KCET – 2023 TEST PAPER WITH ANSWER KEY
(HELD ON SATURDAY 20TH MAY 2023)

BIOLOGY

1. Which of the following is abbreviated as ZIFT?

(A) Zygote Intra Fallopian Tube
(B) Zygote Intra Fallopian Transfer
(C) Zygote Inter Fallopian Tube
(D) Zygote Inter Fallopian Transfer

Ans. B

2. An example for hormone releasing IUD is

(A) Lippes loop
(B) LNG - 20
(C) Implant
(D) Multiload 375

Ans. B

3. MTPs are considered relatively safe during

(A) 180 days of pregnancy
(B) Second trimester
(C) First trimester
(D) 24 weeks of pregnancy

Ans. C

4. Which of the following statements is corret?

(A) Sickle cell anaemia is a quantitative problem.
(B) Thalassemia is a qualitative problem.
(C) Female carrier for haemophilia may transmit the disease to sons.
(D) Change in whole set of chromosomes is called aneuploidy.

Ans. C

5. 'Gene-mapping' technology was developed by

(A) Sturtvent
(B) Tschermak
(C) Mendel
(D) Correns

Ans. A

6. Find the correct statement.

(1) Generally a gene regulates a trait, but sometimes one gene has effect on multiple traits.
(2) The trait AB-blood group of man is regulated by one dominant allele and another recessive allele. Hence it is co-dominant.

(A) Both Statements (1) and (2) are correct.
(B) Statement (1) is correct.
(C) Both the Statements are wrong.
(D) Statement (2) is correct.

Ans. B

7. From the following table, select the option that correctly characterizes various phases of menstrual cycle :

	Menstruation phase	Follicular phase	Luteal phase
(A)	Menses	L.H. Surge	Regenration of endometrium
(B)	Matured follicle	Regression of corpus luteum	Ovulation
(C)	Regeneration of endometrium	High level of progesterone	Developing corpus luteum
(D)	Menses	Developing corpus luteum	Follicle maturation

Ans. A

8. In one of the hybridisation experiments, a homozygous dominant parent and a homozygous recessive parent are crossed for a trait. (Plant shows Medelian inheritance pattern)

(A) Dominant parent trait appears in F_1 generation and recessive parent trait appears in F_1 and F_2 generations.

(B) Dominant parent trait appears in F_1 generation and recessive parent trait appears in F_2 generation.

(C) Dominant parent trait appears in F_2 generation and recessive parent trait appears only in F_1 generation

(D) Dominant parent trait appears in both F_1 & F_2 generations, recessive parent trait appears in only F_2 generation.

Ans. D

9. Histone proteins are positively charged because they are rich in basic amino acid residues

(A) Arginine and Phenylalanine (B) Arginine and Alanine

(C) Arginine and Proline (D) Arginine and Lysine

Ans. D

10. Eukaryotic genes are monocistronic but they are split genes because

(A) Exons are interrupted by Introns. (B) They contain Exons only.

(C) Introns are interrupted with Mutons. (D) They contain Introns only.

Ans. A

11. The Lac-Operon model was elucidated by

(A) Hershey and Chase (B) Watson and Crick

(C) Jacob and Crick (D) Francois Jacob and Jaques Monad

Ans. D

12. Which of these is NOT an example for Adaptive radiation?

(A) Placental mammals (B) Darwin's finches

(C) Long-necked Giraffe (D) Australian marsupials

Ans. C

13. In a population of 800 rabbits showing Hardy-Weinberg equilibrium, the frequency of recessive individuals was 0.16. what is the frequency of heterozygous individuals?

(A) 0.84 (B) 0.4

(C) 0.36 (D) 0.48

Ans. D

14. In male heterogametic type of sex determination

(A) Male parent produces dissimilar gametes. (B) Male parent produces similar gametes.

(C) Males do not produce gametes. (D) Female parent produces dissimilar gametes.

Ans. A

15. Identify the symptoms of pneumonia.

(A) Constipation, Abdominal pain, cramps, blood clots

(B) Difficulty in breathing, fever, chills, cough, headache

(C) High fever, weakness, stomach pain, loss of appetite

(D) Nasal congestion and discharge, cough, sore throat, headache

Ans. B

16. THe variety of Okra, Pusa Sawani is resistant to which of the following insect pests?

(A) Shoot & Fruit borer (B) Aphids

(C) Cereal leaf beetle (D) Jassids

Ans. A

17. With respect to Inbreeding, which among the following is not true?

(A) It helps in elimination of less desirable genes.

(B) Inbreeding decreases homozygosity.

(C) It helps to evolve a pure line in an animal.

(D) It helps in accumulation of superior genes.

Ans. B

18. Identify from the following a pair of better yielding semi dwarf varieties of rice developed in India.

(A) Jaya and Kalyan Sona (B) Jaya and Ratna

(C) Kalyan Sona and Sonalika (D) Sonalika amd Ratna

Ans. B

19. In MoET technique fertilized eggs are transferred into surrogate mother in which of the following stage?

(A) 8-32 celled stage (B) 2-4 celled stage

(C) 16-32 celled stage (D) 8-16 celled stage

Ans. A

20. Roquefort cheese is ripened by

(A) Virus (B) Bacterium

(C) Yeast (D) Fungi

Ans. D

21. Four students were assigned a science project to find out the pollution levels of lakes in their surrounding. AFter analysing the quality of water samples, the BOD values were found as follows :
Which among the following water samples is highly polluted?

