generation (typical) antipsychotic. Name two side effects of first-generation antipsychotics. [2 marks]

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.....

Unfortunately, the psychiatry team find that Sandra's psychosis is not well managed on Haloperidol, or on Risperidone, a second-generation antipsychotic. They decide to start her on Clozapine instead.

- g. On Clozapine therapy, patients must be monitored with monthly blood tests - what is monitored? [1 mark]

.....

[10 marks]

QUESTION 20

A screening test is designed for malaria aimed at early detection and intervention. A study was conducted to evaluate the accuracy of the screening test in identifying individuals with malaria.

The study employed a cross-sectional design, recruiting participants from the local community. Participants underwent the new screening test for malaria, as well as confirmatory testing using standard, existing methods.

Out of the 1000 participants screened. The screening test identified 250 individuals as positive for malaria. Among those, 180 were confirmed positive. Additionally, of the 750 participants who tested negative on the screening test, 30 were later diagnosed with malaria on confirmatory testing.

- a. Calculate the positive predictive value for the new screening test [2 marks]**

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- b. Calculate the negative predictive value for the new screening test [2 marks]**

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- c. Calculate the sensitivity of the new screening test [2 marks]**

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.....

- d. Calculate the specificity of the new screening test [2 marks]**

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.....

- e. Name 1 strength and 1 weakness of cross-sectional studies? [2 marks]**

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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.

FEEDBACK FORM LINK: <https://forms.gle/8wgJrF6ge3WqAsKP8>



Acknowledgements once again to:

- Emily Finbow
- Vansh Asher
- Dr Olivia Stevens (FY1)
- Maddie Carling
- Finlay Anderson