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HSSC – II | Part 2

GUESS PAPER 2026 — ANNUAL EXAMINATION

HIGH RANK IMPORTANT QUESTIONS — SHORT + LONG

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CLASS

HSSC-II (F.Sc Part-II)

BOARD

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EXAM

Annual Examination 2026

SHORT QUESTIONS

Key definitions, differences
& important concepts
covering all chapters

SQ

LONG QUESTIONS

Detailed explanations,
processes & diagrams
for high scoring answers

LQ

STAR CHAPTERS

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CH — 01 | DIGESTIVE SYSTEM OF MAN

◆ SHORT QUESTIONS ◆

- Q1.** Differentiate between mechanical & chemical digestion in stomach?
- Q2.** What is the role of gastrin in digestion?
- Q3.** Name enzymes acting in small intestine & their function?
- Q4.** What is the role of bile in fat digestion?
- Q5.** Trace the pathway of absorbed fats through lacteals?
- Q6.** Describe peristalsis with the help of labelled diagram?

◆ LONG QUESTIONS ◆

- L1.** Describe the structure of stomach. Also explain the chemical and mechanical digestion taking place in it?
- L2.** Describe the process of digestion in the small intestine, including the role of pancreatic juice & bile?
- L3.** How the structure of villi is well-suited for absorption of digested food. Explain the mechanism of absorption of nutrients in small intestine?
- L4.** Explain the role of liver and pancreas in digestion, including the composition & function of bile?

CH — 02 | BLOOD CIRCULATORY SYSTEM OF MAN

◆ SHORT QUESTIONS ◆

- Q1.** Why left ventricle have thicker walls compared to right ventricle?
- Q2.** What is ratio of thickness of walls?
- Q3.** Why SA node is called as pacemaker of heart?
- Q4.** Why AV nodes close when ventricular systole happens?
- Q5.** What are uses of ECG?
- Q6.** Why pulse is felt in arteries not veins?
- Q7.** Why veins have valves but arteries lack?
- Q8.** Difference between vasoconstriction and vasodilation?
- Q9.** Why blood travels faster in aorta than capillary bed?
- Q10.** Why lymphatic system is vital? / State importance of lymphatic system.
- Q11.** Write functions of spleen?

◆ LONG QUESTIONS ◆

- L1.** Describe conduction system of heart.
- L2.** Describe path of blood through pulmonary and systemic circulation.
- L3.** Describe cardiac cycle along with its diagram.

CH — 03 | RESPIRATORY SYSTEM

◆ SHORT QUESTIONS ◆

- Q1.** What is purpose of respiratory system?
- Q2.** Describe parts of upper and lower respiratory tract.
- Q3.** Why alveoli have thinner walls?
- Q4.** Describe action of muscles during inhalation and exhalation?

- Q5.** Difference between inhalation and exhalation.
- Q6.** What is role of medulla in breathing?
- Q7.** On which factor does O₂ carrying capacity of blood depends?
- Q8.** State reactions involved in formation of HCO₃⁻ ions.
- Q9.** Difference between haemoglobin and myoglobin.
- Q10.** Describe upper respiratory tract infections.
- Q11.** What are effects of smoking?
- Q12.** Define resuscitation.

◆ LONG QUESTIONS ◆

- L1.** Describe mechanism of breathing.
- L2.** Describe structures involved in respiratory system.
- L3.** Describe transport of gases in blood.

CH — 04 | URINARY SYSTEM OF MAN

◆ SHORT QUESTIONS ◆

- Q1.** A nephron is involved in urine formation. Explain the three steps of urine formation?
- Q2.** Describe how urine concentration is regulated with reference to the role of ADH and aldosterone?
- Q3.** What is haemodialysis. Explain diagrammatically?
- Q4.** Enlist three urinary tract infections (UTI) along with the bacteria that cause them?
- Q5.** Diagrammatically describe urine formation in nephron?

