

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION IN MD (PSYCHIATRY) - OCTOBER 2021

Date: 08th October 2021

Time: 1.00 p.m. – 4.00 p.m.

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

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

STRUCTURED ESSAY PAPER

01. Explain the psychological basis of the following.

- 1.1. Miss. Perera, a 27-year-old management assistant complains that she forgets things for the past few months. However she was able to give full details as to where she was and what she was doing when she heard of Easter bombing. (25 marks)
- 1.2. Mrs. Silva has told her co-worker that her boss does not like her, and he is harassing her by not approving her leave. (25 marks)
- 1.3. Mr. Fernando decided to explore a national park with a group of friends during the lock down despite restrictions to travel. He is generally a person who abides by rules and regulations but agreed to this as his friends did not see a problem. (25 marks)
- 1.4. Mrs. Mendis, a single working mother of a 4-year-old child often yells at her son during her online working shifts even if there is slightest disturbance. A few weeks later she noticed that her child has started wetting the bed again. (25 marks)

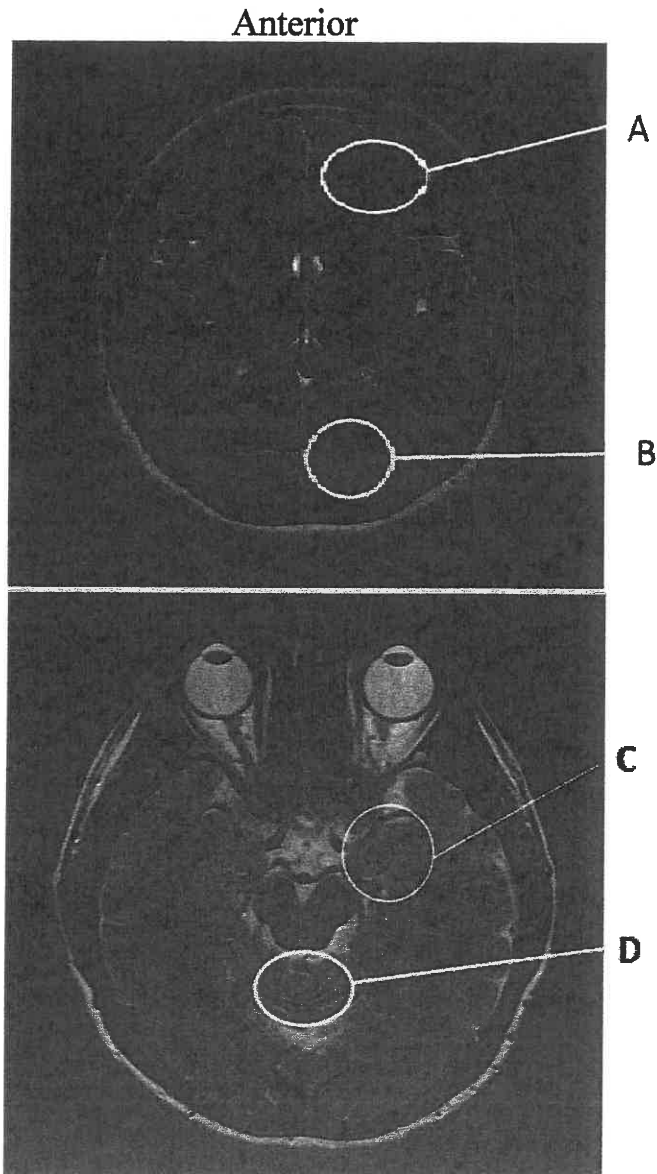
02.

- 2.1. Draw the nerve pathway involved with hearing a question and answering it in a lateral view of the brain. (30 marks)
- 2.2. Name the four (04) important areas of the brain involved in the above pathway. (20 marks)
- 2.3. Draw a transverse section of the medulla oblongata at the level of inferior olivary nucleus. (30 marks)
- 2.4. Name the blood supply to medulla oblongata and the clinical symptoms of its blockade. (20 marks)

Contd... /2-

03.

