



BIOLOGY HSSC-II

SECTION - A (Marks 17)

Time allowed: 25 Minutes

Punjab Text Book Board

Version Number 4 1 0 1

Note: Section - A is compulsory. All parts of this section are to be answered on the separately provided OMR Answer Sheet which should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

- Q. 1 Choose the correct answer A / B / C / D by filling the relevant bubble for each question on the OMR Answer Sheet according to the instructions given there. Each part carries one mark.
- The muscular disease, in which the excitability of neurons increases and results in the loss of sensation, due to low calcium level in the blood is called:
A. Muscle fatigue B. Tetany C. Tetanus D. Cramp
 - Jet propulsion is the characteristic locomotion of:
A. Paramecium B. Earthworm C. Amoeba D. Jelly fish
 - The part of brain which guides, smooth and accurate motions and maintains the body position is:
A. Cerebellum B. Cerebrum C. Pons D. Medulla
 - Its secretion is caused by decrease in blood pressure, blood volume and osmotic pressure of blood detected by osmoreceptors in hypothalamus:
A. Cortisol B. Aldosterone C. ADH D. Epinephrine
 - Which one of the following excretory products requires least water to be eliminated from the body?
A. Creatinine B. Uric acid C. Ammonia D. Urea
 - In which of the following class of animals, metabolic heat is produced at low level and that is also exchanged quickly with environment, however heat is absorbed from their surrounding?
A. Homeotherm B. Heterotherm C. Endotherm D. Ectotherm
 - _____ is the characteristic which differentiates angiosperm from gymnosperms.
A. Vascular tissues B. Seed
C. Double fertilization D. Heteromorphic alternation of generation
 - The fertilization of egg most often occurs in _____ of the female reproductive system.
A. Ovary B. Proximal oviduct
C. Uterus D. Cervix
 - The cavity formed between somatic and splanchnic mesoderm in the development of chick embryo is known as:
A. Sub germinal cavity B. Blastocoel
C. Coelom D. Primitive gut
 - The inhibition of sprouting of lateral buds in potato tubers by applying synthetic auxin is an example of:
A. Apical dominance B. Bolting
C. Abscission D. Senescence
 - A chromosome, with its centromere right in the middle of its two equal arms, is called:
A. Telocentric B. Acrocentric C. Sub metacentric D. Metacentric
 - Which one of the following is NOT the characteristic of a cancerous cell:
A. Low nucleus to cytoplasm ratio B. Prominent nucleus
C. Multiple mitotic divisions D. High degree of proliferation
 - Albinism is an autosomal recessive trait. When two normal parents have an albino child, what is the probability of their next child to be albino?
A. Zero B. 25% C. 50% D. 75%
 - In severe combined immune-deficiency syndrome (SCID), the children lack an enzyme _____ that is involved in the maturation of T and B lymphocyte cells.
A. Thymosine B. Phenylalanine hydroxylase
C. Adenosine deaminase D. Alanine transaminase
 - Which of the following factors does NOT contribute to change in allele frequency?
A. Immigration B. Inbreeding C. Random mating D. Selection
 - About _____ of total energy from the sun is trapped by the producers, while the remaining is lost as heat.
A. 1% B. 10% C. 20% D. 30%
 - What is the principle source of energy?
A. Geothermal energy B. Solar energy
C. Nuclear energy D. Hydroelectric energy



BIOLOGY HSSC-II

Punjab Text Book Board

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Time allowed: 2:35 Hours

Total Marks Sections B, C and D: 68

NOTE: Answer any Seven parts each from Section 'B' and 'C' and any two questions from Section 'D' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

SECTION – B (Marks 21)

(Chapter 15 – 20)

- Q. 2 Answer any SEVEN parts. The answer to each part should not exceed 5 to 6 lines. (7 x 3 = 21)**
- Name the plasma proteins synthesized by liver. Also write their functions.
 - Differentiate Peritoneal and Hemodialysis.
 - What are the skeletal deformities because of genetic causes?
 - Draw the labelled diagram of a sarcomere.
 - a. What are neurotransmitters? Give examples.
b. Define saltatory impulse.
 - Differentiate the type-I and Type-II conditioned reflexes.
 - What is diploid parthenogenesis? Give its cause with example.
 - Define teratology. Enlist any three causes of abnormal development.
 - Compare conservative and semiconservative model of replication.
 - What is the central dogma of gene expression?