◆ LONG QUESTIONS ◆

- L1.** Discuss the urine formation and mechanism of urine concentration in man?

CH — 05 | NERVOUS SYSTEM OF MAN

◆ SHORT QUESTIONS ◆

- Q1.** Relate the structure of sensory, motor and inter-neurons with their functions?
- Q2.** Diagrammatically explain the pathway of reflex action?
- Q3.** Write a note on sensory receptors in human skin?
- Q4.** Enlist the components of brain stem along with their functions?
- Q5.** What is the importance of cerebrum, thalamus and hypothalamus in human body?
- Q6.** Write a note on spinal cord and spinal nerves?

◆ LONG QUESTIONS ◆

- L1.** Explain the mechanism of generation & transmission of nerve impulse along a neuron?
- L2.** Describe the structure of synapse and explain how nerve impulse is transmitted across it?
- L3.** Relate the different regions of brain to their functions?

CH — 06 | ENDOCRINE SYSTEM OF MAN

◆ SHORT QUESTIONS ◆

- Q1.** What are hormones? Enlist their types on the basis of chemical nature with one example for each type?
- Q2.** Describe the neurosecretory role of hypothalamus?
- Q3.** Name the hormones released by parathyroid glands with their functions?
- Q4.** Name the hormones released by adrenal glands along with their functions?
- Q5.** What is feedback mechanism. Describe positive feedback mechanism with an example?

◆ LONG QUESTIONS ◆

- L1.** Describe the major hormones secreted by pituitary gland. Also suggest the disorders caused by their imbalance?
- L2.** Same Question as above for Thyroid gland?
- L3.** Explain the mechanism of hormonal feedback with reference to positive and negative feedback systems in detail?

CH — 07 | SKELETON SYSTEM OF MAN

◆ SHORT QUESTIONS ◆

- Q1.** Difference between bones and cartilage.
- Q2.** How many facial bones are there?
- Q3.** State the division of vertebrae.
- Q4.** Difference between tendon and ligament.
- Q5.** Describe examples of synovial joints.
- Q6.** What are types of arthritis?
- Q7.** Difference between smooth, skeletal and cardiac muscle?
- Q8.** How many bands are involved in contraction?
- Q9.** State layers of skeletal muscles.
- Q10.** Describe formation of cross bridges.
- Q11.** Difference between extension and flexion.
- Q12.** Difference between flexor muscle and extensor muscle.
- Q13.** What are symptoms of tetany?
- Q14.** What is rigor mortis?
- Q15.** Difference between tetany and tetanus

◆ LONG QUESTIONS ◆

- L1.** Which steps involves in bone repair.
- L2.** Explain ultra structure of skeletal muscles.
- L3.** Describe all parts of axial and appendicular skeleton.
- L4.** Explain sliding filament theory of muscle contraction.

CH — 08 | THERMOREGULATION & HOMEOSTASIS

◆ SHORT QUESTIONS ◆

- Q1.** Difference between ectotherms and endotherms?
- Q2.** Difference between thermoregulation and osmoregulation.
- Q3.** How hypothalamus tackle with rise in blood temperature?

- Q4.** How hypothalamus bring body/blood temperature to normal level?
- Q5.** What is role of fur of animals?
- Q6.** State purpose of homeostasis.
- Q7.** What are components of homeostatic mechanism?
- Q8.** Difference between +ve feedback and -ve feedback mechanism.
- Q9.** Illustrate both feedback types with help of an example.
- Q10.** How secretion of estrogen is related to feedback mechanism?
- Q11.** Difference between osmoconformers and osmoregulators?

◆ LONG QUESTIONS ◆

- L1.** What are adaptations of osmoregulators?
- L2.** Explain how negative feedback controls body temperature.
- L3.** What are osmoregulatory strategies?
- L4.** What are thermoregulatory strategies in man?

