



KCET Test–2023

PYQ

**Biology**

- Which of the following is abbreviated as ZIFT?
  - Zygote Intra Fallopian Tube
  - Zygote Intra Fallopian Transfer
  - Zygote Inter Fallopian Tube
  - Zygote Inter Fallopian Transfer
- An example for hormone releasing IUD is
  - Lippes's loop
  - LNG - 20
  - Implant
  - Multiload 375
- MTPs are considered relatively safe during
  - 180 days of pregnancy
  - Second trimester
  - First trimester
  - 24 weeks of pregnancy
- Which of the following statements is correct?
  - Sickle cell anaemia is a quantitative problem.
  - Thalassemia is a qualitative problem.
  - Female carrier for haemophilia may transmit the disease to sons.
  - Change in whole set of chromosomes is called aneuploidy.
- 'Gene-mapping' technology was developed by
  - Sturtevant
  - Tschemak
  - Mendel
  - Correns
- Find the correct statement.
  - Generally, a gene regulates a trait, but sometimes one gene has effect on multiple traits.
  - The trait AB-blood group of man is regulated by one dominant allele and another recessive allele. Hence it is co-dominant.
  - Both Statements (1) and (2) are correct.
  - Statement (1) is correct.
  - Both the Statements are wrong.
  - Statement (2) is correct.

- 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	Regeneration 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

- In one of the hybridisation experiments, a homozygous dominant parent and a homozygous recessive parent are crossed for a trait. (Plant shows Mendelian inheritance pattern)
  - Dominant parent trait appears in  $F_1$  generation and recessive parent trait appears in  $F_1$  and  $F_2$  generations.
  - Dominant parent trait appears in  $F_1$  generation and recessive parent trait appears in  $F_2$  generation.
  - Dominant parent trait appears in  $F_2$  generation and recessive parent trait appears only in  $F_1$  generation
  - Dominant parent trait appears in both  $F_1$  &  $F_2$  generations, recessive parent trait appears in only  $F_2$  generation.
- Histone proteins are positively charged because they are rich in basic amino acid residues
  - Arginine and Phenylalanine
  - Arginine and Alanine
  - Arginine and Proline
  - Arginine and Lysine



10. Eukaryotic genes are monoisotopic but they are split genes because
- Exons are interrupted by Introns.
  - They contain Exons only.
  - Introns are interrupted with Mutons.
  - They contain Introns only.
11. The Lac-Operon model was elucidated by
- Hershey and Chase
  - Watson and Crick
  - Jacob and Crick
  - Francois Jacob and Jaques Monad
12. Which of these is NOT an example for Adaptive radiation?
- Placental mammals
  - Darwin's finches
  - Long-necked Giraffe
  - Australian marsupials
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?
- 0.84
  - 0.4
  - 0.36
  - 0.48
14. Identify the symptoms of pneumonia.
- Constipation, Abdominal pain, cramps, blood clots
  - Difficulty in breathing, fever, chills, cough, headache
  - High fever, weakness, stomach pain, loss of appetite
  - Nasal congestion and discharge, cough, sore throat, headache
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16. The variety of Okra, Pusa Sawani is resistant to which of the following insect pests?
- Shoot & Fruit borer
  - Aphids
  - Cereal leaf beetle
  - Jassids
17. With respect to Inbreeding, which among the following is not true?
- It helps in elimination of less desirable genes.
  - Inbreeding decreases homozygosity.
  - It helps to evolve a pure line in an animal.
  - It helps in accumulation of superior genes.
18. Identify from the following a pair of better yielding semi dwarf varieties of rice developed in India.
- Jaya and Kalyan Sona
  - Jaya and Ratna
  - Kalyan Sona and Sonalika
  - Sonalika and Ratna
19. the following stage?
- 8-32 celled stage
  - 2-4 celled stage
  - 16-32 celled stage
  - 8-16 celled stage
20. Roquefort cheese is ripened by
- Virus
  - Bacterium
  - Yeast
  - Fungi
21. Four students were assigned a science project to find out the pollution levels of lakes in their surroundings. After analysing the quality of water samples, the BOD values were found as follows: Which among the following water samples is highly polluted?
- $\frac{6\text{mg}}{\text{L}}$
  - $\frac{0.6\text{mg}}{\text{L}}$
  - $\frac{0.16\text{mg}}{\text{L}}$
  - 0.06mg / L



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

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

- (A) Biolistics
- (B) Micro-injection
- (C) Use of disarmed pathogen vectors
- (D) Elution

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.

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 its water requirements through internal fat oxidation.

26. Generally, bears avoid winter by undergoing

- (A) Aestivation
- (B) Diapause
- (C) Migration
- (D) Hibernation

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

28. PCR is used for

- (A) DNA digestion
- (B) DNA isolation
- (C) DNA amplification
- (D) DNA ligation

29. The toxic heavy metals from various industries which cause water pollution, normally have a density

- (A) more than  $7.5 \text{ g/cm}^3$
- (B) more than  $5 \text{ g/cm}^3$
- (C) more than  $12.5 \text{ g/cm}^3$
- (D) more than  $15 \text{ g/cm}^3$

30. Identify the correct option showing the relative contribution of different greenhouse gases to the total global warming.