(A) 6 mg/L (B) 0.6 mg/L (C) 0.16 mg/L (D) 0.06 mg/L

Ans. A

22. The toxic substance 'haemozoin' responsible for high fever and chill, is released in which of the following diseases?

(A) Malaria (B) Dengue

(C) Typhoid (D) Pneumonia

Ans. A

23. Which of these is NOT a method to make host cells 'component' to take up DNA?

(A) Biolistics (B) Micro-injection

(C) Use of disarmed pathogen vectors (D) Elution

Ans. D

24. Select the correct statement from the following :
(A) The first step in PCR is heating which is used to separate both the strands of gene of interest.
(B) Genetic engineering works only on animals and not yet successfully used on plants.
(C) DNA from one organism will not band to DNA from other organism.
(D) There are no risk factors associated with r-DNA technology.

Ans. A

25. Choose the incorrect statement with reference to Kangaroo rat.
(A) Uses minimal water to remove excretory products.
(B) Found in North American desert.
(C) Eliminates dilute urine.
(D) Meets is water requirements through internal fat oxidation.

Ans. C

26. Generally, bears avoid winter by undergoing
(A) Aestivation
(B) Diapause
(C) Migration
(D) Hibernation

Ans. D

27. Match Column - I with Column - II. Select the option with correct combination.

Column - I		Column - II	
1	Standing state	p.	Mass of living material at a given time.
2	Pioneer species	q.	Amount of nutrients in the soil at a given time.
3	Detritivores	r.	Species that invade a bare area.
4	Standing crop	s.	Breakdown detritus into smaller particles.

(A) 1 - q, 2 - r, 3 - s, 4 - p
(B) 1 - q, 2 - r, 3 - p, 4 - s
(C) 1 - p, 2 - s, 3 - r, 4 - q
(D) 1 - p, 2 - r, 3 - s, 4 - q

Ans. A

28. PCR is used for
(A) DNA digestion
(B) DNA isolation
(C) DNA amplification
(D) DNA ligation

Ans. C

29. The toxic heavy metals from various industries which cause water pollution, normally have a density
(A) more than $7.5\ g/cm^3$
(B) more than $5\ g/cm^3$
(C) more than $12.5\ g/cm^3$
(D) more than $15\ g/cm^3$

Ans. B

30. Identify the correct option showing the relative contribution of different green house gases to the total global warming.
(A) $CFC-6\%, CO_2-60\%, Methane-20\%, N_2O-14\%$
(B) $CFC-14\%, CO_2-60\%, Methane-20\%, N_2O-6\%$
(C) $CFC-14\%, CO_2-60\%, Methane-6\%, N_2O-20\%$
(D) $CFC-20\%, CO_2-60\%, Methane-14\%, N_2O-6\%$

Ans. B

31. A flower has 10 stamens each having bilobed dithecous anther. If each microsporangium has 5 pollen mother cells, how many pollen grains would be produced by the flower?
(A) 800 (B) 200 (C) 1600 (D) 400

Ans. A

32. During transcription the DNA stand with $3' \rightarrow 5'$ polarity of the structural gene always acts as a template because
(A) Enzyme DNA dependent RNA polymerase always catalyse polymerisation in bioth the directions.
(B) Enzyme DNA dependent RNA polymerase always catalyse the polymerisation $5' \rightarrow 3'$ directions.
(C) Nucleotides of DNA strand with $5' \rightarrow 3'$ are transferred to mRNA.
(D) Enzyme DNA dependent RNA polymerase always catalyse the polymerisation $3' \rightarrow 5'$ directions.

Ans. B

33. According to David Tilman's long term ecosystem experiments, the total biomass in plots with more species shows,
(A) Average variation from year-to-year. (B) Less variation from year-to-year.
(C) No variation from year-to-year. (D) High variation from year-to-year.

Ans. B

34. Identify the incorrect statement regarding the flow of energy between various components of the food chain.
(A) Green plants capture about 10% of the solar energy that falls on leaves.
(B) The amount of energy available at each trophic level is 10% of previous trophic level.
(C) Each trophic level loses some energy as heat to the environment.
(D) Energy flow is unidirectional.

Ans. A

35. Find out the correct match.

	Disease	Pathogen	Main organ affected
(A)	Filariasis	Common round worm	Small intestine
(B)	Ringworm	Fungus	Skin
(C)	Dysentery	Protozoa	Liver
(D)	Typhoid	Bacteria	Lungs

Ans. B

36. Match the following columns and choose the correct option :

	Column - I		Column - II
1.	Haemophilus influenzae	p.	Malignant malaria
2.	Entamoeba histolytica	q.	Elephantiasis
3.	Plasmodium falciparum	r.	Pneumonia
4.	Wuchereria bancrofti	s.	Amoebiasis

	1	2	3	4
(A)	s	p	q	r
(B)	q	r	s	p
(C)	r	p	q	s
(D)	r	s	p	q

Ans. D

37. From the following tools / techniques of genetic engineering, identify those which are required for cloning a bacterial gene in animal cells and choose the correct option :

