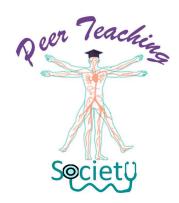
Peer Teaching Society Phase 4 SAQ Paper 2 2024



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.

Chief Exam Editors

Emily Finbow Vansh Asher

Special Acknowledgment

Dr Olivia Stevens (FY1) Maddie Carling Dr Olivia Eguiguren Wray (Teaching Fellow) Finlay Anderson [Page left intentionally blank]

[Question paper begins on the following page]

Shannon, a 25 year old female has just attended her first cervical smear. a. What is the aim of the cervical cancer screening programme? [2 marks] b. How regularly are routine smears conducted? [2 marks] Shannon's results are available: HPV detected, cytology normal. c. How should she be managed? [1 mark] d. Aside from HPV, list 3 risk factors for the development of cervical cancer [3 marks] e. Name one concerning finding on cervical examination that could suggest malignancy [1 mark]

At her smear appointment, Shannon mentions to the Nurse Practitioner that she has been experiencing some fishy-smelling, grey discharge.

f.	What is a possible factor that can increase the chance of Shannon developing this discharge? [1 mark]

[10 marks]

Irene is a 70 year old lady who lives at home with her daughter, son-in-law and grandchildren. Irene is normally able to help out taking her grandchildren to school and with the cooking at home. Over the weekend her daughter notices that she has become slightly confused. She is forgetting the names of the grandchildren and has been putting food items back in the wrong cupboards. On Monday morning they call the GP and explain the situation. Given Irene has no focal symptoms the GP asks them to drop in a urine sample and then books the next available appointment for Wednesday.

a.		aughter drops off the sample. What is the appropriate urine test to ample? [1 mark]) do
the sta param oxyge establi	nirs at hor edics disc n. They s ish wheth	ht Irene becomes very short of breath and has to stop twice to get une. Her family are concerned about her and call an ambulance. The cover that her oxygen saturations are 86% on room air and put her causpect community-acquired pneumonia and use the CURB65 to her to take Irene into hospital. The table below with the criteria of the CURB65 score. [4 marks]	e
	С	New onset/ worsening confusion	
	U		
	R		
	В		
	65		
want 1		ives in hospital the F2 on call decides to do some blood tests. The bloods that are commonly associated with new confusion teen").	-

c. Name three blood tests that would be requested as part of this. [3 marks]

d.	Name one likely causative organism of a community acquired pneumonia? [1 mark]
	rene has been treated she is discharged back home. Her GP is asked to repeat st XRay at about 6 weeks regardless of whether she is still symptomatic.
e.	Why is the GP asked to repeat this investigation? [1 mark]
[10 ma	ırks1

A CXR is performed and shows consolidation in the left lower zone. Irene is diagnosed with a community acquired pneumonia and is admitted to hospital to be

treated with IV antibiotics.

A father brings his 2-year-old son Billy to the GP surgery. Billy has been unusually tired and is now refusing to walk. On examination, you note that Billy has several bruises and is very pale.

a.	What is the most common type of leukaemia in children? [1 mark]
b.	With what type of adult leukaemia is the Philadelphia chromosome most commonly associated with? [1 mark]
C.	What are the other 2 main types of leukaemia? [2 marks]
d.	The presence of a Philadelphia chromosome in children with the most common form of leukaemia is only 3%. What is the genetic mutation of the Philadelphia chromosome? [1 mark]
e.	Apart from the Philadelphia chromosome, what other chromosomal abnormality predisposes children to this form of leukaemia? [1 mark]
f.	Name 2 investigations which could be done to confirm Billy's leukaemia? [2 marks]
g.	Billy is prescribed allopurinol. What complication of treatment is this trying to prevent, and what electrolyte abnormality is the oncologist trying to avoid? [2 marks]

[10 marks]

A 46 year old teacher is seen in clinic complaining of weight loss, sweating and palpitations. She has no previous relevant history. On examination you detect a diffusely enlarged thyroid gland.

