

KCET 2025 Biology Question Paper

Time Allowed :1 Hour 20 Minutes

Maximum Marks :180

Total Questions :60

General Instructions

Read the following instructions very carefully and strictly follow them:

1. The test is of 1 hours 20 minutes duration.
2. The question paper consists of 60 questions. The maximum marks are 180.
3. The questions are from Biology, of equal weightage.

Q1. Which of the following are the techniques for detection of cancer of internal organs?

- a) Radiography, MRI
- b) MRI, computed tomography
- c) Widal test, radiography
- d) MRI, Widal test

- (1) b and c
- (2) b and d
- (3) a and b
- (4) a and c

Q2. Malignant malaria is caused by:

- (1) Plasmodium falciparum
- (2) Plasmodium rubrum
- (3) Plasmodium malariae
- (4) Plasmodium vivax

Q3. The drug prescribed to the patients who have undergone organ transplant is _____ and is produced by _____.

- (1) Cyclosporin-A, Trichoderma polysporum
 - (2) Stain, Trichoderma polysporum
 - (3) Cyclosporin-A, Monascus purpureus
 - (4) Stain, Monascus purpureus
-

Q4. Statement-I: Biocontrol refers to the use of biological methods for controlling plant diseases and pests.

Statement-II: Trichoderma species are effective biocontrol agents for several plant pathogens.

- (1) Statement-I is incorrect but Statement-II is correct
- (2) Both statement-I and statement-II are correct
- (3) Statement-I and statement-II are incorrect
- (4) Both statement-I and statement-II are incorrect

Q5. Match the column-I with column-II. Choose the correct option given below.

Column-I	Column-II
a) Streptococcus	i) Free living nitrogen fixing bacteria
b) <i>Penicillium</i>	ii) Colt buster
c) Methanogens	iii) Source of antibiotic
d) Anabaena	iv) Biogas production

- (1) a-iv, b-iii, c-i, d-ii
- (2) a-iv, b-i, c-iii, d-ii
- (3) a-ii, b-iii, c-iv, d-i
- (4) a-i, b-iv, c-iii, d-i

Q6. Match the contents of List-I with List-II

List-I	List-II
a) Bioreactors	i) Insulin produced by rDNA technology
b) Downstream processing	ii) Vessels which convert raw material into specific product
c) Recombinant protein	iii) Detect mutated genes in suspected cancer patient
d) PCR	iv) Involves separation and purification

- (1) a-i, b-ii, c-iv, d-iii
- (2) a-i, b-i, c-iii, d-iv
- (3) a-ii, b-iv, c-i, d-iii

(4) a-iv, b-ii, c-iii, d-i

Q7. The part of plasmid that codes for proteins involved in the replication of the pBR322 plasmid is:

- (1) "rop"
 - (2) Cloning site
 - (3) Ori site
 - (4) Selectable marker
-

Q8. To isolate DNA from fungal cells, bacterial cells, and plant cells, the enzymes required are respectively:

- (1) Chitinase, Lysozyme and Cellulase
 - (2) Cellulase, Protease and Lysozyme
 - (3) Lysozyme, Cellulase and Chitinase
 - (4) Lysozyme, Proteases and Ribonuclease
-

Q9. In mature insulin, which of the peptide is not present?

- (1) C-peptide
 - (2) A and B peptides
 - (3) A-peptide
 - (4) B-peptide
-

Q10. A scientist wants to produce virus-free plants in tissue culture. Which part of the plant will he use as an explant?

- a) Mature stem
- b) Axillary meristem
- c) Apical meristem
- d) Mesophyll cell

- (1) b only
 - (2) c and d
 - (3) a only
 - (4) b and c
-

Q11. Some strains of *Bacillus thuringiensis* produce proteins that kill insects. Which one is NOT killed?

- (1) Cotton bollworm
 - (2) Tapeworm
 - (3) Tobacco budworm
 - (4) Armyworm
-

Q12. Which population attributes contribute to an increase in population density?

- (1) Natality and Emigration
 - (2) Mortality and Immigration
 - (3) Natality and Immigration
 - (4) Mortality and Emigration
-

Q13. If 8 individuals in a laboratory population of 80 fruit flies died during a specified time interval, the death rate in the population during that period is:

- (1) 0.1 individual/time interval
 - (2) 1 individual/time interval
 - (3) 0.01 individual/time interval
 - (4) 0.001 individual/time interval
-

Q14. Choose the correct sequence of steps involved in decomposition:

- (1) Fragmentation → Mineralisation → Humification → Leaching → Catabolism
 - (2) Fragmentation → Leaching → Catabolism → Humification → Mineralisation
 - (3) Fragmentation → Catabolism → Leaching → Humification → Mineralisation
 - (4) Fragmentation → Leaching → Catabolism → Mineralisation → Humification
-

Q15. With respect to limitation of Ecological pyramids, which statements are correct?

