

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.Sc. Human Physiology

PSG 3E 04—BEHAVIOURAL PHYSIOLOGY

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

*Draw neat labeled diagrams wherever necessary.***I. Long essays. Answer any four :**

- 1 Define stress. Explain the emotional, behavioural and psychological responses to stress in a normal individual. Add a note on psycho physiological disorders related to stress.
- 2 Explain the physiological basis of learning. What are the differences between Skinner's and Bandura's theories of learning ?
- 3 What is Papez circuit ? Explain the physiology of emotions.
- 4 Explain the visual pathway and effects of lesion at various levels of the pathway.
- 5 What are the different types of memory ? Add a note on amyloid plaques and depressed memory in Alzheimer's disease.
- 6 Explain the physiological impact of various impairing lifestyles.

(4 × 10 = 40 marks)

II. Write short notes on any eight :

- 7 Personality assessment tools.
- 8 Theories of language acquisition.
- 9 Brain plasticity.
- 10 Dominant hemisphere.
- 11 Gustation.
- 12 Retrograde synaptic signaling.
- 13 Lie detection.
- 14 Neurophysiology of meditation.
- 15 Visual depth perception.
- 16 Theories of personality.

(8 × 5 = 40 marks)

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.Sc. 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 are the applications of recombinant DNA techniques in medicines ?
- 2 Discuss the methods of organ culture and add notes on its importance.
- 3 Describe the cultivation of animal cells *en masse* in a bioreactor ?
- 4 Describe the production and applications of monoclonal antibodies.
- 5 Discuss the use of animal cells in the production of hormones.
- 6 What are molecular markers ? Discuss in detail about the different types of molecular markers used in genome mapping.

(4 × 10 = 40 marks)

II. Write short notes on any eight :

- 7 Programmed cell death.
- 8 Applications of animal cell culture.
- 9 Is tissue engineering helpful in replacing organs ? If so, how ?
- 10 What are the hazards associated with release of genetically modified micro-organisms in the environment ? How will you monitor the GMMs in the Environment.
- 11 What are the points to be considered during the designing of a tissue culture lab ?
- 12 Transgenic animals.
- 13 How the genetic engineering methods are helpful to evaluate the process of detoxification ?
- 14 What are the advantages of genetically modified organisms ?
- 15 Various types of patents.
- 16 Describe the mechanism of MAP kinase activation for T-cell proliferation.

(8 × 5 = 40 marks)

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.Sc. 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 Essays. Answer any four :**

- 1 Describe synthesis of thyroid hormone and discuss physiological actions of thyroxine. Add a note on its regulation.
- 2 Discuss the normal menstrual cycle and its regulation in detail.
- 3 What is the normal serum calcium level ? Describe the hormonal regulation of serum calcium. Add a note on tetany.
- 4 Enumerate the hormones of adrenal gland. Explain the role of adrenal steroid hormones on carbohydrate, protein, fat, mineral and water homeostasis.
- 5 A 50 years old person complaints of increased appetite, increased thirst and increased frequency of urination. The blood glucose was found to be 180 mg/dl. Answer the following questions based on your knowledge in physiology :

Which hormone is affected ?

What are the physiological effects of this hormone in the body ?

Enumerate the other hormones involved in the regulation of blood glucose.

- 6 Describe female and male contraceptive methods in detail with mechanism of action.

(4 × 10 = 40 marks)

II. Write Short Notes on any eight :

- 7 Testosterone.
- 8 Hormonal regulation of lactation.

Turn over

- 9 Describe the functions of growth hormone. Add a note on hyper secretion of growth.
- 10 Spermatogenesis and oogenesis.
- 11 Negative and positive feedback regulation in endocrine homeostasis.
- 12 Explain the actions and functions of catecholamine.
- 13 ADH.
- 14 cGMP as a second messenger.
- 15 Mechanism of action of steroid hormone.
- 16 Briefly discuss pituitary secretion of gonadotropins and prolactin, and how this is regulated.

(8 × 5 = 40 marks)

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.Sc. 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 necessary.***I. Long Essays. Answer any four :**

- 1 Describe referred and radiating pain with suitable example. How is inhibition of sensation of pain brought about ?
- 2 Describe the structure of the muscle spindle and its innervations. Add notes on withdrawal reflex.
- 3 Describe the origin, course and termination of pyramidal tracts. Explain their functions and describe the effects of hemiplegia.
- 4 Describe the neuronal organization of basal ganglia with its afferent and efferent connections. Add note on Parkinson disease.
- 5 Define autonomic nervous system. Describe its structure and function. Add note on Horner's syndrome.
- 6 Trace olfactory pathway. Describe briefly the structure of olfactory mucus membrane and mention its unique feature. Add note on olfactory fatigue.

(4 × 10 = 40 marks)

II. Write Short Notes on any eight :

- 7 Draw a neat labelled diagram cardiac muscle action potential and describe its ionic basis
- 8 Types of refractive errors and their correction.
- 9 Connections and functions of neo-cerebellum.
- 10 Formation, composition, circulation and functions of cerebrospinal fluid.
- 11 What is myasthenia gravis ? Explain the physiological basis for its treatment.
- 12 Components and functions of middle ear.
- 13 REM sleep.
- 14 De-cerebrate and decorticate rigidity.
- 15 Conditioned reflexes.
- 16 Role of hypothalamus in temperature regulation.

(8 × 5 = 40 marks)