Investigations reveal:

T4 of 72 nmol L-1 (reference range 10-25 nmol L-1)

TSH < 0.01 µmolL-1 (reference range 0.2-5 µmolL-1)

a.	Name 3 other signs you might detect on examination [3 marks]
b.	Further blood tests show that this patient has Grave's Disease. What antibody is raised in patients with this condition? [1 mark]
C.	As part of her management, the patient is prescribed carbimazole. What is the most serious side-effect that a patient may develop on carbimazole? [1 mark]
d.	What clinical signs would you tell the patient to be aware of that may alert her to the development of this condition? [2 marks]
e.	After some further blood tests, the endocrinologist decides to put the patient on a 'block and replace' medication regimen. In addition to carbimazole, what is the other medication used in this regimen? [1 mark]
Grave	12 months, the endocrinologist stops the patient's medications to see if her 's has gone into remission. Unfortunately, her free T4 levels increase and she
Starts	to develop symptoms again.
f.	Name 2 options that can be offered for definitive management? [2 marks]
[10 ma	arks]

Betty is a 42 year old lady, who is 32 weeks pregnant with her second child. She is transported by ambulance in severe constant 9/10 abdominal pain, which came on suddenly, and heavy PV bleeding, for the last 25 minutes.

O/E her uterus is tense + tender HR 132 bpm BP is 98/62

There is evidence of fetal distress on CTG monitoring.

a.	What is the most likely diagnosis? [1 mark]
b.	Name 2 risk factors for this condition [2 marks]
C.	What would your top differential be if Betty was not experiencing any pain? [1 mark]
d	What immediate management does she require? [3 marks]
u.	
e.	What is the definitive management [1 mark]
f.	Betty's child is delivered and the paediatrician on standby assesses the newborn baby using the Apgar score at 1, 5 and 10 minutes, due to a low score. Name two of the five features of the Apgar score. [2 marks]

[10 marks]

Rita is a 86 year old lady who has been brought to A&E by her daughter with a new confusion and agitation. She has a palliative diagnosis of breast cancer and has recently started taking morphine to manage her pain. She has been given a prognosis of a few months.

a.	Name 2 'Activities of Daily Living' you would enquire about as part of your social history [2 marks]
	examining Rita and performing some basic bedside investigations, you nine that constipation is contributing to Rita's new confusion.
b.	Name 3 other causes of delirium you would investigate for? [3 marks]
C.	Name 1 non-pharmacological intervention used in the prevention and treatment of delirium [1 mark]
d.	Given the likely cause of her constipation, which type of laxative should be avoided? [1 mark]
e.	Given the likely cause of her constipation, what should be offered? [1 mark]
After a	a few days of treatment, Rita's delirium settles and she wishes to discuss the
	. She says that she would not like resuscitation to be attempted if her heart was
f.	What document could be used to make this a legally binding decision? [1 mark]

g.	What document could be used to record her thoughts on these matters? [1 mark]
[10 ma	arks]

You decide to discuss Rita's thoughts about being admitted to hospital again in the

future, as well as what treatment would be acceptable to her.

John is a 76 year old man who attends the GP reporting lower urinary tract symptoms (LUTS). He has hypertension and high cholesterol, which he takes amlodipine and simvastatin for respectively, and had a knee replacement 1 year ago. Otherwise, he is generally fit and well.

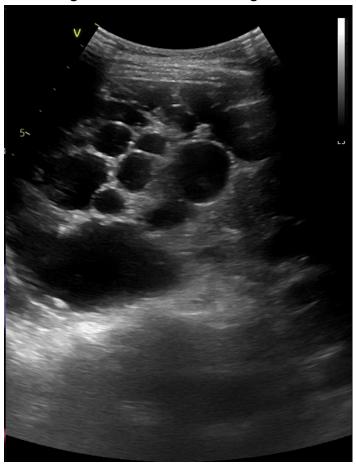
a.	enquire about [2 marks]
b.	Which validated screening tool is used to evaluate LUTS and give a symptom score? [1 mark]
c.	Other than prostate cancer, name 2 factors that can increase a PSA level? [2 marks]
d.	Which zone of the prostate is primarily affected in prostate cancer? [1 mark]
e.	What imaging is used as the first-line investigation for suspected prostate cancer? [1 mark]
f.	Prostate cancer is diagnosed through biopsies of prostatic tissue, which are used to calculate a 'Gleason score'. How is the Gleason score calculated? [2 marks]
g.	What is the most common metastatic site in prostate cancer? [1 mark]
[10 m	arks]

