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. There are in the question paper consisting of Physics, having 60 questions of equal weightage.

1. 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

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2. Malignant malaria is caused by

(1) Plasmodium falciparum

(2) Plasmodium rubrum

(3) Plasmodium malariae

(4) Plasmodium vivax

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3. 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

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4. Read the following statements and select the correct option. 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 is incorrect

(4) Both statement-I and statement-II are incorrect

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5. 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) *Penicillium*	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

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6. 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

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7. 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

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8. 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

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

(1) C-peptide

(2) A and B peptides

(3) A-peptide

(4) B-peptide

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10. A scientist wants to produce virus-free plant 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 Choose the correct option from the following.

(1) b only

(2) c and d

(3) a only

(4) b and c

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11. Some strains of Bacillus thuringiensis produce proteins that kill insects. Which one of the following is not killed by proteins of Bacillus thuringiensis?

(1) Cotton bollworm

(2) Tapeworm

(3) Tobacco budworm

(4) Armyworm

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12. Which one of the following population attributes, contributes to increase in population density?

(1) Natality and Emmigration

(2) Mortality and Immigration

(3) Natality and Immigration

(4) Mortality and Emmigration

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13. 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

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14. 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

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15. With respect to limitation of Ecological pyramids, which of the following 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. Choose the correct answer from the options given below.

(1) c and d

(2) a, b and d

(3) a and b

(4) b and c

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16. The 'Sixth Extinction' of species, presently in progress, is __ 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

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17. 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

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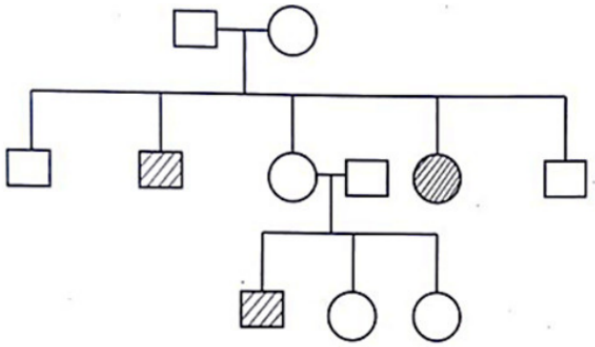
18. In a practical examination, the following pedigree chart was given as a spotter for

identification. The students identify the given pedigree chart as



(1) Sex-linked dominant

(2) Sex-linked recessive

(3) Autosomal dominant

(4) Autosomal recessive

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19. A student observed the T.S. of a plant organ slide under microscope. He observed the vascular bundles in the stelar region as conjoint collateral and open. Based on these features of vascular bundle, identify the correct option from below.

(1) Monocot Root

(2) Monocot Stem

(3) Dicot Root

(4) Dicot Stem

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20. A student observed the slide of mitosis under the microscope and observed that the chromosomes were placed at the opposite poles. Which stage was the student observing?

(1) Metaphase

(2) Telophase

(3) Prophase

(4) Anaphase

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21. 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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22. 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

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23. Read the given statements and choose the correct option:

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

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24. 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. The organism may be __ .

(1) Pterophyllum

(2) Trygon

(3) Balanoglossus

(4) Ophiura

25. 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

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26. 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 toot
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

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27. 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

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28. 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

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29. The cell wall less prokaryote among the following is