3.1. Name the areas of the brain shown in the diagrams below.
(20 marks)



3.2. Name (a) one unilateral
(b) one bilateral lesion/disease of each structure identified
(20 marks)

3.3. Outline the clinical features of lesions in structure A. (30 marks)

3.4. Name five bedside tests to localize the lesion in structure A.
(10 marks)

3.5. Outline signs elicited in disease of structure D. (20 marks)

04. Briefly describe the neurophysiological basis of the following.

4.1. Prolactin secretion in a breast-feeding mother. (30 marks)

4.2. Pain due to a peptic ulcer has more emotional impact than an accidental cut injury of the hand. (30 marks)

4.3. Male ejaculatory response. (40 marks)

05. A 54-year-old unskilled labourer working in the municipal council presented with low grade fever, cough, loss of appetite, loss of weight for two weeks. He had spotted some blood when clearing his throat and coughing. He is on treatment for diabetes mellitus but has no history of asthma or ischemic heart disease. He consumes alcohol, smokes cannabis and cigarettes daily but stopped two weeks ago when he became ill. He was withdrawn and anxious. On examination temperature was 38°C, BMI=18kg/m², PR=110/min, BP=00/60mmHg, RR=22/min, with bilateral coarse crepitations and widespread rhonchi.

5.1. State three (03) possible differential diagnosis. (15 marks)

5.2. State five (05) investigations that will aid in diagnosing the cause of the respiratory illness giving reasons. (40 marks)

5.3. Describe the immediate steps in management of this patient. (30 marks)

5.4. Describe the underlying contributing factors which have aggravated his illness. (15 marks)

06.

6.1. Distortions in immediate awareness of self-unity can lead to disturbed experiences in psychiatric disorders. A patient with delusions of demonic possession may strongly believe that they are two individuals. Explain how this experience differs from depersonalization. (40 marks)

6.2. Explain psychopathology of body image disturbances. (60 marks)

07. Briefly explain the psychopharmacological basis of the following.

- 7.1. SSRIs are associated with increased risk of bleeding. (30 marks)
- 7.2. Mirtazapine causes more sedation and weight gain than SSRIs.
(30 marks)
- 7.3. SSRI induced sexual side effects improve when the patient is switched to bupropion. (40 marks)

08. Describe the genetic basis of the following scenarios.

- 8.1. A 45-year-old biology teacher diagnosed with Huntington's disease asks you why he got the illness and whether his children will get it too.
(25 marks)
- 8.2. A medical officer in your unit who has a father with dementia has been reading up on the illness and asks what is meant by "amyloid precursor protein (APP gene) is important in the aetiology of dementia".
(25 marks)
- 8.3. You are taking a class for final year medical students on human sexual disorders and a student asks "is being an intersex individual the same as being transgender?"
(25 marks)
- 8.4. A patient with schizophrenia has a sister and an uncle with the same illness. The consultant mentions the heritability of schizophrenia is 81% and asks you what that means and how heritability is assessed.
(25 marks)

09.

9.1. A pharmaceutical company has developed a new vaccine to prevent COVID-19. It has passed through the phase I and phase II trials. The safety of the vaccine has been established. They want to administer it to 5000 volunteers between the ages of 21 and 50 years to test whether it is effective in the prevention of COVID-19.

9.1.1. Mention the experimental design most appropriate to test the efficacy of the vaccine. (10 marks)

9.1.2. Mention the null hypothesis to be tested. (10 marks)

9.1.3. Mention the primary endpoint in this study. (10 marks)

9.1.4. What is meant by vaccine efficacy and vaccine effectiveness? (20 marks)

9.1.5. At the end of the study, they find that the null hypothesis is not rejected. What are the errors that may have resulted in this outcome? (10 marks)

9.2. A COVID-19 PCR test has a sensitivity of 95% and specificity of 90%. The test is administered in a village where a quarter of the village has the illness. A person from this village comes to you with a positive report.

What is the chance that this person really has the disease? (40 marks)

10. Describe the pharmacological basis of the following.

10.1. A heavy smoker needs higher doses of clozapine for improvement of psychotic symptoms. (25 marks)

10.2. A patient on lithium develops toxicity when prescribed hydrochlorothiazide for hypertension. (25 marks)

10.3. Flumazenil is not effective in treating phenobarbitone overdose. (25 marks)

10.4. A patient who has been on fluoxetine for the treatment of a depressive episode develops profuse sweating and severe tremors after taking an over-the-counter medication for headache, which was later found to be sumatriptan. (25 marks)

