

OBJECTIVE

NOTE: You have four choices for each objective type question as A , B , C and D . The choice which you think is correct , fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question.

QUESTION NO. 1

DQK-1-24

- 1 Antibody used for treatment of cancer is obtained from
(A) Soyabean (B) Maiz (C) Corn (D) Arabidopsis
- 2 The compound which made environment of earth from reducing to oxidizing is
(A) Carbon dioxide (B) Nitrogen dioxide (C) Oxygen (D) Ozone
- 3 The profession of a species in an ecosystem is called
(A) Habit (B) Habitat (C) Niche (D) Trophic level
- 4 Thar is desert ecosystem of
(A) Punjab (B) Sindh (C) Balochistan (D) Khyber Pakhtoon Khawah
- 5 In sea , tides are generated due to pull of
(A) Earth (B) Sun (C) Moon (D) Supiter
- 6 Large leaves are found in
(A) Xerophytes (B) Mesophytes (C) Hydrophytes (D) Sciophytes
- 7 Opening of buds is due to
(A) Photonasty (B) Epinasty (C) Hyponasty (D) Thermonasty
- 8 The structures help to maintain minerals in the blood
(A) Bone (B) Muscle (C) Skin (D) Gland
- 9 Neurons responsible to carry nerve impulse from central nervous system to effector are
(A) Sensory neuron (B) Associative neuron (C) Intermediate neuron (D) Motor neuron
- 10 Certain human male fail to develop secondary sexual characters due to absence of
(A) Progesteron (B) Oxytocin (C) Testosteron (D) Luteonizing hormone
- 11 Eggs with diploid number of chromosomes are produced as a result of
(A) Normal mitosis (B) Normal meiosis (C) Modified mitosis (D) Modified meiosis
- 12 Apical dominance is caused by
(A) Auxin (B) Cytokinin (C) Gibberellin (D) Ethene
- 13 Complete set of chromosomes in an organism is called
(A) Genome (B) Genotype (C) Phenotype (D) Karyotype
- 14 In a nucleotide , Nitrogen base is attached to carbon number of pentose sugar
(A) 1 (B) 2 (C) 3 (D) 4
- 15 An example of cell that enters G₀ – phase permanently during cell cycle is
(A) Gland cell (B) Skin cell (C) Nerve cell (D) Bone cell
- 16 Gene I for blood group is found on chromosome number
(A) 6 (B) 7 (C) 8 (D) 9
- 17 An example of restriction endonuclease is
(A) Taq polymerase (B) ECoR1 (C) Gyrase (D) Ligase

QUESTION NO. 2 Write short answers any Eight (8) of the following

16

- i Differentiate between hypotonic and hypertonic environment
- ii Briefly write about pyrexia
- iii How does high temperature affect plant metabolism? Write the way plants manage with high temperature.
- iv Compare epinasty and hyponasty
- v Why does human body become stiff after death? Name that particular condition
- vi How would you justify that amount of work a muscle does is reflected in changes in the muscle itself?
- vii How are identical twins formed?
- viii Differentiate between long day and short day plants
- ix What are natural grass lands in the world are used for and how human activities are deteriorating these biomes?
- x What are taiga? What kinds of environmental conditions are found there?
- xi Define the term Demography
- xii Differentiate between reforestation and afforestation

DAK-1-24

QUESTION NO. 3 Write short answers any Eight (8) of the following

16

- i Give names of two synthetic auxins with their effects
- ii What are mechanoreceptors? Give their role
- iii What is role of limbic system in brain?
- iv Does jumping genes act as source of mutation?
- v Suggest how type A and AB parents could produce a child with blood group O
- vi Define over dominance with an example
- vii Define palindromic sequences
- viii What is PCR? Give its function
- ix What is anther culture technique? Give its role
- x What is biome? Give names of two biomes
- xi Give importance of producers in ecosystem
- xii How food chain is different from food web?

QUESTION NO. 4 Write short answers any Six (6) of the following

12

- i What is intercalary meristem? Describe its role
- ii Enlist some symptoms of aging
- iii Describe the importance of promoter region during transcription
- iv What are chromosomal aberrations?
- v Describe chemical composition of chromosome
- vi Compare apoptosis with necrosis
- vii How a cancerous cell differs from a normal cell?
- viii Differentiate between endangered and extinct species with examples
- ix What is membrane invagination hypothesis?

SECTION-II

Note: Attempt any Three questions from this section

8 x 3 = 24

Q.5.(A)	What is kidney stone? Describe its cure
(B)	Define interphase, Explain its various sub-phases
Q.6.(A)	What is bone fracture? Describe the mechanism of their repair
(B)	Define biogeochemical cycle. Discuss nitrogen cycle with labeled diagram
Q.7.(A)	Write a detailed note on secretions of Adrenal glands
(B)	What are endangered species? What measures could be adopted for their preservation
Q.8.(A)	Explain the human male reproductive system in detail
(B)	Discuss genetic basis of ABO system in humans. Also give their importance in blood transfusion
Q.9.(A)	Explain the role of nucleus in development with reference to Acetabularia
(B)	What is genomic library? How would you locate a gene of interest in the library

