

TOPIWALA NATIONAL MEDICAL COLLEGE MUMBAI

DEPARTMENT OF PHYSIOLOGY

1<sup>st</sup> MBBS Second Terminal Examination (Batch 2024-25)

SUBJECT: PHYSIOLOGY

Date: 15/04/2025

TIME: 3 Hrs.

Total Marks: 100Marks

SECTION - B (80 Marks)

SECTION "B"

- INSTRUCTIONS:
- 1) All the answers are to be written using black ink ballpen
  - 2) Each main question is to be written on the separate page.
  - 3) Draw diagrams wherever necessary.
  - 4) Figures to the right indicate marks.

Q2. Short answer questions (all 5 questions are compulsory)

(4marks x5= 20)

- A. A 54-year-old woman undergoes total thyroidectomy for follicular carcinoma of the thyroid. About 6 hours after surgery, the patient complains of tingling around her mouth. The nurse calls the physician to the bedside to evaluate the patient after she has severe hand cramps when her blood pressure is taken. Upon evaluation the patient is still complaining of intermittent cramping of her hands and feet. She has no change in her vital signs. Tapping on the inferior portion of the zygomatic arch 2 cm anterior to the ear produces twitching at the corner of the mouth. An electrocardiogram (ECG) shows a QT interval of 575 milliseconds.
- a. What is the probable diagnosis? (1 mark)
  - b. What is the Patho-physiologic basis of her condition? (1 mark)
  - c. What is the physiologic basis of treatment? (2 mark)
- B. A 65-year-old male presented with right sided weakness of the body. He has a history of chronic hypertension and previous episode of stroke. On clinical examination there was loss of power in right upper & lower limb. BP was 170/100 mmHg, Pulse - 94/min.
- a. What is the probable diagnosis? (1 mark)
  - b. Where is the site of lesion in this patient? (1 mark)
  - c. Write any four features of UMN type of paralysis (2 marks)
- C. A 55-year-old female is complaining of gradual loss of sensation in her right lower limb. She has given h/o loss of appetite since 4- 6 months. On examination, pain & temperature sensation are lost in right lower limb while other sensations were normal & present.
- a. What is the probable diagnosis? (1 mark)
  - b. Enumerate the causes for the same (1 mark)
  - c. Name any four sensation carried by Dorsal column tract. (2 marks)
- D. A 40-year man recently diagnosed with Diabetes Mellitus. He noticed progressive enlargement of hands and feet over the last 3 months. He complaints of visual impairments as well. On examination- enlarged hands and feet, vertebral changes, soft tissue swelling and protrusion of the forehead and jaw were noticed.
- a. Identify the probable condition and give its cause? (2 mark)

b. What is the patho - physiologic basis of his condition? (2 mark)

E. A 20-year-old boy visited the OPD with complaints of difficulty in breathing and had wheezing. On Examination RR - 24/ min., FVC - 3 L, FRC - 4 L, FEV1 was 60%.

a. What is the probable diagnosis? (1 mark)

b. Define FVC? (1 marks)

c. What is the significance of measuring FEV1? (2 mark)

**Q3. Short answer questions (any FOUR out of FIVE) (5 marks x4= 20)**

A. A 36-year-old airline pilot is seeking treatment from his local medical practitioner for epilepsy which has been recently diagnosed. The doctor reports the condition to the airline company. The pilot threatens the doctor to sue him for disclosing his clinical condition. Is the patient justified in his action of suing the doctor? Discuss the role and responsibilities of the physician towards the society.

B. Discuss the Enterohepatic circulation of bile salts.

C. Write a note on Peculiarities of coronary circulation.

D. Give the innervation and functions of muscle spindle. Describe its physiological significance.

E. Explain the pressure - volume changes in the left ventricle during cardiac cycle.

**Q4. Short answer questions (any FOUR out of FIVE) (7marks x4= 28)**

A. Draw a well labelled diagram of juxtaglomerular apparatus. Discuss the role of JG apparatus.

B. What is acclimatization. Describe the changes occurring in acclimatization.

C. Describe the effects of glucocorticoids on the body. Add a note on regulation of its secretion.

D. Enumerate the properties of synapse. Explain any 3 in detail.

E. Describe in detail origin, course and termination of corticospinal tract.

**Q5. Long answer question (12marksX1= 12 marks)**

A. Enumerate Respiratory centers. Describe chemical regulation of respiration. Add a note on Ondine's curse.

(2+7+3)