- (A) CFC - 6%,  $\text{CO}_2$  - 60%, Methane - 20%,  $\text{N}_2\text{O}$  - 14%
- (B) CFC - 14%,  $\text{CO}_2$  - 60%, Methane - 20%,  $\text{N}_2\text{O}$  - 6%
- (C) CFC - 14%,  $\text{CO}_2$  - 60%, Methane - 6%,  $\text{N}_2\text{O}$  - 20%



(D) CFC – 20%, CO<sub>2</sub> – 60%, Methane  
–14%, N<sub>2</sub>O – 6%

31. Microsporangium has 5 pollen mother cells, how many pollen grains would be produced by the flower?

- (A) 800 (B) 200  
(C) 1600 (D) 400

32. During transcription the DNA stand with 3' → 5' polarity of the structural gene always acts as a template because

- (A) Enzyme DNA dependent RNA polymerase always catalyse polymerisation in both the directions.  
(B) Enzyme DNA dependent RNA polymerase always catalyse the polymerisation 5' → 3' directions.  
(C) Nucleotides of DNA strand with 5' → 3' are transferred to mRNA .  
(D) Enzyme DNA dependent RNA polymerase always catalyse the polymerisation 3' → 5' directions.

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.

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.

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

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 bancroftian	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

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

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) p q s r  
(B) s r q p  
(C) q s p r  
(D) r p s q



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

(A)  $\overset{\text{♂}}{\underset{\text{♀}}{\text{O}}}, P_{3+3}, A_{3+3}, G_{(3)}$

(B)  $\overset{\text{♂}}{\underset{\text{♀}}{\text{O}}}, K_{(5)}, \overset{\text{C}}{\text{C}}_{(5)}, A_{5}, \underline{G}_{(2)}$

(C)  $\overset{\text{♂}}{\underset{\text{♀}}{\text{O}}}, K_{(5)}, C_{(5)}, A_{(9)+1}, G_1$

(D)  $\overset{\text{♂}}{\underset{\text{♀}}{\text{O}}}, K_{10}, C_{10}, A_{10}, \bar{G}_2$

40. 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

41. 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

42. 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

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

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

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

- (A) Bivalent  
(B) Pentavalent  
(C) Univalent  
(D) Triad

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

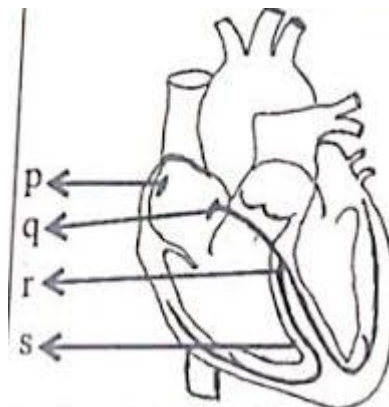
47. Toxicity of which micronutrient induces deficiency of iron, magnesium and calcium?

- (A) Manganese (B) Zinc  
(C) Boron (D) Molybdenum



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) 5.04Lit / hour  
 (C) 50.40Lit / hour (D) 30.24Lit / hour
49. Function of contractile vacuole in Amoeba is  
 (A) Osmoregulation and movements  
 (B) Excretion and osmoregulation  
 (C) Digestion and excretion  
 (D) Digestion and respiration
50. Atrial Natriuretic Factor (ANF) acts as a  
 (A) Vasoconstrictor  
 (B) Check on Renin-Angio tension mechanism  
 (C) Hypertension inducer  
 (D) Promoter on Renin-Angiotensiion mechanism
51. The vibrations from the ear drum are transmitted through ear ossicles to  
 (A) Tectorial membrane  
 (B) Cochlea  
 (C) Auditory nerves  
 (D) Oval window
52. Bamboo species flowers  
 (A) Once in lifetime  
 (B) Every year  
 (C) Twice in 50-100 years  
 (D) Once in 12 years
53. In Bryophyllum, the adventitious buds arise from  
 (A) Shoot apex  
 (B) Leaf axil  
 (C) Leaf base  
 (D) Notches in the leaf margin
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

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-Interventricular septum, s-AVN  
 (B) p-SAN, q-AV N, r-Bundle of His, s-Interventricular septum  
 (C) p-Interventricular septm, q-AVN, r-Bundle of His, s-SAN  
 (D) p-AVN, q-SAN, r-Interventricular septum, s-Bundle of His
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
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 correct  
 (B) Statement 1 is correct and Statement 2 is wrong  
 (C) Both Statement 1 and Statement 2 are wrong  
 (D) Both Statement 1 and Statement 2 are correct



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

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	Contain 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

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