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QUESTION NO. 1

DGK-2-24

- 1 Commonly used restriction enzyme is
(A) PBR 322 (B) PSC 101 (C) Plasmid (D) ECoR1
- 2 Eukaryotes are thought to have first appeared about
(A) 3.5 Billions (B) 1.5 Billions (C) 2.5 Billions (D) 4.5 Billions
- 3 The change in frequency of allele at locus that occur by chance is
(A) Gene pool (B) Genome (C) Migration (D) Genetic drift
- 4 Pick the biotic component from the following
(A) Animals (B) Soil (C) Water (D) Atmosphere
- 5 Stone monuments are being eroded due to stone cancer by
(A) Green House effect (B) Ozone depletion (C) Acid rain (D) Global warming
- 6 Incidence of uric acid kidney stone is
(A) 5 % (B) 10 % (C) 15 % (D) 70 %
- 7 Which is stimulus for thigmotropism
(A) Touch (B) Light (C) Water (D) Chemical
- 8 Clavicle connects scapula with
(A) Skull (B) Femur (C) Tibia (D) Sternum
- 9 Hormone which promotes bolting of some roset plants is known as
(A) Ethene (B) Auxin (C) Cytokinin (D) Gibberellin
- 10 The 2nd largest part of brain is
(A) Thallamus (B) Hypothalamus (C) Cerebellum (D) Cerebrum
- 11 In honey bee , males are haploid and produce sperms by
(A) Mitosis (B) Meiosis (C) Binary fission (D) Multiple fission
- 12 Cleavage results in the formation of rounded closely packed mass blastomeres
(A) Gastrula (B) Blastula (C) Morulla (D) Neurula
- 13 How many different kinds of t.RNA in human cell
(A) 54 (B) 45 (C) 25 (D) 20
- 14 The sequence of nucleotide that determine the amino acid sequence of a protein is
(A) Gene (B) Allele (C) Multiple allele (D) Chromosome
- 15 Full cell cycle in yeast cell has length
(A) 30 minutes (B) 60 minutes (C) 90 minutes (D) 120 minutes
- 16 A pure breeding tall pea plant was crossed to short plant. What will be the frequency of short plants in F1
(A) 0.25 (B) 0 (C) 0.5 (D) 1
- 17 Antibody made by soyabean can be used as treatment for
(A) Genital Herpes (B) AIDS (C) Hepatitis (D) Herpes simplex

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| i | Describe some adaptations made by plants living in extreme dry conditions |
| ii | How kidney helps to conserve water when body is facing dehydration ? |
| iii | What are heterotherms ? Give two examples |
| iv | Why ecdysis is necessary for most insects ? |
| v | Describe the role of Ca^{+2} and ATP in muscle contraction |
| vi | How snakes move from one place to another without legs ? |
| vii | Compare parthenocarpy with apomixes |
| viii | What is oestrous cycle ? Is it also present in humans ? |
| ix | What do you mean by " Taiga " ? Give its conditions |
| x | What are the main factors that determine productivity of an ecosystem ? |
| xi | How global warming may effect human life on earth ? |
| xii | Differentiate between renewable and non-renewable resources |

QUESTION NO. 3 Write short answers any Eight (8) of the following

16

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| i | How are synthetic auxins applied in agriculture ? |
| ii | How does sodium potassium pump work in transmission of nerve impulse ? |
| iii | Why insight learning is considered highest form of learning ? |
| iv | What do you know about nullogamete ? |
| v | Why AB blood group is known as universal recipient ? |
| vi | A man is 45 years old and bald. His wife also has pattern baldness. What is the risk that their son will lose his hair ? |
| vii | How do we obtain gene of interest ? |
| viii | What is gene pharming ? |
| ix | What do you know about Taq polymerase ? |
| x | Define commensalism. Give example |
| xi | What do you know about Autecology ? |
| xii | Define Food Chain. Give an example |

QUESTION NO. 4 Write short answers any Six (6) of the following

12

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|------|---|
| i | Narrate the characteristics of dividing cells in plants |
| ii | Give the effects of temperature on growth of plants |
| iii | Draw a structure showing phosphodiester linkage |
| iv | A human chromosome has a bulk of information. How ? |
| v | How euchromatin and heterochromatin are different ? |
| vi | What is the role of Actin and myosin in cell division ? |
| vii | Write the characteristics of cancer cells |
| viii | Give the contribution of Lamarck in evolution |
| ix | Define gene pool and fixed allele |

SECTION-II

Note: Attempt any Three questions from this section

8 x 3 = 24

Q.5.(A)	Describe the major homeostatic functions of the liver
(B)	Define mitosis. Write its importance
Q.6.(A)	Describe vertebral column and rib cage
(B)	Explain Nitrogen cycle with the help of sketch
Q.7.(A)	Write a note on structure and function of fore brain
(B)	The fossil record and comparative embryology are strong evidence of evolution. Justify
Q.8.(A)	What is incomplete dominance ? Explain with the example of 4 O'clock plant
(B)	Elaborate various components of female reproductive system
Q.9.(A)	What is regeneration ? Why it is more common in some animals and not in others ?
(B)	What is gene therapy ? Discuss its importance with two examples