

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION IN MD (PSYCHIATRY) – JUNE 2019

Date: 28th June 2019

Time: 1.00 p.m. – 4.00 p.m.

Answer **all ten (10)** questions.

Answer **each question in a separate book.**

ESSAY PAPER

1. A 50-year-old man returned to Sri Lanka from a hiking trip in America. The flight duration was 16 hours. He has diabetes mellitus and hypertension which are well controlled. He is on metformin 500mg twice daily, hydrochlorothiazide 25mg mane and ramipril 2.5 mg nocte.

After returning home, he noticed that he has got bilateral calf pain more on the right side for which he received analgesic treatment from a general practitioner. Two days later he presented to the emergency department with shortness of breath. On examination, pulse rate was 110/min and blood pressure was 85/60mmHg. Respiratory rate was 36 breaths per minute and lungs were clear. Oxygen saturation was 88%.

His arterial blood gas results are as follows:

PaO ₂ = 70 mm Hg	(75-100mmH)
PaCO ₂ = 32 mm Hg	(35-45mmHg)
HCO ₃ = 25 mEq/L	(22-26 mmol/L)
pH = 7.48	(7.35-7.45)

- 1.1. State the most likely reason for his acute presentation to the emergency department. (10 marks)
- 1.2. List two (2) risk factors that this patient had related to the diagnosis mentioned in 1.1. (10 marks)
- 1.3. List four (4) other investigations that you would perform urgently giving reasons. (40 marks)
- 1.4. List two (2) urgent treatment that he needs in order to prevent complications. (20 marks)
- 1.5. State one acute complication and one long term complication of the condition mentioned in 1.1. (20 marks)

2. A 35-year old previously healthy woman presented with a six-month history of progressive involuntary movements of upper limbs. She tried to mask the movements by acting out a task related to the movement, but increasingly found it difficult to hide her problem. Her husband had noticed that the movements increased with anxiety. She complained that lately, she found it difficult to cope with working as a software engineer due to memory problems.

2.1. List three (3) differential diagnoses for her presentation. (30 marks)

2.2. On further inquiry, it was revealed that her mother and maternal grandfather also had similar symptoms and died in their fifties. State the most likely diagnosis. (10 marks)

2.3. Briefly outline the pathogenesis of the diagnosis mentioned in 2.2. (20 marks)

Her condition progressively deteriorated over the next 10 years. One day she presented to the emergency department with fever, cough and shortness of breath. Examination revealed temperature of 40°C, pulse rate of 100/min, blood pressure of 120/80mmHg and respiratory rate of 26 breaths per minute. On the right lung base there was dullness, increased vocal resonance, crepitations and bronchial breathing.

2.4. State the most likely cause for her acute presentation. (10 marks)

2.5. Describe the acute management in the emergency department for the condition mentioned in 2.4. (30 marks)

3. Define and briefly explain the following psychopathological phenomena giving an example for each.

3.1. Delusional misidentification (40 marks)

3.2. Pseudohallucinations (30 marks)

3.3. Overvalued ideas (30 marks)

4. Explain the neurophysiological basis of the following.
- 4.1. Penile erection (50 marks)
 - 4.2. Alcohol withdrawal state (50 marks)
- 5.
- 5.1. Describe the relationship between gender and mental health. (50 marks)
 - 5.2. Initial experience of alcohol is unpleasant. However, the users continue to take alcohol despite this repulsive feeling. Following continued use of alcohol, the user describes the experience as pleasurable. Explain this process using behavioural and psychological theories. (50 marks)
6. Explain the psychological basis of the following.
- 6.1. A young man who stabbed his girlfriend after she broke up with him, reported that he could not remember any details of the event, although the police informed him that they had CCTV footage of the incident. (40 marks)
 - 6.2. A person is seriously injured by an assailant in front of many people. The person bled to death following the injury as no one intervened. (30 marks)
 - 6.3. A female presenting with vaginismus claims that her fear intensified after a friend told her that first time penetration is extremely painful. (30 marks)
- 7.
- 7.1. Draw and label a diagram of a transverse section of the medulla oblongata at the level of the inferior olivary nuclei. (50 marks)
 - 7.2. List five (5) clinical features and the relevant neuroanatomical structures damaged due to thrombosis of the posterior inferior cerebellar artery. (50 marks)

8. Describe the pharmacological basis for the use of following drugs in the given conditions.

8.1. Mirtazapine in depressive disorder (25 marks)

8.2. Rivastigmine in dementia (25 marks)

8.3. Clomipramine in obsessive compulsive disorder (25 marks)

8.4. Benzhexol in drug induced parkinsonism (25 marks)

9. Briefly describe the following psychopathological phenomena.

9.1. Ambitendency (25 marks)

9.2. Automatic obedience (25 marks)

9.3. Stereotypy (25 marks)

9.4. Perseveration (25 marks)

Contd...../5-

10.

- 10.1. List five (05) circumstances under which an observed association in a cohort study leads to inferring causation. (20 marks)
- 10.2. Briefly outline why randomised control trials are better suited than case control studies to infer causation. (20 marks)

An open label study was conducted to test the hypothesis that antidepressant effect of ketamine might be dependent on opiate receptor stimulation. Five patients with treatment resistant depression received injectable naltrexone 2-5 days before ketamine was infused. The table below gives the depressive symptom scores according to Montgomery-Asberg Depression Rating Scale (MADRS) before and after the treatment. Clinical response was defined as 50% or higher improvement from baseline scores.

Table: Depressive Symptom scores as measured by Montgomery-Asberg Depression Rating Scale before and after treatment

Patient No	Sex	Age	MADRS Score		
			<u>Pre-treatment</u> (Baseline)	<u>Post-treatment</u>	<u>Improvement (%)</u>
1	M	60	24	2	22(92)
2	M	45	30	13	17(57)
3	F	61	40	9	31(78)
4	M	48	32	13	19(59)
5	M	32	46	5	41(89)

- 10.3. Based on the study findings, what inference could be made about the hypothesis that antidepressant effect of ketamine is mediated by opiate receptors? (30 marks)
- 10.4. List five (05) limitations of this study. (30 marks)