I. Endonuclease II. Ligase
III. A. tumefaciens IV. Microinjection
V. Gene gun VI. Lysozyme
VII. Cellulase VIII. Electrophoresis

(A) I, III, IV, V, VII
(B) II, III, V, VII, VIII
(C) II, III, IV, VI, VII, VIII
(D) I, II, IV, VI, VIII

Ans. D

38. Match the column-I with column-II and choose the correct option from the following :

Column - I (Plant groups)	**Column - II (Examples)**
1. Bryophyta	p. Pinus
2. Gymnosperm	q. Adiantum
3. Algae	r. Sphagnum
4. Pteridophyta	s Ectocarpus

	1	2	3	4
(A)	q	p	s	r
(B)	s	r	q	p
(C)	q	s	p	r
(D)	r	p	s	q

Ans. D

39. Flame cells present in the members of platyhelminthes are specialized to perform,

(A) Respiration and Excretion
(B) Osmoregulation and Circulation
(C) Respiration and Osmoregulation
(D) Osmoregulation and Excretion

Ans. D

40. Identify the floral formula of plant belonging to potato family.

(A) $\overset{\circ}{\underset{+}{\delta}}, P_{3+3}, A_{3+3}, G_{(3)}$

(B) $\overset{\circ}{\underset{+}{\delta}}, K_{(5)}, \overset{\frown}{C_{(5)}A_5}, \underline{G}_{(2)}$

(C) $\overset{\circ}{\underset{+}{\delta}}, K_{(5)}, C_{(5)}, A_{(9)+1}, G_1$

(D) $\overset{\circ}{\underset{+}{\delta}}, K_{10}, C_{10}, A_{10}, \bar{G}_2$

Ans. B

41. When the vascular cambium is present between the xylem and phloem, then the vascular bundle is called

(A) Endarch
(B) Exarch
(C) Closed
(D) Open

Ans. D

42. The function of Typhlosole in earthworm is

(A) Transportation

(B) Grinding of soil particles

(C) Increasing the effective area of absorption in the intestine

(D) Grinding of decaying leaves

Ans. C

43. Select the correctly matched pair of organisms with their order.

(A) Homo, sapiens : Poales

(B) Triticum, aestivum : Sapindales

(C) Mangifera, indica : Primata

(D) Musa, domestica : Diptera

Ans. D

44. Match List-I and List-II with respect to proteins and their functions and select the correct option.

	List - I		**List - II**
1.	Collagen	p.	Fights infectious agents
2.	Trypsin	q.	Hormone
3.	Insulin	r.	Enzyme
4.	Antibody	s.	Intercellular ground substance

(A) 1-s, 2-r, 3-q, 4-p

(B) 1-q, 2-r, 3-q, r-s

(C) 1-s, 2-p, 3-r, 4-p

(D) 1-s, 2-q, 3-r, 4-p

Ans. A

45. The complex formed by a pair of synapsed homologous chromosomes is called,

(A) Bivalent

(B) Pentavalent

(C) Univalent

(D) Triad

Ans. A

46. Match column-I with column-II. Select the option with correct combination.

	Column - I		**Column - II**
1.	Hypertonic	p.	Two molecules move in the same direction across the membrane.
2.	Capillarity	q.	External solution is more concentrated than cell sap.
3.	Symport	r.	Water loss in the form of droplets.
4.	Guttation	s.	Ability of water to rise in thin tubes.

(A) 1-q, 2-p, 3-s, 4-r

(B) 1-q, 2-s, 3-r, 4-p

(C) 1-q, 2-s, 3-p, 4-r

(D) 1-q, 2-r, 3-p, 4-s

Ans. C

47. Toxicity of which micronutrient induces deficiency of iron, magnesium and calcium ?

(A) Manganese

(B) Zinc

(C) Boron

(D) Molybdenum

Ans. A

48. Considering the stroke volume of an adult healthy being is 70 mL, identify the cardiac output in one hour from the following :

(A) 302.4 Lit/hour (B) 5.04 Lit/hour

(C) 50.40 Lit/hour (D) 30.24 Lit/hour

Ans. A

49. Function of contractile vacuole in Amoeba is

(A) Osmoregulation and movements (B) Excretion and osmoregulation

(C) Digestion and excretion (D) Digestion and respiration

Ans. B

50. Atrial Natriuretic Factor (ANF) acts as a

(A) Vasoconstricter (B) Check on Renin-Angiotension mechanism

(C) Hypertension inducer (D) Promoter on Renin-Angiotensiion mechanism

Ans. B

51. The vibrations from the ear drum are tansmitted through ear ossicles to

(A) Tectorial membrane (B) Cochlea

(C) Auditory nerves (D) Oval window

Ans. D

52. Bamboo species flowers

(A) Once in lifetime (B) Every year

(C) Twice in $50-100$ years (D) Once in 12 years

Ans. A

53. In Bryophyllum, the adventitious buds arise from

(A) Shoot apex (B) Leaf axil

(C) Leaf base (D) Notches in the leaf margin

Ans. D

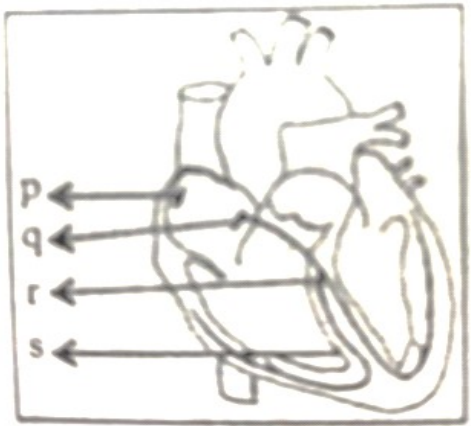
54. Primary endosperm nucleus is formed by fusion of