SECTION – C (Marks 21)

(Chapter 21 – 27)

- Q. 3 Answer any SEVEN parts. The answer to each part should not exceed 5 to 6 lines. (7 x 3 = 21)**
- Write down the symptoms and causes of Down syndrome.
 - Define:
a. Pleiotropy b. Epistasis c. Agglutination
 - What are x-linked dominant trait? Give an example.
 - How does molecular biology provide evidences of evolution?
 - What are the two primary goals of Human Genome Project?
 - What is the idea of "inheritance of acquired characteristics"?
 - Define the productivity of an ecosystem. Also write down the factors which affect the productivity of aquatic ecosystem.
 - Write a short note on Tundra ecosystem.
 - How is ozone layer being depleted?
 - Differentiate renewable and non-renewable resources with example.

SECTION – D (Marks 26)

- Note: Attempt any TWO questions. All questions carry equal marks. (2 x 13 = 26)**
- Q. 4**
- What is Rh-incompatibility? Explain it with the example of Erythroblastosis foetalis. (2+5)
 - Define biogeochemical cycle. Draw the nitrogen cycle in nature. (2+4)
- Q. 5**
- What is Nerve impulse? Describe the mechanism and factors involved with action membrane potential with the help of diagram. (1+3+2)
 - How do animals osmoregulate in aquatic and terrestrial ecosystem? (5+2)
- Q. 6**
- Explain the process of translation for protein synthesis. Elaborate each step with the help of labelled diagram. (08)
 - Describe the Hardy Weinberg Theorem. (05)



BIOLOGY HSSC-II

SECTION – A (Marks 17)

National Book Foundation

Time allowed: 25 Minutes

Version Number 8 1 0 1

Note: Section – A is compulsory. All parts of this section are to be answered on the separately provided OMR Answer Sheet which should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q. 1 Choose the correct answer A / B / C / D by filling the relevant bubble for each question on the OMR Answer Sheet according to the instructions given there. Each part carries one mark.

- 1) How much carbon dioxide is carried as carboxyhaemoglobin?
A. 24% B. 23% C. 25% D. 22%
- 2) _____ is a serious disorder of lower respiratory tract characterized by inflammation of alveolar wall and presence of fluid in a alveolar sac.
A. Pneumonia B. Pulmonary tuberculosis
C. Emphysema D. Sinusitis
- 3) Which of the following excretory product requires minimum water for its elimination from body?
A. Urea B. Ammonia C. Creatinine D. Uric acid
- 4) In urinary tract infection, if bladder is infected, it is called:
A. Urethritis B. Cystitis C. Pyelonephritis D. Nephrolithiasis
- 5) _____ allows movement in all directions.
A. Ball and socket joint B. Saddle joint
C. Gliding joint D. Hinge joint
- 6) Nociceptors produce the sensation of:
A. Touch B. Warmth C. Pain D. Pressure
- 7) Select the diagnostic test which is **NOT** for nervous disorders:
A. E.E.G B. C.T.Scan C. M.R.I D. Angiography
- 8) Over secretion of T_3 and T_4 hormone causes _____ disease.
A. Grave's B. Gigantism C. Addison's D. Cushing's
- 9) In bees, female worker bees forgo reproduction and sacrifice their lives to raise the off spring of the hive queen is an example of _____ behaviour.
A. habituation B. Imprinting C. Altruism D. Insight learning
- 10) In some individuals infertility is due to an immune response by male to its own sperm. The disorder is:
A. Azoospermia B. Sperm deformities
C. Oligospermia D. Auto immune disorder
- 11) Fraternal twins result from the fertilization of:
A. One ovum by one sperm B. Two ovum by one sperm
C. Two ovums by two sperms D. One ovum with two sperm
- 12) Study of aging is called:
A. Gerontology B. Teratology C. Chronology D. Geology
- 13) What is the risk of a child being colour blind in a family when the mother is colour blind but the father is normal?
A. 100% B. 75% C. 50% D. 25%
- 14) Which of following is nonsense codon?
A. UGC B. UAC C. UGU D. UGA
- 15) Which of the following is an example of vestigial structure in human?
A. Nipple on male mammals B. Vermiform Appendix
C. Sixth finger in some humans D. Human knee cap
- 16) Identify the renewable resource from the given:
A. Coal B. Oil C. Gas D. Air
- 17) Restriction endonuclease is also called:
A. Molecular vector B. Molecular scissor
C. Gene of choice D. DNA ligase



