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Family Name					
Given Name/s					
Student Number					
Teaching Period	Semester 2, 2018				

PHA406 – Therapeutics B	DURATION	
	Reading Time:	10 minutes
	Writing Time:	180 minutes
INSTRUCTIONS TO CANDIDATES		
<p>This examination has 3 (A, B and C) Sections:</p> <p>Section A contains Forty (40) Multiple Choice Questions. Answer ALL questions on the Faculty/School supplied Multiple Choice Answer Sheet. Total marks allocated: Twenty (20). Suggested time allocation: Sixty (60) minutes.</p> <p>Section B contains Four (4) Extended-Answer Questions. Answer ALL questions in one of the 16-page Booklets provided. Total marks allocated: Forty (40). Suggested time allocation: Sixty (60) minutes.</p> <p>Section C contains Two (2) Case Studies. Answer ALL questions in one of the 16-page Booklets provided. Use a new booklet. Total marks allocated: Forty (40). Suggested time allocation: Sixty (60) minutes.</p>		
EXAM CONDITIONS		
<p><u>You may begin writing from the commencement of the examination session.</u> The reading time indicated above is provided as a guide only.</p>		
This is a CLOSED BOOK examination		
No calculators are permitted		
No handwritten notes are permitted		
No dictionaries are permitted		
ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED	
No additional printed material is permitted	2 x 16 Page Book 1 x Scrap Paper College Multiple Choice Answer Sheet	

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DOUBLE-SIDED.**

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LEFT BLANK.**

Section B
Extended-Answer Questions
Total No of Marks for this section: 40
Answer ALL Questions

Answer this section in one of the 16-page Answer Booklets provided.

Marks for each section are indicated. Suggested time allocation for Section B: 60 mins

Question 1 (multiple topics)

Discuss and compare the following aspects of Parkinson's disease and Alzheimer's disease:

- Pathophysiology
- Clinical presentation
- Prognosis and aim of therapy

(5 marks each = 10 marks)

Question 2 (multiple topics)

- a. Describe and differentiate the pathophysiology of *central* and *nephrogenic* diabetes insipidus and discuss the therapeutic agents available for the treatment of central diabetes insipidus. Include in your answer the mechanism(s) of action of these agents and any adverse effects, contraindications and precautions when using these agents.

(5 marks)

- b. Discuss how migraine headache can be managed with currently available therapeutic agents. Identify those agents which are used for resolving acute migraine and those for prophylaxis. Include in your answer a brief description of how they produce their beneficial effects.

(5 marks)

Question 3 (multiple topics)

Describe the aetiology, pathophysiology, clinical presentations and management/treatment plan(s) for the following disorders/syndromes:

- i. Hyperparathyroidism
- ii. Hepatic encephalopathy

(5 marks each = 10 marks)

Question 4 (multiple topics)

- a. A 60-year-old woman with schizophrenia has been taking haloperidol for many years and her condition has been well controlled. However, she has recently started to develop movement disorder. Explain what has probably happened to her (include some possible mechanisms) and suggest **ONE** (1) agent which may be useful to resolve her movement disorder.

(5 marks)

- b. Discuss current available pharmacological (include mechanisms of action) and non-pharmacological therapies for the management of unipolar depression.

(5 marks)

End of Section B

Section C
Case Studies
Total No of Marks for this section: 40
Answer ALL Questions

Answer this section in one of the 16-page Answer Booklets provided. **Use a new booklet.**

Marks for each section are indicated. Suggested time allocation for Section C: 60 mins

Case Study 1 (25 marks)

LH, a 68-year-old female from the remote town of Tennant Creek, is brought to the rural medical centre by her family because she has been developing some challenging behaviours since her husband passed away a few months ago.

LH was socially active and able to conduct her routine daily activities with minimal assistance, but now she is uncharacteristically moody, with increasing irritability and frustration which has resulted in frequent confrontations with her family. She lacks the desire to do anything she previously enjoyed, such as playing bridge (a card game) at the local RSL club and does not want to leave her house. She is also spending less time with her friends and family and regularly locks herself in her room.

LH is an ex-smoker and likes to have a few glasses of her favourite red wine with her dinner. She also consumes a few shots of whisky before going to bed. Her son reveals that lately, he has noticed she has not been eating properly but her alcohol consumption has increased. She has been rather forgetful as well and is not compliant with her medications. She has not been sleeping well and was found pacing around the house during the night on several occasions, sometimes complaining of a burning feeling in her stomach and oesophagus.