(A) One polar nucleus and male gamete (B) Two polar nuclei and one male gamete

(C) Two polar nuclei and two male gamete (D) Ovum and male gamete

Ans. B

55. Identify the option showing the correct labelling for p, q, r and s with reference to the conducting system of the human heart.



(A) p-Bundle of His, q-SAN, r-Interventicular septum, s-AVN
(B) p-SAN, q-AV N, r-Bundle of His, s-Interventicular septum
(C) p-Interventicular septm, q-AVN, r-Bundle of His, s-SAN
(D) p-AVN, q-SAN, r-Interventicular septum, s-Bundle of His

Ans. B

56. In the female reproductive system, a tiny finger like structure which lies at the upper junction of the two labia minora above the urethral opening is called

(A) Clitoris
(B) Hymen
(C) Vagina
(D) Mons pubis

Ans. A

57. Consider the following statements with reference to female reproductive system:

Statement 1: The presence or absence of hymen is not a reliable indicator of virginity or sexual experience

Statement 2: The sex of the foetus is determined by the father and not by the mother.

Choose the correct option from the following:

(A) Statement 1 is wrong and Statement 2 is corret
(B) Statement 1 is correct and Statement 2 is wrong
(C) Both Statement 1 and Statememt 2 are wrong
(D) Both Statement 1 and Statement 2 are correct

Ans. D

58. The male sex accessory ducts include,

(A) Rete testis, vasa efferentia, seminal vesicle and vas deferens
(B) Rete testis, vasa efferentia, epididymis and seminal vesicle
(C) Rete testis, vasa efferentia, epididymis and vas deferens
(D) Rete testis, urethra, epididymis and vas deferens

Ans. C

59. With reference to human sperm, match the List - I with List - II.

List - I		List - II	
1	Head	p	Filled with enzyme
2	Acrosome	q	Contains mitochondria
3	Middle piece	r	Sperm motility
4	Tail	s	Contains haploid nucleus

Choose the correct option from the following:

(A) 1 - q, 2 - s, 3 - r, 4 - p
(B) 1 - s, 2 - p, 3 - q, 4 - r
(C) 1 - r, 2 - q, 3 - s, 4 - p
(D) 1 - s, 2 - r, 3 - p, 4 - q

Ans. B

60. Which pair of the following cells in the embryo sac are destined to change their ploidy after fertilization?

(A) Central cell and antipodals
(B) Antipodals and synergids
(C) Egg cell and central cell
(D) Synergids and egg cell

Ans. C

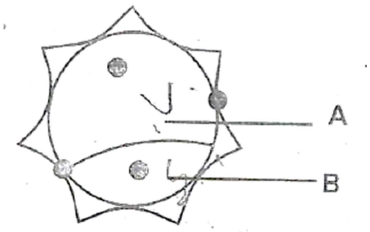
KCET-2025 TEST PAPER WITH ANSWER KEY
(HELD ON THURSDAY 17TH APRIL 2025)
BIOLOGY (CODE : C4)

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

Ans. 4

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

Ans. 1

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

Ans. 3

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

Ans. 4

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

Ans. 4

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

Ans. 1

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

Ans. 1

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

Ans. 2

9. Read the following ststements :

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

Ans. 3

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

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

Ans. 2

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

(1) Incomplete dominance (2) Pleiotropy

(3) Co-dominance (4) Polygenic inheritance

Ans. 2

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%

Ans. 1

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

Ans. 2

14. RNA polymerase II is responsible for the transcription of ___

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

Ans. 2

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

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

Ans. 1

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

Ans. 1

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

Ans. 3

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

(1) Adaptive radiation (2) Chemical evolution

(3) Genetic equilibrium (4) Seasonal migration

Ans. 1

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

Ans. 2

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

Ans. 4

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

Ans. 4

22. Malignant malaria is caused by
(1)*Plasmodium vivax* (2)*Plasmodium falciparum*
(3)*Plasmodium rubrum* (4)*Plasmodium malariae*

Ans. 2

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

Ans. 2

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

Ans. 3

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

Ans. 4

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

Ans. 4

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

Ans. 2

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

Ans. 2

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

Ans. 2

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

Ans. 1

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

Ans. 3

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

Ans. 4

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

Ans. 2

34. Choose the correct sequence of steps involved in decomposition

(1) Fragmentation $\rightarrow$ Leaching $\rightarrow$ Catabolism $\rightarrow$ Mineralisation $\rightarrow$ Humification

(2) Fragmentation $\rightarrow$ Mineralisation $\rightarrow$ Humification $\rightarrow$ Leaching $\rightarrow$ Catabolism

(3) Fragmentation $\rightarrow$ Leaching $\rightarrow$ Catabolism $\rightarrow$ Humification $\rightarrow$ Mineralisation.