(1) Cyanobacteria

(2) Mycoplasma

(3) Bacteria

(4) Blue-Green Algae

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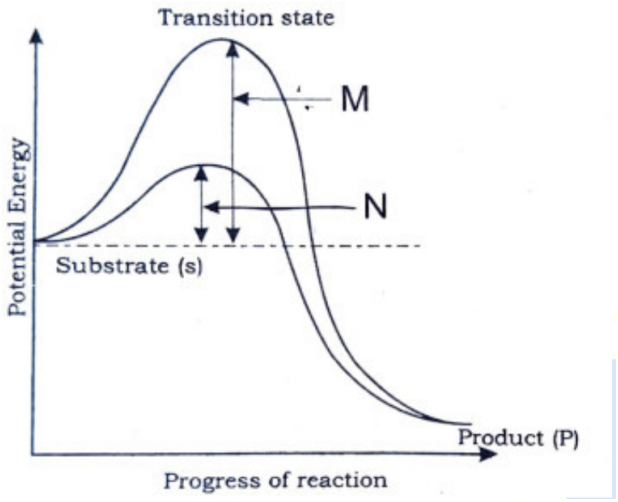
30. The graph showing the concept of activation energy of enzyme is given below. Observe the graph and choose the correct option for M and N.



(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

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31. 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) Zygote	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

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32. Read the given statements and choose the correct option:

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

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33. The TCA cycle starts with the condensation of acetyl group with

(1) α-Ketoglutaric acid

(2) Succinic acid

(3) Oxaloacetic acid

(4) Citric acid

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34. 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) Abscisic 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

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35. 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

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36. 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

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37. 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

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38. 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

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39. 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

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40. 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

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

(1) Dichogamy

(2) Geitonogamy

(3) Xenogamy

(4) Autogamy

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42. 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

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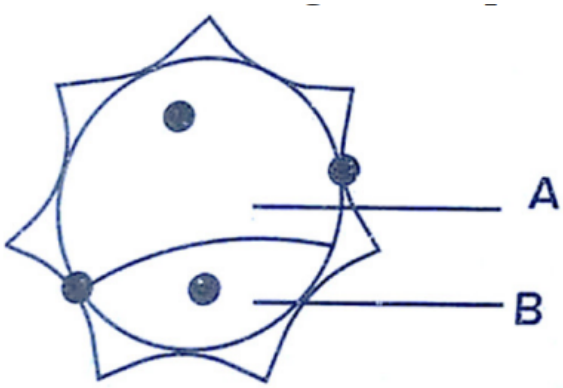
43. Which of these options is true in the context of the below diagram of pollen grain?



(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

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44. 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

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45. 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 → ejaculatory duct

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

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46. 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

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47. 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

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48. In zygote intrafallopian tube transfer, the embryo upto __ stage is transferred into the fallopian tube

(1) 8 blastomeres

(2) 32 blastomeres

(3) 2 blastomeres

(4) 16 blastomeres

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49. Read the following statements:

Statements - I : MTP is to get rid off wanted pregnancies due to causal unprotected intercourse or failure of contraceptives used during coitus or rapes

Statements - II: MTPs are performed legally by qualified doctors by giving proper medical justification

Choose the correct answer from the options given below:

(1) Statements - I is correct but Statements - II is incorrect

(2) Statements - I is incorrect but Statements - II is correct

(3) Statements - I and II are correct

(4) Statements - I and II are incorrect

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

(1) 8

(2) 12

(3) 6

(4) 4

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51. When single gene exhibits multiple phenotypic expression, the phenomenon is called __

(1) Pleiotropy

(2) Co-dominance

(3) Polygenic inheritance

(4) Incomplete dominance

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52. A colourblind man marries a carrier woman. The percentage of their colourblind progeny in the next generation will be __

(1) 75%

(2) 100%

(3) 25%

(4) 50%

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53. Identify which one of the given pair of options is correct with respect to Down's syndrome and Turner's syndrome

	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) c

(2) d

(3) a

(4) b

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54. RNA polymerase II is responsible for the transcription of __

(1) hnRNA

(2) snRNA

(3) tRNA

(4) rRNA

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

(1) Transacetylase

(2) Amylase

(3) β-galactosidase

(4) Permease

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56. 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

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

(1) Genetic recombination

(2) Genetic drift

(3) Founder effect

(4) Gene migration

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58. Darwin's finches represent one of the best examples of

(1) Chemical evolution

(2) Genetic equilibrium

(3) Seasonal migration

(4) Adaptive radiation

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59. Choose the correct statement 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.

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60. 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