

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.Sc. Human Physiology

PSG 3E 01—MOLECULAR BIOLOGY

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

*Draw neat labelled diagrams wherever necessary.*I. Long Essays. Answer any *four* :

- 1 Explain the structural abnormalities of chromosomes.
- 2 Give an account of transcription. Compare the prokaryotic and eukaryotic transcriptional process.
- 3 Give an account of post-transcriptional and post-translational modifications.
- 4 Discuss the steps involved in DNA finger printing and add notes on its applications.
- 5 Describe the methods of incorporation of foreign DNA into eukaryotic cell.
- 6 Write an account of vector mediated gene transfer in plants.

(4 × 10 = 40 marks)

II. Write short notes on any *eight* :

- 7 Nucleotide excision repair.
- 8 Paracentric inversions.
- 9 C-value paradox.
- 10 AFLP.
- 11 Lytic and lysogenic cycles.
- 12 Construction of genomic library.
- 13 Lac operon.
- 14 Culture of protoplast.
- 15 Protein targeting.
- 16 Oncogenes.

(8 × 5 = 40 marks)

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021

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Human Physiology

PSG 3E 02—BIOTECHNOLOGY

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Draw neat labelled diagrams wherever necessary.

I. Long Essays. Answer any four :

- 1 What is apoptosis ? Explain the reason for cell suicide and the mechanism of apoptosis.
- 2 Describe the applications of recombinant DNA techniques in industries.
- 3 Discuss the use of animal cells in the production of vaccines.
- 4 Write an essay on the bioremediation of xenobiotics.
- 5 What do you know about biosafety ? Write in detail about the biosafety guidelines and regulations for release of genetically engineered micro-organisms.
- 6 Describe the requirement for animal cell and tissue culture.

(4 × 10 = 40 marks)

II. Write short notes on any eight :

- 7 What are the major ethical concerns on account of recent developments in the broad field of biology, genetics and biotechnology ?
- 8 Briefly discuss the process of cellular ageing.
- 9 Genetic maps.
- 10 Organ culture methods.
- 11 How do you design a tissue culture laboratory ?
- 12 Explain hybridoma technology.
- 13 Write the principle and method of preservation of animal cells.
- 14 What is meant by bioremediation of xenobiotics ?
- 15 Discuss about the culture of epithelial and mesenchymal cells.
- 16 Discuss the principle and uses of lymphocyte culture.

(8 × 5 = 40 marks)

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021

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Human Physiology

PSG 3C 13—ENDOCRINE SYSTEM AND REPRODUCTIVE SYSTEM

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

*Draw neat labelled diagrams wherever needed.*I. Long Essay. Answer any *four* questions. Each question carries 10 marks :

- 1 What is the normal blood glucose level ? How is blood glucose regulated ? Add a note on diabetes mellitus.
- 2 Describe Menstrual cycle and its hormonal regulation.
- 3 Enumerate the hormones secreted by adrenal gland. Explain the functions and regulation of secretion of glucocorticoids. Add a note on hyper secretion of glucocorticoids.
- 4 Describe the synthesis and actions of thyroxine in various systems. Give the symptoms of thyrotoxicosis.
- 5 Describe the effects of the growth hormone on growth and metabolic function, and how insulin-like growth factor I (IGF-I) may mediate some of its actions in the periphery.
- 6 Describe the processes of spermatogenesis and spermiogenesis. Add notes on testosterone.

(4 × 10 = 40 marks)

II. Write Short Notes on any *eight*. Each question carries 5 marks :

- 7 Hypothalamo hypophyseal axis.
- 8 Milk ejection reflex.
- 9 Adreno genital syndrome.
- 10 Name the catecholamine and their actions on heart and blood vessel.

Turn over

- 11 Placental hormones and their functions.
- 12 Describe female contraceptive methods in detail with mechanism of action.
- 13 Describe the hormonal regulation of blood calcium level.
- 14 Conn's syndrome.
- 15 Mechanism of action of peptide hormones.
- 16 Foeto-placental unit.

(8 × 5 = 40 marks)

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THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021

(CCSS)

Human Physiology

PSG 3C 12—MUSCLE PHYSIOLOGY, NERVOUS SYSTEM AND SPECIAL SENSES

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

*Draw neat labelled diagrams wherever needed.*I. Long Essays. Answer any *four* :

- 1 Describe the molecular basis of muscle contraction. Add a note on chronaxie and rheobase.
- 2 Trace dorsal column pathway. Justify what will happen when somatosensory cortex is removed.
- 3 Describe the origin, course and termination of pyramidal tract with the help of a neat labelled diagram. Add a note on hemiplegia.
- 4 Explain the physiological organization, connections and functions of cerebellum. Add a note on cerebellar lesion.
- 5 Give the functional classification of thalamic nuclei and describe the connections and function of thalamus.
- 6 Describe auditory pathway add note on deafness.

(4 × 10 = 40 marks)

II. Write Short Notes on any *eight* :

- 7 Dark adaptation.
- 8 Describe the pathway and changes taking place during accommodation reflex.
- 9 Mention the types of nerve injuries. Describe Wallerian degeneration. Add a note on regeneration of injured nerve fibre.
- 10 Theories of referred pain.
- 11 Endogenous pain relieving system.

Turn over

- 12 Name the common disorders related to basal ganglia. Explain the physiological basis for the symptoms of any *one*.
- 13 Electro encephalogram pattern in different stages of sleep.
- 14 Vestibular apparatus.
- 15 Trace the taste pathway.
- 16 Aphasia.

(8 × 5 = 40 marks)

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