(4) Fragmentation $\rightarrow$ Catabolism $\rightarrow$ Leaching $\rightarrow$ Humification $\rightarrow$ Mineralisation

Ans. 3

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

Ans. 3

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

Ans. 1

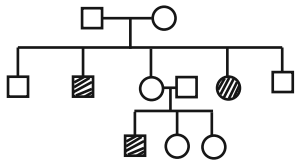
37. Species diversity _____, as we move away from the _____towards____

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

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

Ans. 1

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

Ans. 1

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

Ans. 1

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

Ans. 1

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 hanwritten

(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

Ans. 3

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

Ans. 1

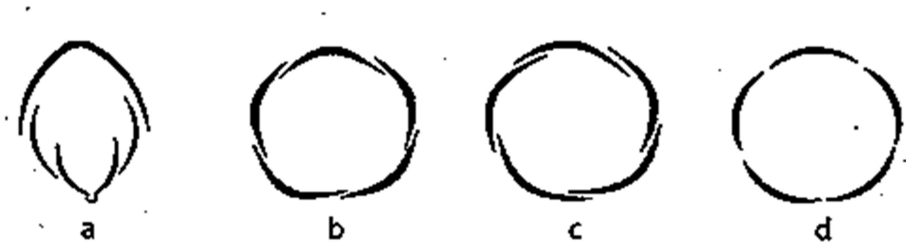
43. Read the given statements and choose the correct option :
Statement I : Gemmae are green, unicellular, sexual buds which develop in receptacles called gemma cups
Statement II : Protonema develops directly from a spore
(1) Statement I is true but Statement II is false
(2) Statement I is false but Statement II is true
(3) Both Statement I and Statement II are false
(4) Both Statement I and Statement II are false

Ans. 2

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*

Ans. 4

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

Ans.2

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

Ans. 2

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

Ans. 2

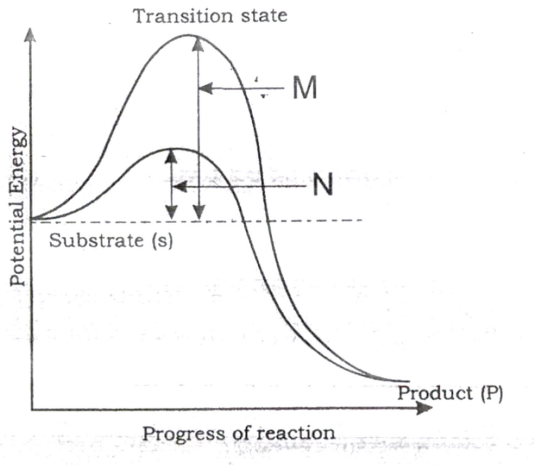
48. The reserve material in prokaryotic cells are stored in the cytoplasm in the form of …..
(1) Inclusion bodies (2) Exclusion and inclusion bodies
(3) Fat bodies (4) Exclusion bodies

Ans. 1

49. The cell wall less prokaryote among the following is
(1) Blue-Green Algae (2) Cyanobacteria (3) Mycoplasma (4) Bacteria

Ans. 3

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

Ans. 4

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

Ans. 3

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

Ans. 3

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

Ans. 4

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

Ans. 2

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

Ans. 4

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

Ans. 4

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

Ans. 4

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

Ans. 1

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

Ans. 4

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

Ans. 2

KCET-2025 17TH APRIL 2025

ANSWER KEY (CODE : C4)

BIOLOGY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	1	3	4	4	1	1	2	3	2	2	1	2	2	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	3	1	2	4	4	2	2	3	4	4	2	2	2	1
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	4	2	3	3	1	1	1	1	1	3	1	2	4	2
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	2	2	1	3	4	3	3	4	2	4	4	4	1	4	3

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4 Years Classroom	4 Years Classroom	3 Years Classroom	2 Years Classroom	3 Years Classroom	3 Years Classroom

RANK 13	RANK 14	RANK 15	RANK 20	RANK 29	RANK 30	RANK 39	RANK 40	RANK 42	RANK 50
ABHISHEK UPADHYA	HEMANTH M	AVANEESH P KURADE	ANSHUL GOYAL	AKASH SOMASUNDARAM	MADHAV ARUN KRISHNA	KRISHNAN R	PRAKET GOEL	ABHINAV PRASAD	DEVANSH TRIPATHI
Classroom	Classroom	Classroom	Classroom	Classroom	Classroom	Classroom	Classroom	Classroom	Classroom

06 In Top 10 Ranks | **16** In Top 50 Ranks | **34** In Top 100 Ranks | **101** In Top 500 Ranks

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KCET 2024 Biology Question Paper

1. Which among the following is used to treat Emphysema?
(A) Human Hormone - α – Antitrypsin
(B) Human α – Interferon
(C) Human protein - α – Antitrypsin
(D) Human α – Lactalbumin
Ans. C

2. Homeostasis is a condition where the organisms
(A) Maintain a constant internal environment in everchanging external environment
(B) do not maintain a constant internal environment
(C) Change their internal environment according to their external environment
(D) Change their internal environment when the external environment is constant
Ans. A