- a) It does not take into account the same species belonging to two or more trophic levels.
- b) It assumes a simple food chain, something that almost never existed in nature.
- c) It accommodates saprophytes.
- d) It does not accommodate a food web.

- (1) c and d
- (2) a, b and d
- (3) a and b
- (4) b and c

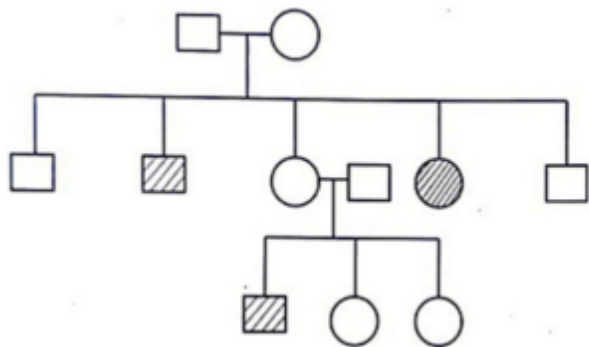
Q16. The 'Sixth Extinction' of species, presently in progress, is how many times faster than the previous five episodes of mass extinctions?

- (1) 1000 to 10000
- (2) 1 to 10
- (3) 10 to 100
- (4) 100 to 1000

Q17. Species diversity as we move away from the ___ towards ___:

- (1) Decreases, Poles, Equator
- (2) Stable, Equator, Poles
- (3) Increases, Equator, Poles
- (4) Decreases, Equator, Poles

Q18. In a practical examination, the following pedigree chart was given as a spotter for identification. The students identify the given pedigree chart as



- (1) Sex-linked dominant
- (2) Sex-linked recessive
- (3) Autosomal dominant
- (4) Autosomal recessive

Q19. A student observed the T.S. of a plant organ slide under microscope. The vascular bundles in the stelar region were conjoint collateral and open. Identify the organ.

- (1) Monocot Root
 - (2) Monocot Stem
 - (3) Dicot Root
 - (4) Dicot Stem
-

Q20. A student observed the slide of mitosis under the microscope and observed chromosomes at opposite poles. Identify the stage.

- (1) Metaphase
 - (2) Telophase
 - (3) Prophase
 - (4) Anaphase
-

Q21. Identify the incorrect statement with respect to the rules of Binomial Nomenclature.

- (1) Biological names are underlined separately when handwritten
 - (2) Biological names are printed in Italics to indicate their non-Latin origin
 - (3) The first word represents the genus while second component denotes the specific epithet
 - (4) Biological names are generally in Latin or Latinised irrespective of their origin
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Q22. Match Column-I with Column-II and choose the correct option given below:

	Column-I (Bacteria)		Column -II (Shape)
a)	Coccus	i)	Rod-shaped
b)	Bacillus	ii)	Spiral
c)	Vibrium	iii)	Spherical
d)	Spirillum	iv)	Comma-shaped

- (1) a-iii, b-ii, c-iv, d-i
- (2) a-iv, b-ii, c-i, d-iii
- (3) a-iv, b-i, c-ii, d-iii
- (4) a-iii, b-i, c-iv, d-ii

Q23. Read the given statements:

Statement I: Gemmae are green unicellular sexual buds which develop in receptacles called gemma cups.

Statement II: Protonema develops directly from a spore

- (1) Statement I is false but Statement II is true
- (2) Both Statement I and Statement II are false
- (3) Both Statement I and Statement II are true
- (4) Statement I is true but Statement II is false

Q24. During a field trip a student observed a marine organism with worm-like body. The cylindrical body was divisible into proboscis, collar and a long trunk. Identify the organism.

