TDP (General) 1st Semester Exam., 2019

HUMAN PHYSIOLOGY

(General)

FIRST PAPER

Full Marks : 40

Time : 2 hours

The figures in the margin indicate full marks for the questions

Candidates are required to give their answers in their own words as far as practicable

1. *(a)* *(i)* Discuss briefly the fluid mosaic model of cell membrane with suitable diagram.

(ii) Write down the names of different joints and their functions in human body.

(iii) What is osteoporosis? (3+2)+4+1=10

Or

(b) *(i)* What is active transport? Give an example.

(ii) Write down the differences between mitosis and meiosis.

(iii) Discuss about different phases of cell cycle. (1+1)+3+5=10

2. (a) (i) What are protective colloids? State its physiological significance.

(ii) Write down the basic principle of electrophoresis.

(iii) What is dialysis? Mention its biological significance.

(1+1)+4+(1+3)=10

Or

(b) (i) Write four biological applications of radioisotope.

(ii) What is surface tension? Mention its physiological importance.

(iii) What are buffers? Name two physiological buffers of blood.

4+(1+3)+(1+1)=10

3. (a) (i) What is anaemia? Describe different types of anaemia with causes.

(ii) What is oedema?

(iii) Name two anticoagulants and mention their mechanism of action.

(1+4)+2+3=10

Or

(b) (i) Mention precautionary measures to be taken before blood transfusion.

(ii) What is ESR? Mention its physiological significance.

(iii) Discuss the factors affecting blood volume. 4+(1+2)+3=10

4. (a) (i) What do you mean by polar and non-polar amino acids? Give examples.

(ii) What is isozyme? Give an example.

(iii) What are glycosides? Write two functions of glycosides. 4+(1+2)+3=10

Or

(b) (i) Discuss the effect of pH and temperature on enzyme action.

(ii) What are sterols? State the importance of cholesterol.

(iii) Write the physiological significance of protein. 4+(1+2)+3=10

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TDP (General) 2nd Semester Exam., 2019

HUMAN PHYSIOLOGY

(General)

SECOND PAPER

Full Marks : 40

Time : 2 hours

The figures in the margin indicate full marks for the questions

Answer **four** questions, taking **two** from each Unit

Candidates are required to give their answers in their own words as far as practicable

UNIT—I

1. *(a)* Discuss in brief about the regulation of blood pressure. 4

(b) Write in brief about the different phases of cardiac cycle. 5

(c) What is 'atherosclerosis'? 1

2. *(a)* Discuss in brief about the chemical regulation of respiration. 5

(b) State the peculiarities of pulmonary circulation. 4

(c) What is 'tidal volume'? 1

3. *(a)* What is 'Bohr effect'? 2

(b) What do you mean by heart sound? Discuss briefly about the significance of different heart sounds. 1+4=5

(c) What is 'spirometry'? State its use. 2+1=3

UNIT—II

4. *(a)* Describe the enzymatic steps involved in glycolysis. 5

(b) Differentiate between deamination and transamination of amino acids. 4

(c) What is 'glycogenolysis'? 1

5. *(a)* Write in brief about the mechanism of secretion of pancreatic juice. 5

(b) Discuss in brief about the different types of movements occurring in the alimentary tract. 4

(c) Write the names of any two enzymes found in human saliva. 1

6. *(a)* Describe the process of digestion of fats in the GI tract. 5

(b) What is 'Cori cycle'? 2

(c) Discuss briefly the process of absorption of vitamin B_{12} from the GI tract. 3

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TDP (General) 3rd Semester Exam., 2019

HUMAN PHYSIOLOGY

(General)

THIRD PAPER

Full Marks : 40

Time : 2 hours

The figures in the margin indicate full marks for the questions

Answer **four** questions, taking **two** from each Group

Candidates are required to give their answers in their own words as far as practicable

GROUP—A

1. *(a)* What do you mean by 'saltatory conduction'?

(b) Discuss the origin, course, termination and functions of pyramidal tract.

(c) What are different types of 'glial cells'? Mention functional significance of each type. 2+5+(1+2)=10

2. *(a)* Write the structure of neuro-muscular junction with a neat diagram. Describe briefly the events involved in nerve impulse transmission through neuro-muscular junction.

