

Master Copy

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION IN MD (PSYCHIATRY) – JULY 2023

Date :- 6th July 2023

Time:- 9.30 a.m. – 12.30 p.m.

STRUCTURED ESSAY PAPER

Answer all ten (10) questions.

Answer each question in a separate book.

1. A 65-year-old patient presents with receptive aphasia following a stroke.

1.1. Describe the anatomical basis for this presentation with a diagram. (60 marks)

1.2. List five (05) other symptoms which can be associated with the above pathology. (40 marks)

2. A 65-year-old previously healthy man presents with a three day history of fever with productive cough. He has a right sided pleuritic type of chest pain. He has a temperature of 101°C and is dehydrated. His pulse rate is 110 beats/minute with a blood pressure of 90/50 mmHg. The respiratory rate is 28/minute. He is disoriented in time and place. The GCS is 14/15. There are coarse crepitations in the background of bronchial breathing in the right lower zone. The oxygen saturation is 89%.

2.1. What is the complete diagnosis for the clinical presentation? (15 marks)

2.2. State the criteria and the parameters that determine a patient with the condition mentioned in 2.1. for hospital admission. (10 marks)

2.3. The following are the results of his arterial blood gas analysis.

pH	7.32	
HCO ₃ ⁻	28 mmol/L	(22-24)
pO ₂	70 mmHg	(80-100)
pCO ₂	65 mmHg	(35-45)

Interpret the reports with regard to respiratory and acid base status. (10 marks)

2.4. List two (02) radiological abnormalities that you may observe in this patient. (10 marks)

2.5. List five (05) other investigations that will be useful in management of this patient, briefly stating their expected findings (25 marks)

2.6. List the important steps in the acute management of this patient. (20 marks)

2.7. Patient's fever did not subside in 5 days. His respiratory symptoms also deteriorated.
List two (02) possible causes. (10 marks)

Contd...../2-

3. A 21-year-old woman comes to the clinic with a new onset generalised tonic-clonic seizure, which she experienced 2 weeks prior to the consultation. The neurological and other systemic examination is normal.
- 3.1. State two (02) investigations you would request to predict the chance of recurrence in this patient with a new onset seizure. (20 marks)
- 3.2. State two (02) seizure mimics you would consider excluding at this stage. (20 marks)

Her mother accompanies her for the next clinic visit and mentions that she has been experiencing “spells” in which she would lose awareness. During such spells she stares into space and has “swallowing” movements. She fidgets with her hands. Prior to these spells she at times experiences a feeling of fear and palpitations.

- 3.3. State the neurological diagnosis of this patient. (25 marks)
- 3.4. State two (02) medications you would start for this patient especially considering her wish to conceive in the near future. (20 marks)
- 3.5. State three (03) life style related precautionary measures you would advise on. (15 marks)
4. Describe the drug interactions in the following:
- 4.1. clozapine and fluoxetine (25 marks)
- 4.2. lithium and spironolactone (25 marks)
- 4.3. carbamazepine and oral contraceptives (25 marks)
- 4.4. sertraline and aspirin (25 marks)
5. Explain the psychopharmacological basis of the following psychotropics in given conditions.
- 5.1. Quetiapine has antimanic and antidepressant properties (25 marks)
- 5.2. Clonazepam has anxiolytic and sedative properties (25 marks)
- 5.3. Bupropion is used to treat depression and nicotine dependence (25 marks)
- 5.4. Venlafaxine is used to treat depression and pain disorders (25 marks)

6. State two (02) possible **psychopathological explanations each** for the following presentations.
- 6.1. A patient referred to the dermatology clinic claims that there are insects crawling all over his body. (25 marks)
 - 6.2. A patient giving a long irrelevant answer to a routine question. (25 marks)
 - 6.3. A patient presenting to the psychiatry clinic saying he saw himself in a crowd. (25 marks)
 - 6.4. A 32-year-old mother after discharge following delivery of her baby kept thinking that the nurse had injected the wrong injection to the baby. She telephoned the ward repeatedly to check whether the injection was right. (25 marks)
7. Explain the psychological basis for the following:
- 7.1. A 54-year-old manager, despite stability, success and a stable family, battles restlessness and discontent. Regretting past choices, he longs for his true passions and engages in impulsive behaviours like buying expensive sports cars and taking solo trips that create distance from loved ones. Work suffers and conflicts arise. Questioning his identity and life's purpose has a great negative impact on relationships and careers. (25 marks)
 - 7.2. In a busy city, a 30-year-old woman witnessed a car crash, causing chaos. As the accident unfolded, she noticed the indifference of onlookers. Stunned by their indifference, she felt torn between helping the distressed victims and succumbing to the prevailing inaction. Her heart pounded, frozen in a moment of uncertainty. (25 marks)
 - 7.3. A 30-year-old transgender software engineer faces prejudice and discrimination in the workplace and social settings. Despite a sense of fulfilment and personal satisfaction about transitioning from female to male two years ago, he has been subjected to experiences including exclusion from opportunities, lack of promotion, misgendering and derogatory remarks. (25 marks)
 - 7.4. A neglected youth with a difficult family life finds purpose and belonging in an online extremist community that reinforces his beliefs. Isolation from friends and family intensifies his anger and victimhood. Charismatic leaders of the extremist group exploit his vulnerabilities, making him more violent and destructive towards those the group deemed as enemies. (25 marks)

Contd...../4-

8.

8.1. Describe positive reinforcement and negative reinforcement using Skinner box experiment. (30 marks)

8.2. Discuss why “punishment” is inferior to negative reinforcement. (30 marks)

8.3. Discuss why, if a dentist repeatedly re-assures a child saying “it will not hurt” before a procedure, the child may become more anxious when he/she hears this phrase. (40 marks)

9.

9.1. Mention the structural and functional adaptations at synaptic junctions to facilitate neuronal transmission. (30 marks)

9.2. Briefly describe how synaptic plasticity facilitates memory. (30 marks)

9.3. Explain the role of the glutamate neurotransmitter in the brain. (40 marks)

10.

10.1. Define the following measures of risk used in health research: (30 marks)

10.1.1. Risk difference

10.1.2. Risk ratio

10.1.3. Odds ratio

10.2. Briefly explain the advantages and disadvantages of the above measures in determining risk and protective factors for disease (30 marks)

In a study to determine the risk of neuropsychiatric consequences of SARS-CoV-2 infection in the below 50 age group, a sample of 756 patients diagnosed with SARS-CoV-2 infection by PCR test were compared with a matched sample of 502 patients who were admitted with respiratory symptoms but were negative for the PCR test. In the PCR positive sample there were 6 patients with stroke compared to 2 in the PCR negative sample.

10.3. Calculate the risk of stroke following SARS-CoV-2 infection using the above data. (20 marks)

10.4. What are your conclusions based on results of the above calculation? (20 marks)