You are the Paediatric Registrar and you are asked to review a 3 month old baby boy who has been brought in by his mum. She states that over the past 3 weeks he has been having these strange episodes where he becomes irritable, looks to be struggling to breath and his lips turn blue. She states these last for a few minutes at a time.

a.	What is the name for these episodes? [1 mark]
b.	What is the most likely underlying cause of these episodes? [1 mark]
c.	What are the components of this condition? [2 marks]
-	further examination, you notice that he has single palmar creases, a short neck ooks to have reduced muscle tone.
d.	What is now your top differential for the underlying causes of this condition and name the most common genetic mutation which causes this? [2 marks]
e.	What is the first line screening test for this in pregnancy and what results would suggest this condition? [2 marks]
f.	What test would you offer a pregnant woman to confirm the provisional diagnosis from the screening tests during pregnancy? [1 mark]
g.	You discuss with the mother that some babies with this condition can experience developmental delays. What age would you advise her would be considered as a delay in development for walking? [1 mark]
[10 ma	arks]

You are a GP and Simon, a 52 year old, comes into your clinic complaining of fatigue, foamy and bloody urine and oedema in his legs. Upon further questioning, he also reports some pain in his back and flanks. On examination, you palpate his kidneys which seem abnormally large.

You arrange for ultrasound scanning and the following image is obtained:



Case courtesy of Herberth Vinicio Vargas, Radiopaedia.org, rID: 160897

a.	what is the most likely cause of his enlarged kidneys? [1 mark]
b.	What is the most common inheritance pattern for this condition? [1 mark]
C.	What is the role of Tolvaptan in this condition? [1 mark]
d.	What acute neurological condition can this condition cause? [1 mark]

You d	o a set of investigations and find he has a Hb of 84 and eGFR of 18.
e.	What stage of kidney disease is this gentleman at? [1 mark]
f.	Name the most common cause of chronic kidney disease in the UK [1 mark
g.	What is the most likely cause of this patient's low Hb and explain the mechanism which causes this? [2 marks]
h.	Simon's kidney function continues to deteriorate, name 2 forms of renal replacement therapy he can be considered for? [2 marks]
[10 ma	arks]

Jane is taken by ambulance to A&E having been involved in a serious house fire. From across the bay it is clear that she is in intense pain and has extensive burns. On closer inspection, her entire left and right arms are burnt, as well as her anterior torso. She weighs approximately 70kg.

a.	total body surface area is burnt? [1 mark]
b.	The Parkland formula (below) is used to calculate the fluid requirement in burns. Assuming all the burns are at least second degree, calculate Jane's total fluid requirement in the first 24 hours. How much should be given in the first 8 hours since the burn? [3 marks] Fluid required in 24hrs = 4ml x body weight (kg) x total body surface area affected (%)
	egistrar asks you to assess for inhalation injury. Name 2 features you would assess for in your history and examination that would be suspicious for potential smoke inhalation [2 marks]
d.	What effect does carbon monoxide have on the oxyhaemoglobin dissociation curve and how does this cause symptoms of carbon monoxide poisoning? [4 marks]
[10 ma	urks]

Dennis is a 67 year old man who is known to have an inguinal hernia. Usually, the hernia disappears on lying flat, however he noticed on waking that the hernia remained protruded. He is overweight and has type 2 diabetes mellitus, which is well controlled on metformin and gliclazide. He has just retired after a long career working on building sites.

