

FBD - 12-1-23

Roll No. : \_\_\_\_\_

Objective  
Paper Code  
**8467**Intermediate Part Second - 136  
**BIOLOGY (Objective) GROUP - I**  
Time: 20 Minutes Marks: 17

Q.No.1 You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill the relevant circle in front of that question number on computerized answer sheet. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. Attempt as many questions as given in objective type question paper and leave other circles blank.

S.#	Questions	A	B	C	D
1	How many kinds of t.RNA are in human cell?	54	20	25	45
2	Full cell cycle in yeast cell has length of:	90 minutes	60 minutes	30 minutes	120 minutes
3	Form of appearance of a trait is:	Genotype	Pleiotropy	Phenotype	Metastasis
4	Antithrombin-III is biotechnology product produced in:	Mice	Cow	Sheep	Goat
5	Cell suspension culture of digitalis lanata produces:	Antitoxin	Quinine	Digitoxin	Penicillin
6	Endosymbiont hypothesis was proposed by:	Lynn Margulis	Wallace	Lamarck	Linnaeus
7	The abiotic component of an ecosystem is:	Decomposer	Producer	Consumer	Temperature
8	Northern coniferous forests are also called:	Taiga	Prairies	Savanna	Tundra
9	Total area of world under cultivation is:	9 %	10 %	11 %	12 %
10	Production of sweat and sebum is related with:	Skin	Liver	Lung	Gills
11	Which is stimulus for thigmotropism?	Light	Touch	Water	Chemicals
12	The living cells of cartilage are called:	Cnidocyte	Blastocyte	Nematocyst	Chondrocyte
13	Nissl's granules is the group of:	Ribosome	Chromosome	Mesosome	Lysosome
14	Insulin and glueagon are in nature:	Carbohydrate	Steroid	Protein	Polypeptide
15	Pregnancy is maintained by:	Progesterone	Oxytocin	FSH	Testosterone
16	The hypoblast is mainly presumptive of:	Blastoderm	Ectoderm	Mesoderm	Endoderm
17	Which strand of DNA is transcribed?	Coding	Sense	Template	Both strand

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**BIOLOGY (Subjective) GROUP - I**

F13D-12-1-23

Time: 02:40 Hours

Marks: 68

**SECTION – I****2. Write short answers to any EIGHT parts.**

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- (i) How do terrestrial animals overcome the problem of evaporative water loss?
- (ii) Justify the statement, "Excretion of uric acid in some terrestrial animals is an adaptation to conserve water".
- (iii) Compare poikilotherms and homeotherms.
- (iv) Compare sapwood with heartwood.
- (v) Outline the mechanism by which intervertebral disc is herniated.
- (vi) Compare sarcolemma and sarcomere.
- (vii) How is pollen tube significant in the life histories of spermatophytes?
- (viii) Justify the role of fetus in initiating the process of birth in human females.
- (ix) Compare weather and climate.
- (x) What kind of soil conditions are found in grassland ecosystem?
- (xi) How is ozone layer depleted by CFCs?
- (xii) Write the causes of water pollution.

**3. Write short answers to any EIGHT parts.**

16

- (i) What is chlorosis? How is it caused?
- (ii) What are effectors? Quote an example.
- (iii) Elaborate action of nicotine on humans.
- (iv) Define epistasis. How does it differ from dominance?
- (v) Name four traits of garden pea studied by Gregor Mendel.
- (vi) Differentiate quantitative trait with polygenic trait with examples.
- (vii) What are restriction enzymes? Who first isolated them?
- (viii) How Taq polymerase act as a thermocycler?
- (ix) What is cell suspension? Quote an example.
- (x) What are lichens? How are they important?
- (xi) Differentiate between biosphere and niche.
- (xii) Write the significance of root nodules in plants.

**4. Write short answers to any SIX parts.**

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- (i) Differentiate between determinate and indeterminate growth.
- (ii) Write the importance of red and blue light in growth.
- (iii) Write the structural formula of a dinucleotide.
- (iv) Write the factor causing alkaptonuria.
- (v) Give the role of aminoacyl-tRNA synthetase.
- (vi) Write the events of telophase in animal cell.
- (vii) Give the importance of Meiosis.
- (viii) Give the importance of sedimentary rocks regarding fossil formation.
- (ix) Define Hardy-Weinberg Theorem.