3. Which of the following is **not** a parasitic adaptation?
(A) Loss of unnecessary sense organs
(B) Absence of adhesive organs or suckers
(C) Loss of digestive system
(D) High reproductive capacity
Ans. B

4. DNA polymerase of Thermus aquaticus is
(A) Thermolabile
(B) Thermophobic
(C) Exonuclease
(D) Thermostable
Ans. D

5. If a recombinant DNA bearing gene for resistance to Ampicillin transferred into E.coli cells, host cells become transformed into Ampicillin resistant cells. What happens when these E.coli are grown on medium containing Ampicillin?
(A) Non-transformants will grow and transformants will die
(B) Non-transformants will die and transformant will grow
(C) Both non-transformants and transformant will die
(D) Both non-transformant and transformant will grow
Ans. B

6. Which of the following based upon the principle of antigen-antibody interaction?
(A) PCR
(B) ELISA
(C) rDNA technology
(D) Gel Electrophoresis
Ans. B

7. A strict protection of biodiversity hotspots could reduce the ongoing mass extinction by almost
(A) 20%
(B) 25%
(C) 30%
(D) 35%
Ans. C

8. Identify the ***incorrect*** match respect to recently extinct animals and their place extinction according to IUCN Red list
(A) Dodo-Mauritius
(B) Quagga – Africa
(C) Thylacine – Australia
(D) Steller's Sea Cow – North America
Ans. D

9. According to the hypothesis proposed by environmental biologists, a relatively constant environment in tropics promotes
(A) Niche specialization and lesser species diversity
(B) Niche specialization and greater species diversity
(C) Niche diversity and lesser species specialization
(D) Niche diversity and greater species specialization
Ans. B

10. In the prevention of air pollution, the role of scrubber is to remove
(A) Particular SO_2
(B) Liquid SO_2
(C) Gaseous SO_2
(D) Liquid SO_3
Ans. C

11. Match List-I with List-II and choose the correct answer.

List-I	List-II
1) Nitrogen rich fertilizers	p) Ozone depletion
2) Carbon dioxide	q) Eutrophication
3) Carbon monoxide	r) Greenhouse effect
4) CFC's	s) Air pollutant

(A) 1-p, 2-q, 3-r, 4-s
(B) 1-q, 2-r, 3-s, 4-p
(C) 1-r, 2-s, 3-p, 4-q
(D) 1-s, 2-p, 3-q, 4-r

Ans. B

12. Following representations P, Q and R denote few steps of Griffith Experiment. Identify the correct one(s)
P. R strain → Inject into mice → Mice die
Q. S strain (Heat killed) → Injected into mice → Mice die
R. R strain → Inject into mice → Mice live
(A) P only
(B) R only
(C) P and R
(D) Q and R

Ans. B

13. In tRNA the region that binds with mRNA is
(A) Anticodon loop of tRNA
(B) Amino acid acceptor end tRNA
(C) Amino acyl synthetase loop of tRNA
(D) Ribosomal binding loop of tRNA

Ans. A

14. The mRNA has Untranslated Regions (UTRs)
(A) At 3'-end beyond Terminator codon
(B) At 5'-end before AUG
(C) At both 3'-end and 5'-end beyond Terminator codon and before AUG respectively
(D) AUG and Terminator codon flanks the UTR

Ans. C

15. In Structural gene, the template DNA strand has nucleotide sequences
3'– ATGCATGCATGCATGC – 5'.
Find the correct and complimentary nucleotide sequence on coding strand.
(A) 5'– ATGCATGCATGCATGC – 3'
(B) 3'– GCATGCATGCATGCAT – 5'
(C) 5'– TACGTACGTACGTACG – 3'
(D) 3'– TACGTACGTACGTACG – 5'

Ans. C

16. Read the following statements
Statement I : All vertebrates develop a row of vestigial gill slits during embryonic stage.
Statement II : Embryos always pass through the adult stages of other animals.
Which of the following options is correct with reference to these statements.?
(A) Statement I is correct, Statement II is incorrect.
(B) Statement I is incorrect, Statement II is correct.
(C) Both Statements I and II are correct.
(D) Both Statements I and II are incorrect.

Ans. A

17. Which of the following exhibits haplodiplontic lifecycle ?
(A) *Fucus*
(B) *Chlamydomonas*
(C) *Gelidium*
(D) *Ectocarpus*

Ans. D

18. Identify, the phylum which shows the following characteristics:
1. Animals are exclusively marine, radially symmetrical and diploblastic.
2. Body bears eight external rows of ciliated comb plates which help in locomotion.
3. Digestion is both extracellular and intracellular.
4. Reproduction only by sexual modes.
(A) Coelenterate
(B) Mollusca
(C) Arthropoda
(D) Ctenophora

Ans. D

19. When a flower has both stamens and carpels it is described as
(A) Asexual
(B) Unisexual
(C) Bisexual
(D) Dioecious

Ans. C

20. Ciliated epithelial cells are present in
(A) Kidneys
(B) Intestines
(C) Blood Vessels
(D) Bronchioles

Ans. D

21. Which of the following statements is correct with reference to vacuoles?
(A) It is membrane bound and contains storage proteins and lipids.
(B) It is membrane bound and contains water and excretory substances.
(C) It lacks membrane and contains air.
(D) It lacks membrane and contains water and excretory substances