- (1) Pterophyllum
- (2) Trygon
- (3) Balanoglossus
- (4) Ophiura

Q25. Identify the types of aestivation in corolla labelled as 'a', 'b', 'c' and 'd'



- (1) a-Vexillary, b-Imbricate, c-Twisted, d-Valvate
- (2) a-Vexillary, b-Imbricate, c-Valvate, d-Twisted
- (3) a-Vexillary, b-Twisted, c-Imbricate, d-Valvate
- (4) a-Imbricate, b-Valvate, c-Vexillary, d-Twisted

Q26. Match the Column-I with Column-II and choose the correct option:

	Column-I (characteristics of vascular bundle)		Column-II (Transverse section)
a)	Radial, tetrarch, cambial ring between xylem and phloem at later stages	i)	T.S of monocot stem
b)	Conjoint, open and endarch	ii)	T.S of dicot root
c)	Radial, Polyarch, large pith without cambial ring	iii)	T.S of monocot root
d)	Conjoint, closed with sclerenchymatous bundle sheath	iv)	T.S of dicot stem

- (1) a - ii, b - iv, c - iii, d - i
(2) a - iii, b - iv, c - i, d - ii
(3) a - i, b - ii, c - iii, d - iv
(4) a - ii, b - iii, c - iv, d - i

Q27. Which of the following statements are correct with respect to Frogs?

- (1) Bidder's canals are present in male Frogs
(2) Copulatory pads are present in female Frogs
(3) Sound producing vocal sacs are present in male Frogs
(4) Cloaca is present in male Frog only

Q28. The reserve material in prokaryotic cells are stored in the cytoplasm in the form of:

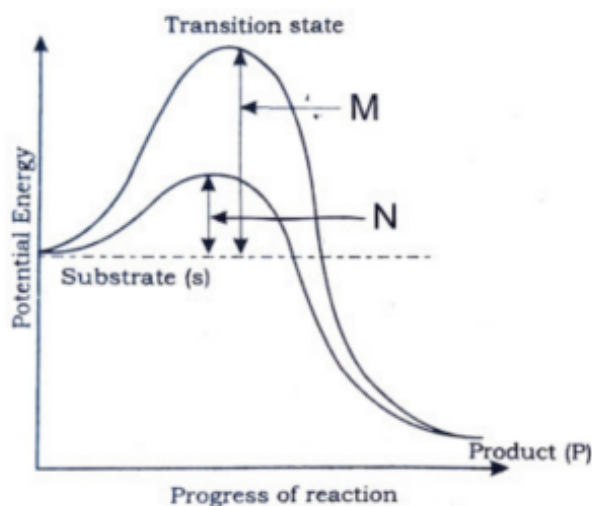
- (1) Exclusion and inclusion bodies
(2) Fat bodies
(3) Exclusion bodies
(4) Inclusion bodies

Q29. The cell wall-less prokaryote among the following is:

- (1) Cyanobacteria
(2) Mycoplasma
(3) Bacteria

(4) Blue-Green Algae

Q30. The graph showing the concept of activation energy of enzyme is given below. Observe the graph and choose the correct option for M and N.



- (1) M-High temperature, High activation energy, N-Low temperature, Low activation energy
- (2) M-High substrate, High activation energy, N-Low substrate, Low activation energy
- (3) M-Activation energy without enzyme, N-Activation energy with enzyme
- (4) M-Activation energy with enzyme, N-Activation energy without enzyme

Q31. Match the stages of prophase I given in Column-I with their features in Column-II and choose the correct options from the choices given below:

Column-I	Column-II
a) Leptotene	i) Exchange of genetic materials between non-sister chromatids of the homologous chromosomes
b) Zygotene	ii) Chromosomes visible under light microscope
c) Pachytene	iii) Dissolution of synaptonemal complex
d) Diplotene	iv) Chromosomes start pairing together
e) Diakinesis	v) Terminalisation of chiasmata

- (1) a-iv, b-i, c-ii, d-iii, e-v
- (2) a-ii, b-iv, c-i, d-iii, e-v
- (3) a-i, b-ii, c-iii, d-iv, e-v

(4) a-v, b-iv, c-i, d-iii, e-ii

Q32. Read the given statements:

Statement-I: In Calvin cycle, Carboxylation is catalysed by PEP Carboxylase

Statement-II: In Hatch-Slack pathway, Carboxylation is catalysed by RuBP Carboxylase

- (1) Statement I is false but Statement II is true
 - (2) Both Statement I and Statement II are false
 - (3) Both Statement I and Statement II are true
 - (4) Statement I is true but Statement II is false
-

Q33. The TCA cycle starts with the condensation of acetyl group with:

- (1) -Ketoglutaric acid
 - (2) Succinic acid
 - (3) Oxaloacetic acid
 - (4) Citric acid
-

Q34. Match the plant growth hormones of Column-I with suitable chemical derivatives present Column-II and choose the correct option given below:

Column-I	Column-II
a) Abscissic acid	i) Adenine derivative
b) Gibberellins	ii) Indole acetic acid
c) Kinetin	iii) Carotenoid derivative
d) Auxin	iv) Terpenes

- (1) a-iii, b-iv, c-i, d-ii
 - (2) a-iii, b-i, c-ii, d-iv
 - (3) a-i, b-ii, c-iii, d-iv
 - (4) a-iii, b-i, c-iv, d-ii
-

Q35. The respiratory mechanism controlled by medulla oblongata can be altered by:

- (1) Both Pneumotaxic and Chemoreceptive areas of pons and medulla oblongata
- (2) Corpus callosum of brain

- (3) Pneumotaxic center in the pons
 - (4) Chemoreceptive area in the medulla
-

Q36. Which among the three layers of blood vessel wall—Tunica intima, Tunica media, and Tunica externa—is comparatively thin in the veins?