**SECTION – II** Attempt any THREE questions. Each question carries 08 marks.

5. (a) Define and explain the process of dialysis. 04  
(b) Define non-disjunction and explain Down's syndrome. 04
6. (a) Why bones break and also explain the repair process of a simple bone fracture? 04  
(b) Give a detailed account of food chain and food web with its trophic levels. 04
7. (a) Discuss working of sensory receptors with special reference to skin. 04  
(b) What are endangered species? What measure could be adopted for their preservation? 04
8. (a) Describe female reproductive cycle in detail. 04  
(b) What are sex-chromosomes? Discuss the chromosomal patterns of sex-determination in organisms. 04
9. (a) Explain the mechanism of gastrulation during embryonic development in chick. 04  
(b) Explain the techniques of micro-injection and vortex-mixing to produce a transgenic animal. 04

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S.#	Questions	A	B	C	D
1	Plants respond to cold stress by increasing proportion of:	Proteins	Carbohydrates	Saturated fatty acids	Unsaturated fatty acids
2	Each dark band is called:	I-Band	A-Band	H-Band	Z-Band
3	The growing tip of young stem moves in Zig-Zag fashion due to which mode of growth:	Hyponasty	Epinasty	Nutation	Phototropism
4	MSH is secreted from the:	Anterior lobe of pituitary gland	Median lobe of pituitary gland	Posterior lobe of pituitary gland	Adrenal gland
5	All of these are neurotransmitters except:	Histamine	Acetyl choline	Serotonin	Dopamine
6	Corpus Luteum secretes a hormone called:	FSH	Estrogen	Progesterone	LH
7	Yellow cytoplasm gives rise to:	Epidermis	Gut	Notochord	Muscle cells
8	The genetic code for methionine is:	AUG	GGG	AGA	UAG
9	Okazaki fragments in discontinuous strand are joined by:	DNA Polymerase-I	Topoisomerase	DNA ligase	DNA Helicase
10	Edward syndrome is due to excess of chromosome:	Sex chromosome	Autosome (# 18)	X-chromosome	Y-chromosome
11	Healthy and encouraging social environment promotes:	Intelligence	Height	Skin colour	Ear lobe
12	The enzyme luciferase is produced in an insect called:	House fly	Butterfly	Tsetse fly	Fire fly
13	How many base pairs are present in human genome?	03 billions	05 billions	07 billions	09 billions
14	The flower parts of flowering plants are:	Vestigial	Analogous	Homologous	None of these
15	How much of the total energy from sun is trapped by the producers in an ecosystem?	10 %	01 %	100 %	50 %
16	<u>Cederous deodara</u> are located in which forests?	Grassland prairies	Temperate deciduous forests	Tropical rain forests	Coniferous alpine and boreal forests
17	Polluted air contains certain pollutants like CO, CFCs, lead compounds and:	SO <sub>2</sub>	CH <sub>4</sub>	Chromium	Hydro carbon

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## SECTION - I

## 2. Write short answers to any EIGHT parts.

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- (i) What is shivering thermogenesis?
- (ii) Sketch urea cycle.
- (iii) What are malpighian tubules?
- (iv) What is nutation?
- (v) Why are lower two pairs of ribs called "floating ribs"?
- (vi) What are the causes of Rickets disease?
- (vii) Sexual reproduction in plants is called diplohaplontic life cycle. Why?
- (viii) How are identical twins produced?
- (ix) Differentiate prairies and savanna.
- (x) What is littoral zone of lake?
- (xi) What are non-renewable resources?
- (xii) How does algal bloom cause oxygen depletion in aquatic ecosystem?

## 3. Write short answers to any EIGHT parts.

16

- (i) Differentiate between circannual rhythms and diurnal rhythms.
- (ii) What is habituation? Give an example.
- (iii) What is synapse?
- (iv) How homozygous or heterozygous nature of a genotype can be checked? Give an example.
- (v) Which parents have MN blood group children? Discuss it.
- (vi) How the alleles of a gene pair can be separated?
- (vii) How restriction enzymes cut the DNA at specific sites? Comment on it.
- (viii) How you facilitate the insertion of foreign DNA into a vector? Comment on it.
- (ix) Why you need taq polymerase in PCR?
- (x) Differentiate between population and community by giving example.
- (xi) What is predation? Give its significance.
- (xii) Define the term mutualism by giving at least one example.

## 4. Write short answers to any SIX parts.

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- (i) Differentiate between Morulla and Blastula.
- (ii) Write two causes of aging.
- (iii) Why stop codon are non-sense codon? Also write its two names.
- (iv) What is point mutation? Give one example.
- (v) Define phosphodiester linkage. Also draw it.
- (vi) Write two importance of mitosis.
- (vii) What changes occur during  $G_1$  of interphase of cell cycle?
- (viii) Define biogeography. Give example.
- (ix) Define Hardy-Weinberg Theorem.

## SECTION - II Attempt any THREE questions. Each question carries 08 marks.

5. (a) Discuss the nature of excretory products in relation to the habitat of animals. 04
- (b) What is Cancer? Describe the types and causes of Cancer. 04
6. (a) Explain directional movements of plants due to external stimuli. 04
- (b) Define ecosystem. Describe its components in detail. 04
7. (a) Explain the structure and functions of thyroid gland. 04
- (b) Write a note on endangered species in detail. 04
8. (a) Explain different physiological and structural changes occurring during the process of birth in human females. 04
- (b) Define probability. Derive 9 : 3 : 3 : 1 ratio of independent assortment through product rule. 04
9. (a) What is the importance of the nucleus in the development? Elaborate your answer with the help of diagram. 04
- (b) What do you know about tissue culture technology? 04

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