Ans. B

22. Exoskeleton of Arthropods is made up of unique complex polysaccharide known as
(A) Hyaluronic Acid
(B) Chitin
(C) Waxes
(D) Cellulose

Ans. B

23. The enzyme Recombinase is required at which stage of Meiosis I?
(A) Pachytene
(B) Zygotene.
(C) Diplotene
(D) Diakinesis

Ans. A

24. The water potential of pure water is
(A) One
(B) Mote than one
(C) Zero
(D) less than zero

Ans. C

25. Match the pigments given in List I with their colour in chromatogram given in List II.

List I (Pigments)	**List II (Colour in chromatogram)**
1. Chlorophyll 'b'	p. Yellow orange
2. Carotenoids	q. Orange red
3. Chlorophyll 'a'	r. Yellow
4. Xanthophylls	s. Blue green
	t. Yellow green

Choose the correct option from the following :
(A) 1-s, 2-t, 3-r, 4-q
(B) 1-p, 2-q, 3-r, 4-t
(C) 1-t, 2-p, 3-s, 4-r
(D) 1-t, 2-p, 3-r, 4-s

Ans. B

26. Which is the intermediate compound that links the end product of Glycolysis with TCA Cycle?
(A) Acetyl CoA
(B) Pyruvic Acid
(C) OAA
(D) Citric Acid

Ans. A

27. Auxins : Apical dominance : : Gibberellins : _____
(A) Adventitious shoot formation
(B) Accelerates abscission
(C) Closure of stomata
(D) Bolting

Ans. D

28. The term Uremia refers to
(A) Accumulation of Urea in blood.
(B) Presence of Glucose in the urine.
(C) Accumulation of Uric acid in blood.
(D) Accumulation of Uric acid in kidneys.

Ans. A

29. The typical 'lub-dub' sounds heard during heartbeat are produced due to
(A) Closure of semilunar valves
(B) Closure of bicuspid and tricuspid valves
(C) Closure of bicuspid and tricuspid valves followed by semilunar valves
(D) Opening of bicuspid and tricuspid valves followed by semilunar valves

Ans. C

30. The functional unit of contraction is a
(A) Portion of myofibril between two successive Z-lines"
(B) Portion of myofibril between two successive M-lines
(C) Centre of the H-zone
(D) Centre of the I-band

Ans. A

31. Match the parts of the brain given in List I with their functions given in List II.

List I (Parts of the brain)	List II (Functions)
1. Medulla oblongata	p. Body temperature
2. Hypothalamus	q. Olfaction
3. Cerebral cortex	r. Respiration
4. Limbic system	s. Motor function

Choose the correct option from the following:
(A) 1-p, 2-r, 3-s, 4-q
(B) 1-q, 2-s, 3-r, 4-p
(C) 1-s, 2-p, 3-q, 4-r
(D) 1-r, 2-p, 3-s, 4-q

Ans. D

32. Hydra reproduces asexually by producing
(A) Zoospores
(B) Conidia
(C) Buds
(D) Gemmule

Ans. C

33. When male and female gametes are morphologically distinct, the condition is known as
(A) Homogametes
(B) Heterogametes
(C) Hermaphrodites
(D) Sexual Dimorphism

Ans. B

34. The role of Filiform apparatus in synergids is to
(A) Protect the egg apparatus
(B) Endosperm formation
(C) Guide the entry of pollen tube.
(D) Prevention of gamete entry

Ans. C

35. Transfer of pollen grains from the anther to the stigma of another flower of the same plant, is called
(A) Xenogamy
(B) Autogamy
(C) Cleistogamy
(D) Geitonogamy

Ans. D

36. Match the content of List I with List II:

List I	List II
1. Polyembryony	p. Black pepper
2. Perisperm	q. Banana
3. False fruit	r. Lemon
4. Parthenocarpy	s. Apple

Choose the correct option from the following:
(A) 1-r, 2-p, 3-s, 4-q
(B) 1-p, 2-r, 3-s, 4-q
(C) 1-q, 2-p, 3-s, 4-r
(D) 1-r, 2-s, 3-p, 4-q

Ans. A

37. Which of the following hormones is ***not*** secreted by human placenta?
(A) Progestogen
(B) HCG
(C) Estrogen
(D) LH

Ans. D

38. In human females, the endometrium of uterus consists of
(A) Smooth muscle
(B) Glandular layer
(C) Adipose layer
(D) Cartilaginous layer

Ans. B

39. If two primary spermatocytes and two primary oocytes undergo meiosis simultaneously, what will be the ratio of spermatozoa and ova produced at the end of the gametogenesis?
(A) 2:1
(B) 4:1
(C) 6:2
(D) 1:2

Ans. B

40. The Government of India legalised MTP with some strict regulations in the year
(A) 1951
(B) 1961
(C) 1971
(D) 2001

Ans. C

41. The process in which a small part of the vas deferens is removed or tied up through a small incision, is called
(A) MTP
(B) Vasectomy
(C) Tubectomy
(D) GIFT

Ans. B

42. Test cross in pea plant is
(A) A cross between F_2 tall plant and recessive parent.
(B) A cross between F_2 dwarf plant and recessive parent
(C) A cross between F_2 tall plant with dominant parent.
(D) A cross between two F_1 plants.