[10 ma	arks]
has no	surgical follow up clinic, he says he is recovering well from surgery, although oticed a change in sensation on his leg and external genitalia. On examination, onfirm reduced sensation on his upper anteromedial thigh. Which nerve is likely to have been damaged intra-operatively? [1 mark]
	on the day of surgery? [2 marks]
list.	ve surgical repair of his inguinal hernia is scheduled. He is first on the operating What advice should Dennis be given with regards to his diabetes medication
e.	Whilst safety netting, you discuss the two main emergency complications Dennis is at risk of in regards to his hernia. What are they? [1 mark]
d.	What happened to the hernia this morning? [1 mark]
C.	Which type is more commonly seen in infants and what is the pathophysiological basis behind this? [2 marks]
D.	of how they enter the canal? [2 marks]
h	What is the difference between a direct and an indirect inguinal hernia in terms
a.	What is the definition of a hernia? [1 mark]

[10 marks]

Bob is a 64 year old gentleman who has come into your GP clinic with a same day appointment. Over the last 2 days Bob has noticed that he has been struggling to read small text, and he is starting to worry. Today his central vision is particularly affected. On his walk to the practice, he said the lines on the zebra crossing looked wavy. You suspect Bob may have developed age related macular degeneration (ARMD).

a.	Name the 2 types of ARMD and the ke marks]	y difference in p	athophysiol	ogy? [4
b.	You refer Bob for specialist assessment more severe type of ARMD. Give the reto help Bob. [2 marks]	-	-	
	pecialist happens to be investigating nk between smoking and developing		ARMD	No ARMD
ARMD	D. They have been collecting a	Smoker	40	20
patien	ing history and diagnosis of all nts who attend their clinic. esults are as follows:	Non-Smoker	160	180
c.	What type of study design is being de	scribed above?	[1 mark]	
d.	What is the odds ratio of those with A	RMD having smo	oked? [2 ma	rks]
e.	The specialist is collecting data only f type of bias does this leave the study	-	•	nic. Which

A 7 week old baby is brought to A&E by his parents with a history that he rolled off the couch. On examination, he is conscious but irritable and has cold peripheries. His temperature is 37.1°C and no neck stiffness. He has a boggy swelling on the left side of his scalp, some bruising to his chest and extensive nappy rash. He is the first child born to his parents and was born at term by normal vaginal delivery.

a.	What is the most likely cause of skull swelling? [1 mark]
b.	What is the most likely mechanism for this and what feature of the history makes you suspicious of this? [2 marks]
c.	Name 2 immediate investigations that should be undertaken to identify the cause? [2 marks]
d.	The parents are keen to take the child home. As the FY1 in A&E, what would you do? [1 mark]
e.	The ophthalmologist is called to see the child. Name 1 feature they are looking for [1 mark]
f.	Name 3 other professionals outside the hospital that might be involved in the investigation of this situation [3 marks]
[10 ma	arks]

A 75-year old overweight lady called Margaret presents with increasing pain in the right groin. The pain is worse at the end of the day, especially on a Monday, when she goes out to town. She also gets pain in the right knee at a similar time.

a.	What is the most likely diagnosis? [1 mark]
b.	You decide to arrange an x-ray, name 2 features that you would be likely to see in this diagnosis [2 marks]
c.	Name 3 management options you may suggest she tries at this stage [3 marks]
weekl	onths later Margaret continues to complain of pain and is stopping her from her y trip to town, which was the highlight of her week. She is referred to the alist orthopaedic clinic.
d.	What procedure may be offered now? [1 mark]
hours Marga	time later, Margaret undergoes this procedure and it goes entirely to plan. A few postoperatively, the nurses on the ward are concerned about how drowsy aret is. Her observations are as follows:
HR 86	; BP 132/78 ; sats 90% on 4L oxygen ; RR 7 ; temperature 37.1
e.	What are you concerned about, and how would you manage this? [2 marks]
f.	Name 1 additional clinical feature you would expect to find whilst doing an A-E assessment of Margaret? [1 mark]
[10 ma	arks]