BIOLOGY HSSC-II

(National Book Foundation)

20

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

NOTE: Answer any fourteen parts from Section 'B' and any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

SECTION - B (Marks 42)

- Q. 2** Answer any FOURTEEN parts. The answer to each part should not exceed 3 to 4 lines. (14 x 3 = 42)
- (i) How the transport of oxygen in blood of humans does occur? (03)
 - (ii) What are the effects of smoking on human health? (03)
 - (iii) Define the following: (1+1+1)
 - a. Osmoregulator
 - b. Osmoconformers
 - c. Anhydrobiosis
 - (iv) Describe any three common disorders of skeleton. (03)
 - (v) Differentiate between tetany and tetanus. (03)
 - (vi) a. Name the parts of human brain that control body temperature and heartbeat. (02)
b. What is synapse? (01)
 - (vii) Draw a diagram to show pain withdrawal reflex action. (03)
 - (viii) a. Differentiate between habituation and imprinting. (02)
b. Give one example of insight learning. (01)
 - (ix) Define instincts. Explain these with example of: (01)
 - a. Dances of bees. (01)
 - b. Mating behaviour of stickle black fish. (01)
 - (x) a. What is corpus luteum? (01)
b. Name the hormones produced by testis and ovaries. (1+1)
 - (xi) What is miscarriage? Describe the causes of miscarriage. (1+2)
 - (xii) a. What is incomplete Dominance? (01)
b. What flower colour might we expect in the off spring of a cross between a red flowering plant and a white flowering one? (02)
 - (xiii) What is the difference between sex limited trait and sex influenced trait? Write one example of each. (03)
 - (xiv) Differentiate between Down syndrome and Turner syndrome with examples. (03)
 - (xv) Briefly describe any three factors that bring about change in gene frequency of a population. (03)
 - (xvi) a. What is ozone depletion? (01)
b. Describe the causes of ozone layer depletion. (02)
 - (xvii) Define the following:
 - a. Polymerase chain reaction (PCR) (01)
 - b. Genomic library (01)
 - c. Gel Electrophoresis (01)
 - (xviii) What are transgenic bacteria? Describe role of these in human welfare. (03)
 - (xix) a. What is hybridization? (01)
b. Describe the role of microbes in energy production. (02)

SECTION - C (Marks 26)

- Note:** Attempt any TWO questions. All questions carry equal marks. (2 x 13 = 26)
- Q. 3**
- a. Describe the functions of kidney with the help of diagram. (4+2)
 - b. What is kidney transplant? Describe the principles and problems associated with kidney transplant. (1+1.5+1.5)
 - c. Describe pulmonary tuberculosis along with aetiology, symptoms and treatment. (1+1+1)
- Q. 4**
- a. What are the causes of female infertility? (1x5=5)
 - b. What is polygenic inheritance? Explain this process with the example of wheat grain and human skin colour. (1+2+2)
 - c. Describe different models of DNA replication with the help of diagrams. (1+1+1)
- Q. 5**
- a. Describe the nitrogen cycle in detail with the help of diagram. (7+3)
 - b. Write short notes on:
 - (i) Nanotechnology (01)
 - (ii) Integrated Disease Management (IDM) (01)
 - (iii) Human Genome Project (HGP) (01)