Question Paper

Exam Date & Time: 14-Jan-2023 10:20 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST MBBS DEGREE EXAMINATION – JANUARY 2023
SUBJECT: PHYSIOLOGY - PAPER I
(OLD REGULATION)

Marks: 80 Duration: 160 mins.

Answer all the questions.

Essays

1) A 52- year-old man was admitted with sudden loss of voluntary movement on the left side of his body. On examination, his higher functions were normal, vital signs were normal. A detailed neurological examination revealed left-sided hemiplegia with upper motor neuron type of facial palsy on left side.

1A) Draw and label the pathway that has been affected in this patient. (4)

1B) What are the functions of this pathway? (2)

1C) List the differences between the features of upper motor neuron lesion and lower motor neuron lesion. (2)

1D) Which is the commonest site of lesion that causes hemiplegia and why? (2)

2. Name the hypoglycemic hormone. Describe its actions. Explain the physiological basis for the symptoms of its deficiency. (1+4+5 =10)

3) **Short answer questions:**

3A) Illustrate the locations of the motor, somatosensory, visual and auditory areas of cerebral cortex using a labelled diagram. List the salient features of motor homunculus. (2+2 = 4)

3B) Define 'referred pain'. Give ANY TWO examples for it. Explain its mechanism. (1+1+2 = 4)

3C) List ANY FOUR functions of basal ganglia. (4)

3D) Define a 'reflex'. Draw a labelled diagram of reflex arc. (4)

3E) Briefly explain the functions of cerebrospinal fluid. (4)

3F) Explain how taste information is conveyed from the tongue to the brain. (4)

3G) Explain the middle ear functions. (4)

3H) Explain the refractive errors of eye. Mention their correction. (4)

3I) Draw a labelled diagram of action potential recorded from a nerve fibre. Give its ionic basis. (4)

3J) List the sequence of events in neuromuscular transmission. (4)

3K) List ANY FOUR functional differences between skeletal muscle and smooth muscle. (4)

3L) **A 45-year-old male presents with fasting hyperglycemia, poor wound healing, reddish purple striae on the abdomen, easy bruisability with ecchymoses. He had thin extremities and a collection of fat in the abdomen and back of neck and shoulder.**
What is the MOST LIKELY endocrine disorder in the given patient? Give the basis for above clinical features. (4)

3M) List the features of: (4)
i) Conn's syndrome ii) Acromegaly

3N) List the contraceptive methods in females. (4)

3O) What is spermatogenesis? Explain the factors influencing it. (4)

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Question Paper

Exam Date & Time: 16-Jan-2023 10:20 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST MBBS DEGREE EXAMINATION – JANUARY 2023
SUBJECT: PHYSIOLOGY - PAPER II
(OLD REGULATION)

Marks: 80 Duration: 160 mins.

Answer all the questions.

Write brief, clear and legible answers.

Illustrate your answers with diagrams and flow charts wherever appropriate.

Essay questions:

1) A 40 years old female, was referred to the hospital with a three weeks' history of colicky pain across the upper part of abdomen, increasing malaise, yellowish discoloration of sclera and generalized itching. She had fever and tender hepatomegaly and her gallbladder was also tender and palpable. Her stool appeared sticky and grey in color.

1A) Name the most likely clinical condition in above mentioned case. (1)

1B) Explain the physiological basis of her clinical features (3)

1C) Explain the normal degradation of hemoglobin, excretion of its end product and their probable alternation in this case. (6)

2) Define blood pressure. Give its normal range. Give the value of normal mean arterial pressure and explain how it is calculated. Explain the neural regulation of blood pressure during episodes of hemorrhages. (1+2+2+5 = 10 marks)

3) **Short answer questions:**

3A) Draw a neat labelled diagram of ECG recorded from Lead II. Give the cause for different waves. (2+2 = 4 marks)

3B) Define Cardiac output and calculate its normal values. Briefly explain ANY TWO factors affecting the stroke volume. (1+1+2 = 4 marks)

3C) Describe the production and propagation of cardiac impulse. (4)

3D) Explain the "Infant Respiratory Distress Syndrome" and give the physiological basis of its treatment. (3+1 = 4 marks)

3E) Describe how oxygen is transported in the blood. Explain the right shift of Hb-O2 dissociation curve. (2+2 = 4 marks)

3F) Briefly explain the cause and symptoms of decompression sickness. Mention how to prevent it. (3+1 = 4 marks)

3G) Describe the neural regulation of respiration. Add a note on ramp signal. (3+1 = 4 marks)

3H) Describe the cystometrogram with the help of a well labelled diagram. (4)

3I) Describe the actions of antidiuretic hormone and aldosterone on renal tubules. (4)

3J) With the help of a well labelled diagram explain the renal handling of glucose. Add a note on renal splay in glucose absorption. (3+1 = 4 marks)

3K. Explain the mechanism of heat gain by the human body when exposed to a cold environment(4)

3L. Explain their role lymphocyte in cell mediated immunity. (1+3 = 4 marks)

3M) Explain intrinsic pathway of blood coagulation. Add a note on vitamin-K dependent clotting factors. (3+1 = 4 marks)

3N) With the help of a well labelled diagram, explain the changes taking place during erythropoiesis. (4)

3O) With the help of a well labelled diagram, explain defecation reflex. (4)

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