On examination, LH appears agitated, disorientated and can only provide ambiguous answer to simple questions regarding the current time and her current location. LH's other clinical parameters include: BP=155/93, heart rate=95 bpm, respiratory rate=27 breaths per minute, temperature=38.6°C, and SaO₂ (blood oxygen saturation) =95%. Her MMSE (Mini Mental State Examination) score is 19/30.

LH's medical history includes:

Hypertension	Hypothyroidism
Type II diabetes mellitus	Hepatitis B
Hyperlipidaemia	Total left hip replacement 2 years ago
Osteoporosis	Nocturnal enuresis
GORD	

Her current medications include:

Amlodipine	5mg daily	Thyroxine	100µg daily before breakfast
Atorvastatin	40mg daily	Metformin XR [®]	1.5g daily
Aspirin	150mg daily	MS Contin [®]	20mg bd PRN
Amitriptyline	75mg at night	Pantoprazole	20mg daily PRN
Alendronate	70mg once a week	Paracetamol	665mg 2 bd
Caltrate plus vitamin D [®] tablet	1 daily	Temazepam	10mg at night PRN
Lantus [®] insulin	16 units at night		

Her laboratory test results are:

Electrolyte		Reference Range	Liver Function Test		Reference Range
Na ⁺	133	135-145mmol/L	Albumin	16	32-45g/L
K ⁺ (serum)	3.9	3.8-4.9mmol/L	ALT	46	<35U/L
Cl ⁻	96	95-110mmol/L	ALP	105	25-100U/L
Urea	6.9	3-8mmol/L	GGT	68	<30U/L
Cr	108	50-110µmol/L			
Full blood Examination			Thyroid Function Test		
Hb	154	115-165g/L	Free T ₄	16	10-25pmol/L
RCC	5.0	3.8-5.8×10 ¹² /L	TSH	6.6	0.4-5mIU/L
Hct	0.43	0.37-0.47			
Platelet	350	150-400×10 ⁹ /L	Others		
MCV	85	80-100fL	CRP	3	<10mg/L
WCC	9.2	4.0-11.0×10 ⁹ /L	BSL (random)	9.2	3-7.7mmol/L
Neutrophil	6.4	2.0-7.5×10 ⁹ /L			

Please see next page for questions

- a. Name **Five (5)** most likely causes of LH's current clinical presentations. Explain your answers.

(10 marks)

- b. Discuss the significance of LH's liver function tests (LFT) and thyroid function tests (TFT) results and identify the potential causes of several abnormal findings. Suggest treatment option(s) you would employ to correct these abnormalities.

(5 marks)

- c. Outline the immediate and long-term management plans you would recommend for treating LH's conditions. Justify your recommendations.

(10 marks)

Please see next page for Case Study 2

Case Study 2 (15 marks)

SF, a 19-year-old woman is referred to a neurologist for evaluation after experiencing a convulsion while jogging. She is otherwise healthy and takes no medications besides combined oral contraceptive pills (COCP). SF's boyfriend, who was jogging with her mentions that he did not notice any unusual behaviour or symptoms before the onset of her convulsion. All SF's medical tests, including electrolytes, renal function, complete blood count and head CT scan were normal.

SF also reveals that for as long as she can remember, flashing lights have caused her to "lose short periods of time". She also notes that in the morning, her hands occasionally jerk and she may drop what she is holding. SF's father has had 2 unprovoked convulsions during adulthood and is currently taking phenytoin. SF has no other known risk factors for epilepsy.

The neurologist makes a presumptive diagnosis of Juvenile Myoclonic Epilepsy (JME) after taking into consideration SF's history of absence seizures, morning myoclonic seizures and one convulsive seizure, and prescribes sodium valproate to treat her JME.

Please see next page for questions

- a. List **FIVE (5)** risk factors/causes (other than genetic) of seizures.
(5 marks)
- b. Discuss the use of sodium valproate rather than carbamazepine in the treatment of SF's JME. Include in your answer the mechanisms of action and adverse effects associated with the use of each agent.
(4 marks)
- c. SF is also taking COCP. Would you suggest any changes to her COCP dosage? Explain your answer.
(3 marks)
- d. After a few months, SF marries her boyfriend and decides to become pregnant. What advice or precautionary measures would you provide SF with regarding epilepsy and pregnancy, and the use of sodium valproate during pregnancy?
(3 marks)

End of Section C

End of Exam Paper