- (1) Tunica externa
 - (2) Both tunica media and tunica externa
 - (3) Tunica media
 - (4) Tunica intima
-

Q37. In nephron, transport of substances like sodium chloride and urea is facilitated by the special arrangement called counter-current mechanism that comprises of:

- (1) Vasa Recta and collecting duct
 - (2) Ascending limb and collecting duct
 - (3) Henle's loop and Vasa Recta
 - (4) Henle's loop and glomerulus
-

Q38. In the mechanism of muscle contraction or shortening of muscle, the ___ get reduced whereas the ___ retain the length.

- (1) Z line, I bands
 - (2) A bands, Z line
 - (3) A bands, I bands
 - (4) I bands, A bands
-

Q39. Identify the correct sequence of action potential as it arrives at the axon terminal from the choices given below:

- (1) Axon terminal → Post-synaptic membrane → Synaptic cleft → Synaptic vesicles → Post-synaptic neuron
- (2) Axon terminal → Synaptic vesicles → Post-synaptic membrane → Synaptic cleft → Post-synaptic neuron
- (3) Axon terminal → Synaptic vesicles → Synaptic cleft → Post-synaptic membrane → Post-synaptic neuron

(4) Axon terminal → Synaptic cleft → Synaptic vesicles → Post-synaptic neuron → Post-synaptic membrane

Q40. Identify the statement/s given below that does not correspond to the functions of cortisol:

- i) Maintains cardiovascular system and kidney functions
- ii) Produces anti-inflammatory reactions
- iii) Maintains electrolyte balance, osmosis and blood pressure
- iv) Suppresses immune response
- v) Stimulates RBC production

- (1) iii only
 - (2) iv only
 - (3) i and ii only
 - (4) iii and iv only
-

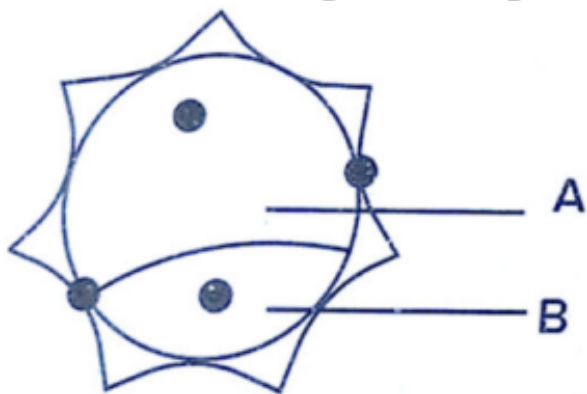
Q41. When pollen grains of a flower of plant pollinate the stigma of a flower of another plant, it is called:

- (1) Dichogamy
 - (2) Geitonogamy
 - (3) Xenogamy
 - (4) Autogamy
-

Q42. Fusion of a male gamete with the central cell in the embryo sac of an angiosperm is called:

- (1) Syngamy
 - (2) Apomixis
 - (3) Double fertilization
 - (4) Triple fusion
-

Q43. Which of these options is true in the context of the below diagram of pollen grain?



- (1) 'A' is a generative cell which gives rise to pollen tube and 'B' is a vegetative cell which forms male gametes
- (2) 'A' is a vegetative cell with abundant food reserve and 'B' is a generative cell which forms male gametes
- (3) 'A' is a generative cell which forms male gametes and 'B' is a vegetative cell which produces pollen tube
- (4) 'A' is a vegetative cell which gives rise to male gametes and 'B' is a generative cell which produces pollen tube

Q44. Match the hormone with its site of production:

Hormone	Site of production
a) hCG and hPL	i) Ovary
b) Progesterone	ii) Placenta
c) Androgens	iii) Corpus luteum
d) Relaxin	iv) Leydig cells

- (1) a-iv, b-i, c-ii, d-iii
- (2) a-i, b-ii, c-iv, d-iii
- (3) a-ii, b-iii, c-iv, d-i
- (4) a-iii, b-i, c-iv, d-ii