Henrietta is a 36 year old lady who is known to have chronic plaque psoriasis. She works at a local spa and lives with her husband, two children and her elderly father, who has ankylosing spondylitis.

a.	Name 3 features of skin lesions that are suggestive of chronic plaque psoriasis? [3 marks]
b.	Which type of psoriasis presents with a "rain drop appearance" - multiple small scattered scaly papules? [1 mark]
C.	Name 1 reason for referral to a dermatologist in psoriasis? [1 mark]
she h	etta also mentions that over the last few weeks, coinciding with a psoriasis flare, as noticed that some of her joints have been more painful than usual. You er if this could be psoriatic arthritis. If she had psoriatic arthritis, when would you expect her pain to be at its worst? [1 mark]
e.	What is the difference between the terms 'oligoarthritis' and 'polyarthritis'? [2 marks]
f.	Psoriatic arthritis is highly associated with psoriatic nail changes. Name 1 finding that Henrietta may have [1 mark]
g.	Which gene is associated with both inflammatory bowel disease and inflammatory joint diseases, such as psoriatic arthritis and ankylosing spondylitis? [1 mark]
[10 m	arks]

Maggie is a 21-year-old female who has been brought to the GP by her mother. Her mother informs the GP that Maggie does not usually behave in this way, but has been acting 'strange' over the last week or so, with a very elevated mood compared to normal. She has been staying out late every night and returning home with lots of loose money, and not attending her work shifts. Maggie states that she is 'the best in the world' at poker and that she no longer needs to work. Her mother also informs the GP that Maggie suffers from depression, and recently started sertraline for this. With this information, the GP suspects that Maggie is having a manic episode.

a.	What condition does this information suggest Maggie may suffer from? [1 mark]
b.	Name two clinical signs/symptoms that are associated with mania. [2 marks]
C.	Name one difference between mania and hypomania. [1 mark]
d.	From the information given, what may have triggered Maggie's manic episode? [1 mark]
e.	The GP assesses Maggie's risk to herself and others to judge the urgency of admission or referral needed. What might they consider? [1 mark]
f.	Maggie shared that yesterday she drove through a red light on her way to the casino because she 'didn't have time to waste'. The GP decides to apply Section 4 of the MHA. What is this and who is involved in this? [2 marks]

g.	manic episode resolves. For long-term management, Maggie is started on Lithium. How often should Lithium levels be checked when starting or changing dose? [1 mark]
h.	When checking lithium levels, when should the blood sample be taken (in relation to when the dose is taken)? [1 mark]
[10 m	arks]

Jack is a 27 year old man who has just returned from a trip to Thailand with his friends. He presents with yellowing of the skin, abdominal pain and generally feeling fatigued and weak. He has no past medical history or relevant family history. Whilst abroad he had unprotected sex with multiple different partners, got a new tattoo and mostly ate at street markets. He has injected drugs in the past, some time ago. Given his history, you decide to screen for hepatitis B, amongst other infections.

a. Which 2 marks]	serological markers are used initially in hepatitis B screening? [2
Full serologica	I marker testing is performed, and the following results are obtained:
HBsAg	+++
Anti-HBs	NEGATIVE
HBeAg	+++
Anti-HBe	NEGATIVE
Anti-HBc	+++
IgM anti-HBc	+++
HBV DNA	+++
b. How sho	ould his results be interpreted? [2 mark]
c. Which n	narker gives a direct count of the viral load? [1 mark]
possibly for he	at some of his friends had vaccinations before they left for the holiday patitis. injected in the hepatitis B vaccine? [1 mark]
	epatitis B serological marker indicates immunity post vaccination? [1

t.	Which other type of viral hepatitis can be vaccinated against? [1 mark]		
g.	Other than vaccination, suggest 2 methods that may reduce someone's risk of contracting hepatitis B? [2 marks]		
[10 m	arks]		