(b) Name the receptors for touch, pain and pressure.

(c) Define EPP and MEPP. (2+3)+(1+1+1)+2=10

3. *(a)* Write down two important properties of reflex action.

(b) Discuss the mechanism of excitation and contraction coupling.

(c) Name two stimulatory and inhibitory neurotransmitters produced in our body. 4+4+2=10

GROUP—B

4. *(a)* What do you mean by GFR? Write down the factors affecting GFR.

(b) What are the normal and abnormal constituents of urine?

(c) What do you mean by Renin-Angiotensin system? (1+4)+3+2=10

5. *(a)* What do you mean by antioxidant? Write down the role of Vitamin C and Vitamin A as antioxidant.

(b) Discuss briefly the role of kidney in the regulation of acid-base balance.

(c) What do you mean by free-radicals? Mention their names. (1+2)+5+(1+1)=10

6. *(a)* State briefly the counter-current mechanism for urine formation.

(b) What is passive smoking? State the adverse effects of major harmful compounds present in smoke.

(c) What is erythropoietin? State its function. 4+(1+3)+(1+1)=10

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TDP (General) 4th Semester Exam., 2019

HUMAN PHYSIOLOGY

(General)

FOURTH PAPER (Group—A)

Full Marks : 40

Time : 2 hours

The figures in the margin indicate full marks for the questions

Answer **four** questions, taking **two** from each Unit

UNIT—I

1. *(a)* Name the neurotransmitters released from the sympathetic and parasympathetic nervous systems. 2

(b) Mention three important functions of cerebellum. 5

(c) Write a short note on epilepsy. 3

2. *(a)* Classify sleep. 2

(b) Write the components of basal ganglia. State its physiological functions. 2+2=4

(c) Briefly describe the olfactory pathway with a neat diagram. 4

3. *(a)* Discuss the histological structure of retina with a suitable diagram. 3+2=5

(b) What is Alzheimer's disease? 2

(c) Name the nuclei of hypothalamus. 3

UNIT—II

4. *(a)* Discuss the important functions of progesterone. 3

(b) Name the hormone secreted from parathyroid gland. State its function. 1+2=3

(c) State briefly the mechanism of action of steroid hormones. Give one example of steroid hormone. 3+1=4

5. *(a)* Name two second messengers involved in hormone action. 2

(b) With a labelled diagram, discuss the histological structure of adrenal cortex. 5

(c) Name the hormones released from adenohypophysis. 3

6. *(a)* With a neat diagram, discuss the histological structure of ovary. 2+2=4

(b) Describe the hormonal factors affecting spermatogenesis. 4

(c) Name placental hormones. 2

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TDP (General) 5th Semester Exam., 2019

HUMAN PHYSIOLOGY

(General)

FIFTH PAPER

Full Marks : 40

Time : 2 hours

The figures in the margin indicate full marks for the questions

Answer **four** questions, taking **two** from each Unit

Candidates are required to give their answers in their own words as far as practicable

UNIT—I

(Nutrition and Dietetics)

1. *(a)* Define SDA.

(b) Discuss the physiological role of vitamin D in our body.

(c) Mention the nutritional requirements of college students with proper justification. 2+4+4=10

2. *(a)* What do you mean by obesity?

   (b) What happens to the children suffering from protein-calorie malnutrition?

   (c) State the factors affecting BMR. 2+4+4=10

3. *(a)* Discuss the principles of diet survey.

   (b) Mention the source and physiological function of iron in human body.

   (c) Formulate a diet for goitre patient citing suitable justification. 3+(1+3)+3=10

UNIT—II

(Molecular Biology and Immunology)

4. *(a)* Discuss the role of RNA polymerase in the process of transcription in prokaryotes.

   (b) State briefly the role of Ribosome in protein synthesis in prokaryotes.

   (c) What is DNA cloning? 5+3+2=10

5. *(a)* Describe one experiment to prove that 'DNA is the genetic material'.

   (b) What are the differences between monoclonal and polyclonal antibodies?

   (c) Mention the functions of MHC molecules. 5+3+2=10

6. *(a)* What do you mean by hapten?

   (b) Discuss the structure of IgG antibody with a suitable diagram.

   (c) What is vaccination? Name two kinds of vaccines. 2+5+(2+1)=10

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