Q45. Choose the correct sequence of sperm transport during ejaculation:

- (1) Seminiferous tubules → vasa efferentia → rete testis → epididymis → vas deferens → ejaculatory duct
- (2) Seminiferous tubules → rete testis → epididymis → vas deferens → vasa efferentia → ejaculatory duct
- (3) Seminiferous tubules → rete testis → vasa efferentia → epididymis → vas deferens → ejac-

ulatory duct

(4) Seminiferous tubules → rete testis → epididymis → vasa efferentia → vas deferens → ejaculatory duct

Q46. Select the mismatched pair:

- a) First month of pregnancy – Formation of heart
- b) Second month of pregnancy – Movement of foetus
- c) Third month of pregnancy – Formation of most of the major organ systems
- d) Sixth month of pregnancy – Eye lids separate and eye lashes are formed

- (1) c
 - (2) d
 - (3) a
 - (4) b
-

Q47. Out of the following options, identify which one is NOT a natural method of contraception:

- (1) Lactational amenorrhea
 - (2) Periodic abstinence
 - (3) Coitus interruptus
 - (4) Implants
-

Q48. In zygote intrafallopian tube transfer, the embryo up to which stage is transferred into the fallopian tube?

- (1) 8 blastomeres
 - (2) 32 blastomeres
 - (3) 2 blastomeres
 - (4) 16 blastomeres
-

Q49. Read the following statements:

Statement I: MTP is to get rid of unwanted pregnancies due to casual unprotected intercourse, contraceptive failure, or rape.

Statement II: MTPs are performed legally by qualified doctors with proper medical justification.

- (1) Statement I correct, Statement II incorrect
 - (2) Statement I incorrect, Statement II correct
 - (3) Both statements I and II correct
 - (4) Both statements I and II incorrect
-

Q50. How many types of gametes will be formed by a parent with genotype 'AaBbCc'?

- (1) 8
 - (2) 12
 - (3) 6
 - (4) 4
-

Q51. When a single gene exhibits multiple phenotypic expressions, the phenomenon is called:

- (1) Pleiotropy
 - (2) Co-dominance
 - (3) Polygenic inheritance
 - (4) Incomplete dominance
-

Q52. A colourblind man marries a carrier woman. The percentage of their colour-blind progeny in the next generation will be:

- (1) 75%
 - (2) 100%
 - (3) 25%
 - (4) 50%
-

Q53. Identify the option where the features listed for both Down's Syndrome and Turner's Syndrome are correct:

	Down's syndrome symptoms	Turner's syndrome symptoms
a)	Short -statured individual	Gynaecomastia in man
b)	Round head, partially open mouth	Overall masculine development
c)	Broad palm, physical and mental development retarded	Sterile females with rudimentary ovaries
d)	Additional copy of an X-chromosome	Absence of an X-chromosome

- (1) a
- (2) b
- (3) c
- (4) d

Q54. RNA polymerase II is responsible for the transcription of:

- (1) hnRNA
- (2) snRNA
- (3) tRNA
- (4) rRNA

Q55. Which of the following enzymes increases the permeability of the bacterial cell to lactose?

- (1) Transacetylase
- (2) Amylase
- (3) -galactosidase
- (4) Permease

Q56. Which of the following statements are correct with reference to prokaryotic genome?

- (1) Monocistronic structural genes
- (2) Introns absent in structural genes

- (3) Transcription and translation are coupled processes
 - (4) Primary transcript undergoes splicing
 - (5) Only one RNA polymerase is present
-

Q57. When a change in the gene frequency of a population occurs by chance, it is called:

- (1) Genetic recombination
 - (2) Genetic drift
 - (3) Founder effect
 - (4) Gene migration
-

Q58. Darwin's finches represent one of the best examples of:

- (1) Chemical evolution
 - (2) Genetic equilibrium
 - (3) Seasonal migration
 - (4) Adaptive radiation
-

Q59. Choose the correct statements from the following:

- (1) Charles Darwin travelled around the world in a ship called HMS Beagle
 - (2) There has been gradual evolution of life forms
 - (3) According to Darwin, fitness refers to physical fitness only
 - (4) Fossils are remains of hard parts of life forms found in rocks
 - (5) Hugo De Vries, a naturalist worked in Malay Archipelago
-

Q60. In which of the following, HIV replicates and produces its progeny viruses?

- (1) Killer T-lymphocytes
 - (2) Suppressor T-lymphocytes
 - (3) Helper T-lymphocytes
 - (4) Memory T-lymphocytes
-