Imran is a 28-year-old male who presents to A&E with his colleague following a collapse at work (in a warehouse). You take a history and his colleague informs you that Imran suddenly became stiff all over and dropped to the ground. He then started jerking for 2 minutes, before stopping. He was not incontinent but he does have evidence of tongue biting, and he lost consciousness. On regaining consciousness, Imran felt drowsy and sluggish for about half an hour. Imran has never experienced an episode like this before.

a.	What type of seizure does the description suggest? [1 mark]
b.	Name two investigations Imran should have performed. [2 marks]
c.	Other than epilepsy, suggest 3 possible causes for his seizures. [3 marks]
d.	The A&E doctor has made an urgent referral to neurology for an epilepsy assessment. You have advised Imran to stop driving before this appointment. What other advice must you give to Imran while he waits for specialist assessment? [2 marks]
e.	Unfortunately, Imran experiences another seizure before his specialist appointment. The seizure lasts for over 5 minutes, reaching status epilepticus. What is the first line treatment for status epilepticus in the community? [1 mark]
f.	The first line treatment for status epilepticus if IV access and resuscitation facilities are immediately available (in a hospital setting) is IV Lorazepam. Name one medication that can be administered intravenously as a second-line treatment if the seizures have not stopped after 2 doses of a benzodiazepine. [1 mark]
[10 ma	arks]

Rheumatology: Gout

Tim is a 54 year old man who presents with a red, hot swollen knee. He is overweight and admits to an unhealthy and chaotic lifestyle, partly related to owning a chain of bars and restaurants in Sheffield city centre. He has hypertension, for which he is prescribed Ramipril. He is systemically well.

Tim's knee is aspirated and the synovial fluid is sent for microscopy and culturing.

a. You consider crystal arthropathy within your list of differentials, complete the table below, comparing gout and pseudogout [6 marks]

	Crystal Composition	Birefringence of Polarised Light Microscopy	Appearance on Polarised Light Microscopy
Gout			
Pseudogout			

	ner differential for an acutely swollen joint is septic arthritis. What is the most common causative organism in septic arthritis? [1 mark]
	gnosis of gout is ultimately made. A few weeks after the acute attack, the GP es to prescribe prophylaxis, to try and prevent another flare.
C.	Name the two first-line treatment options for prophylaxis of gout, depending on comorbidities and name the class of these drugs. [2 marks]
d.	With regards to this new prescription, what should the GP advise Tim to do if he shows symptoms of another flare? [1 mark]
[40 m	owko]

[10 marks]

Robby is a 66 year old gentleman who comes into A+E complaining of pain in his chest, feeling very fatigued and dizzy. The nurse tells you his latest observations: HR 34, BP 82/43, Temp 36.7, RR 12, O2 Sats 95%.

a.	Name the medication and dose you would use to manage this patient [2 marks]
b.	If this first step was unsuccessful in relieving Robby's symptoms, what would be your next step? [1 mark]
C.	Name a non-pharmacological management option for his symptoms [1 mark]
buzze	nanage to stabilise Robby. 2 hours later, one of the nurses pulls the emergency or as Robby has collapsed. You conduct an A-E assessment and the nurse hands ne following ECG:
	Fast Lane: Ed Burns and Robert Buttner: Mar 19, 2023, ECG library What is the most likely diagnosis? [1 mark]
e.	What type of arrhythmia is this? [1 mark]
f.	How do you define this? [1 mark]

9.	Triat is your management or one ison [1 many
h.	Unfortunately, your attempts to manage this are unsuccessful and Robby dies in resus. Name the 2 reflexes you would check when verifying Robby's death [2 marks]
[10 m	arks]

g. What is your management of choice? [1 mark]

[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 2 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/a1Xd2BsZ7BS72Xra7



Acknowledgements once again to:

- Emily Finbow
- Vansh Asher
- Dr Olivia Stevens (FY1)
- Maddie Carling
- Dr Olivia Eguiguren Wray (Teaching Fellow)
- Finlay Anderson