CH — 09 | IMMUNITY

◆ SHORT QUESTIONS ◆

- Q1.** If the number of macrophages has been decreased in a patient, how might it affect his 2nd line of defense and specific immune response?
- Q2.** What is active and passive immunity? Why is passive immunity temporary? Which category does vaccination belong to?
- Q3.** What are autoimmune diseases. Give two examples?
- Q4.** Describe the importance of interferons in immune response?
- Q5.** How are monoclonal antibodies more beneficial than traditional antibodies?
- Q6.** Why does inflammation occur and how is it beneficial in immune response?

◆ LONG QUESTIONS ◆

- L1.** Explain the difference between cell-mediated & humoral immunity highlighting the role of T-cells and B-cells?
- L2.** Describe the structure of antibodies. Also discuss the mode of action of an antibody?
- L3.** Explain the role of 2nd line of defense in immune responses?
- L4.** Same Question as above for 3rd line of defense?

CH — 10 | BIOTECHNOLOGY

◆ SHORT QUESTIONS ◆

- Q1.** What is the role of restriction endonucleases in gene cloning?
- Q2.** What is the role of restriction DNA ligases in gene technology?
- Q3.** What are the concerns about genetically modified organisms?
- Q4.** Explain the properties and the role of vectors in recombinant DNA technology? Also give example.
- Q5.** Describe the selection and isolation of gene of interest.
- Q6.** State the steps for the integration of DNA insert into the vector.
- Q7.** State the objectives of the production of transgenic bacteria, transgenic plants and transgenic animals.
- Q8.** Explain the scope and importance of biotechnology in promoting human welfare.

Q9. List the hazards of using genetically modified organisms.

◆LONG QUESTIONS◆

- L1.** Describe the mechanism or procedure of recombinant DNA technology.
L2. What is polymerase chain reaction? Discuss its components and mechanism?
L3. Discuss the formation of human insulin protein in bacteria?

CH — 11 | BIOSTATISTICS AND DATA ANALYZING

◆LONG QUESTIONS◆

L1. Learn all Formulas — Practice numerical problems from all topics. (Key Chapter)

CH — 12 | STRUCTURAL BIOLOGY & COMPUTATIONAL BIOLOGY

◆SHORT QUESTIONS◆

- Q1.** Differentiate between structural and sequence homology.
Q2. What is computational biology? Give its applications.

CH — 13 | CLIMATE CHANGE

◆SHORT QUESTIONS◆

- Q1.** Discuss factors causing climate change. Also give their impact on the environment.
Q2. Describe three ways by which climate change impacts ocean temperature.
Q3. How climate change is contributing to ocean acidification? Explain with the help of chemical reactions.
Q4. Enlist any three species that have gone extinct due to climate change. Give their scientific names too.
Q5. Which ocean currents play an important role in regulating climate of North Atlantic region.

◆LONG QUESTIONS◆

- L1. Describe how climate change impacts flora and fauna.**
L2. Climate change impacts ocean temperature and causes ocean acidification. Justify.

CH — 14 | SELECTED TOPICS

◆SHORT QUESTIONS◆

- Q1.** What is synthetic biology? Discuss its two applications?

◆LONG QUESTIONS◆

- L1.** Explain synthetic biology. How can it revolutionize health care? Give at least four applications in healthcare in detail?

CH — 15 | PHARMACOLOGICAL DRUGS

◆SHORT QUESTIONS◆

- Q1.** What are antivirus and antiretrovirus? Explain.
- Q2.** Compare monoclonal antibodies to other classes.
- Q3.** Why are monoclonal antibodies so specific?

◆ LONG QUESTIONS ◆

- L1.** Explain drug discovery and development process.
- L2.** Discuss the types of antibodies and their mode of action.
- L3.** What are moAbs? State its advantages?

■ **NOTE:** Questions marked in RED are Most Important. Prepare all short & long questions thoroughly. Best of Luck! — Study Bees Official

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