KCET 2025 BIOLOGY

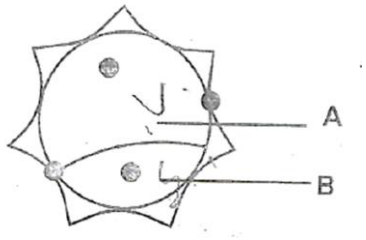
1. When pollen grains of a flower of a plant pollinate the stigma of flower of another plant, it is called

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

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

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

3.



Which of these options is true in the context of the above diagram of pollen grain ?

(1) 'A' is a vegetative cell which gives rise to male gametes and 'B' is a generative cell which produces pollen tube

(2) 'A' is a generative cell which gives rise to pollen tube and 'B' is a vegetative cell which form male gametes

(3) 'A' is a vegetative cell with abundant food reserve and 'B' is a generative cell which form male gametes

(4) 'A' is a generative cell which forms male gametes and 'B' is a vegetative cell which produces pollen tube

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

5. Choose the correct sequence of sperm transport during ejaculation

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

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

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

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

6. Select the mismatched pair :

(1) First month of pregnancy – Formation of heart

(2) Second month of pregnancy – Movement of foetus

(3) Third month of pregnancy – Formation of most of the major organ systems

(4) Six month of pregnancy – Eye lids separate and eye lashes are found

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

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

(1) Implants (2) Lactational amenorrhea

(3) Periodic abstinence (4) Coitus interruptus

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

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

9. **Read the following statements:**

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

Statement 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 and II are incorrect

(2) Statement I is correct but Statement II is incorrect

(3) Statement I is incorrect but Statement II is correct

(4) Statements I and II are correct

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

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

11. **When a single gene exhibits multiple phenotypic expression, the phenomenon is called ___**

(1) Incomplete dominance (2) Pleiotropy

(3) Co-dominance (4) Polygenic inheritance

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

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

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

Option	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) b (2) c (3) d (4) a

14. **RNA polymerase II is responsible for the transcription of __**

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

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

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

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

(a) Monocistronic structural genes

(b) Introns absent in structural genes

(c) Transcription and translation are coupled processes

(d) Primary transcript undergoes splicing

(e) Only one RNA polymerase is present

(1) Only b, c and e are correct (2) Only a, d and e are correct

(3) Only a, b and c are correct (4) Only a, b and d are correct

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

(1) Gene migration (2) Genetic recombination

(3) Genetic drift (4) Founder effect

18. Darwin's finches represent one of the best examples of ___

(1) Adaptive radiation (2) Chemical evolution

(3) Genetic equilibrium (4) Seasonal migration

19. Choose the correct statements from the following:

(a) Charles Darwin travelled around the world in a ship called HMS Beagle

(b) There has been gradual evolution of life forms

(c) According to Darwin, fitness refers to physical fitness only –

(d) Fossils are remains of hard parts of life forms found in rocks

(e) Hugo De Vries, a naturalist worked in Malay Archipelago.

(1) a, c and e are correct (2) a, b and d are correct

(3) a, c and d are correct (4) a, b and e are correct

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

(1) Memory T-lymphocytes (2) Killer T-lymphocytes

(3) Suppressor T-lymphocytes (4) Helper T-lymphocytes

21. 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) a and c (2) b and c (3) b and d (4) a and b

22. Malignant malaria is caused by

(1) *Plasmodium vivax* (2) *Plasmodium falciparum*

(3) *Plasmodium rubrum* (4) *Plasmodium malariae*

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

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

(3) Statin, Trichoderma polysporum (4) Cyclosporin-A, Monascus purpureus

24. 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) Both statement I and statement II are incorrect

(2) Statement I is incorrect but statement II is correct

(3) Both statement I and statement II are correct

(4) Statement I is correct and statement II is incorrect

25. 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. Clot buster**
(c) Methanogens	**iii. Source of antibiotic**
(d) Anabaena	**iv. Biogas production**

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

(3)a – iv, b – I, c – iii, d – ii (4) a – ii, b – iii, c – iv, d – i

26. 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 potien**
(d) PCR	**iv. Involves separation and purification.**

Choose the correct option from the following

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

27. The part of plasmid that codes for proteins involved in the replication of the P^{BR322} plasmid is

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

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

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

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

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

30. 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 cells**

Choose the correct option from the following.

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

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

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

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

(1) Mortality and Emmigration
(2) Natality and Emmigration
(3) Mortality and Immigration
(4) Natality and Immigration

33. 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) 0.001 individual/time interval
(2) 0.1 individual/time interval
(3) 1 individual/time interval
(4) 0.01 individual/time interval

34. Choose the correct sequence of steps involved in decomposition

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

35. 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) b and c (2) c and d (3) a, b and d (4) a and b

36. The 'Sixth Extinction' of species, presently in progress, is ____ times faster than the previous five episodes of mass extinctions.