Ans. A

43. The genotype ratio of incomplete dominance is
(A) 3:1
(B) 1:2:1
(C) 1:1:2
(D) 9:3:3:1

Ans. B

44. Find the ***incorrect*** statement among the following:
(A) In sex linked recessive traits the gene is transmitted from unaffected carrier female to some of male progeny.
(B) Accumulation of phenylpyruvic acid in brain results in mental retardation
(C) Individuals affected by Down's Syndrome will have congenital heart defect and are more intelligent.
(D) Turner's Syndrome is caused due to the absence of one X- chromosome.

Ans. C

45. In a dihybrid cross between a true breeding round yellow seeded and true breeding wrinkled green seeded pea plant, the ratio of segregation of round and wrinkled seed traits in F_2 is
(A) 9:1
(B) 3:1
(C) 9:3
(D) 3:3

Ans. B

46. Stanley Miller simulated the conditions of pre – biotic earth using spark – discharge apparatus. Which organic compounds were observed by him on analysing the end product of his experiment?
(A) Pigments
(B) Fats
(C) Nitrogen bases
(D) Amino acids

Ans. D

47. Most ape - like ancestral primate was
(A) Dryopithecus
(B) Ramapithecus
(C) Australopithecus
(D) Neanderthal man

Ans. A

48. The principle of vaccination is based on which property of immune system?
(A) Memory
(B) Specificity
(C) Diversity
(D) Plasticity

Ans. A

49. Genome of HIV replicates in the macrophages with the help of an enzyme called
(A) DNA Polymerase
(B) RNA Polymerase
(C) Reverse Transcriptase
(D) DNA Ligase

Ans. C

50. Read the following statements:
Statement I: Morphine is obtained by acetylation of Heroin.
Statement II: Cannabinoids are known for their effect on cardiovascular system
Which of the following options is correct with reference to these statements?
(A) Both Statements I and II are correct
(B) Statements I is correct and Statements II is incorrect
(C) Statements I is incorrect and Statements II is correct
(D) Both Statements I and II are incorrect

Ans. C

51. Mule is the result of
(A) Out-crossing
(B) Cross-breeding
(C) Interspecific hybridization
(D) Out-breeding
Ans. C

52. Identify the bacterial disease among the following:
(A) Brown rust of wheat
(B) Tobacco mosaic disease
(C) Black rot of crucifers
(D) Late blight of potato
Ans. C

53. Match the nutrients given in List-I with the source in List-II:

List-I	List-II
1. Vitamin A	p. Bitter gourd
2. Single cell protein	q. Beans
3. Vitamin C	r. Carrots
4. Protein	s. Spirulina spp

Choose the correct option from the following:
(A) 1-p, 2-q, 3-r, 4-s (B) 1-r, 2-s, 3-p, 4-q
(C) 1-p, 2-r, 3-s, 4-q (D) 1-q, 2-s, 3-p, 4-r
Ans. B

54. The chemical substances which are produced by some microbes which can kill or retard the growth of other microbes are known as
(A) Statins (B) Streptokinases
(C) Cyclosporins (D) Antibiotics
Ans. D

55. Select the correct statement from the following:
(A) *Methanobacterium* is an aerobic bacteria found in the rumen of cattle.
(B) Biogas is produced by the activity of aerobic bacteria
(C) Biogas in pure methane.
(D) Activated sludge in sediment tanks is a rich source of aerobic bacteria.
Ans. D

56. Which of these enzymes is required to cleave a plasmid?
(A) Ligase
(B) Endonuclease
(C) Exonuclease
(D) Polymerase
Ans. B

57. The natural reservoir of phosphorus is
(A) Rocks
(B) Soil solution
(C) Detritus
(D) Atmosphere
Ans. A

58. The sequence of communities of primary succession in water is
(A) Phytoplanktons → Scrubs → Free floating hydrophytes → Rooted hydrophytes → Grasses → Trees.
(B) Phytoplanktons → Free floating hydrophytes → Rooted hydrophytes → Trees → scrubs.
(C) Free floating hydrophytes → Scrubs → Phytoplanktons → Rooted hydrophytes → Grasses → Trees
(D) Phytoplanktons → Rooted hydrophytes → Free floating hydrophytes → Reed swamps → Marsh meadows → Scrubs → Trees.
Ans. D

59. Match the type of adaptation given in List-I with their examples given in List-II. Select the option showing correct combination.

	List-1 (Types of adaptation)		List-II (Examples)
1.	Biochemical adaptation	p.	Desert lizards
2.	Behavioural adaptation	q.	Deep sea fishes
3.	Physiological adaptation	r.	Opuntia
4.	Morphological adaptation	s.	Kangaroo rats

(A) 1-q, 2-r, 3-s, 4-p
(B) 1-p, 2-q, 3-r, 4-s
(C) 1-q, 2-p, 3-s, 4-r
(D) 1-s, 2-r, 3-q, 4-p
Ans. C

60. The annual net primary productivity of the biosphere is approximately
(A) 170 billion tons
(B) 55 billion tons
(C) 170 million tons
(D) 55 million tons
Ans. A