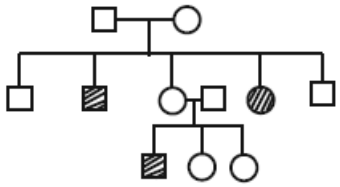
(1) 100 to 1000 (2) 1000 to 10000 (3) 1 to 10 (4) 10 to 100

37. Species diversity ____, as we move away from the _____towards___

(1) Decreases, Equator, Poles (2) Decreases, Poles, Equator

(3) Stable, Equator, Poles (4) Increases, Equator, Poles

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



(1) Autosomal recessive (2) Sex-linked document

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

39. 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) Dicot Stem (2) Monocot Root (3) Monocot Stem (4) Dicot Root

40. 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) Anaphase (2) Metaphase (3) Telophase (4) Prophase

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

(1) Biological names are generally in Latin or Latinised irrespective of their origin

(2) Biological names are underlined separately when handwritten

(3) Biological names are printed in Italics to indicate their non-Latin origin

(4) The first word represents the genus while second component denotes the specific epithet

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

43. 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 true but Statement II is false

(2) Statement I is false but Statement II is true

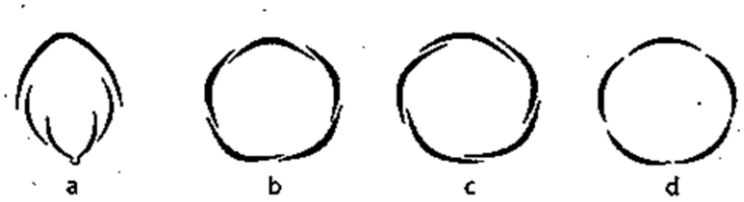
(3) Both Statement I and Statement II are false

(4) Both Statement I and Statement II are false

44. 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 truck. The organism may be ……..

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

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



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

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

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

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

46. 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 pitch without cambial ring	iii. T.S of dicot stem
d. Conjoint, closed with sclerenchymatous bundle sheath	iv. T.S of dicot stem

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

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

(a) Bidder's canals are present in male Frogs

(b) Copulatory pads are present in male Frogs

(c) Sound producing vocal sacs are present in male Frogs

(d) Cloaca is present male Frog only.

Choose the most appropriate answer from the options given below :

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

48. The reserve material in prokaryotic cells are stored in the cytoplasm in the form of …..

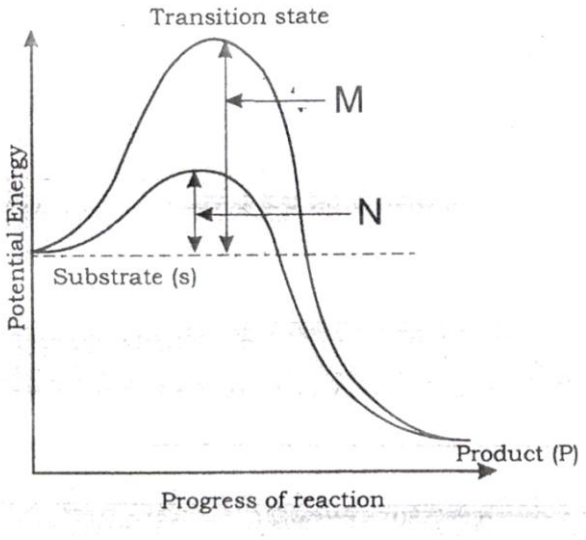
(1) Inclusion bodies (2) Exclusion and inclusion bodies

(3) Fat bodies (4) Exclusion bodies

49. The cell wall less prokaryote among the following is

(1) Blue-Green Algae (2) Cyanobacteria (3) Mycoplasma (4) Bacteria

50. 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-Activation energy with enzyme, N-Activation energy without enzyme

(2) M-High temperature, High activation energy, N-Low temperature, Low activation energy

(3) M-High substrate, High activation energy, N-Low substrate, Low activation energy

(4) M-Activation energy without enzyme, N-Activation energy with enzyme

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

	Column - I		Column - I
(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 – v, b – iv, c – i, d – iii, e - ii (2) a – iv, b – i, c – ii, d – iii, e - v

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

52. 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 true but Statement Il is false (2) Statement I is false but Statement II is true

(3) Both Statement I and Statement I are false (4) Both Statement I and Statement ll are true

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

(1) Citric acid (2) α Ketoglutaric acid

(3) Succinic acid (4) Oxaloacetic acid

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

	Column - I		Column - I
(a)	Abscisic acid	(i)	Adenine derivative
(b)	Gibberellins	(ii)	Indole acetic acid
(c)	Kinetin	(iii)	Carotenoid derivative
(d)	Auxin	(iv)	Terpens

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

55. The respiratory mechanism controlled by medulla oblongata can be altered by

(1) Chemosensitive area in the medulla
(2) Both Pneumotaxic and Chemosensitive areas of pons and medulla oblongata
(3) Corpus callosum of brain
(4) Pneumotaxic center in the pons

56. Which among the three layers of blood vessel wall – Tunica intima, Tunica media and Tunica Externa is comparatively thin in the veins?

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

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

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

58. In the mechanism-of musele-eontraction or shortening of muscle, the _____ get reduced whereas the ___ retain the length.

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

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

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

60. Identify the statement/s given below that does note 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) and (v) only
(2) (ii) only
(3) (iv) only
(4) (i) and (ii) only