

VAGUS NEET ACADEMY, TUMKUR

BIOLOGY KCET 2020 (VERSION CODE D-4) KEY

- Injection of an antidote against snakebite is an example of
(A) Auto immunity (B) Innate immunity (C) Active immunity (D) Passive immunity
Ans (D)
- Certain tumours are called malignant, because
(A) They are not neoplastic.
(B) They are confined to specific locations.
(C) They invade and damage surrounding tissues.
(D) They show contact inhibition.
Ans (C)
- The transport of which neurotransmitter is interfered by cocaine?
(A) Dopamine (B) Acetylcholine (C) Serotonin (D) GABA
Ans (A)
- In the life cycle of plasmodium, fertilization takes place in
(A) Liver cells (B) Salivary glands of mosquito
(C) RBCs of humans (D) Stomach of mosquito
Ans (D)
- White rust resistant variety of Brassica is
(A) Pusa Komal (B) Pusa Sadabahar (C) Pusa Swarnim (D) Pusa Shubhra
Ans (C)
- Which of the following plant tissues cannot be used as explant in tissue culture?
(A) Collenchyma (B) Meristem (C) Parenchyma (D) Sclerenchyma
Ans (D)
- The hybridization between naturally incompatible plants like Potato and Tomato can be achieved through
(A) Mutation breeding (B) Artificial pollination
(C) Somatic hybridization (D) Conventional breeding
Ans (C)
- A chilly plant was severely infected with Chilly Mosaic Virus (CMV). Identify the technique that helps to raise virus free plants in the next generation from the above virus infected plant.
(A) Hydroponics (B) Artificial hybridization
(C) Meristem culture (D) Self pollination
Ans (C)
- In sewage treatment, secondary treatment is considered highly significant, because
(A) It increases the organic content of sewage. (B) It helps to remove debris from the sewage.
(C) It reduces the BOD level of sewage. (D) It helps in the production of biogas.
Ans (C)

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10. Ruminant animals can digest cellulose in their food, where as human beings are unable to do so. This is because
- (A) Methanogens are absent in human gut. (B) Methanogens are present in human gut.
 (C) Cellulose is a complex sugar. (D) Cellulose reduces the bulk of food.

Ans (A)

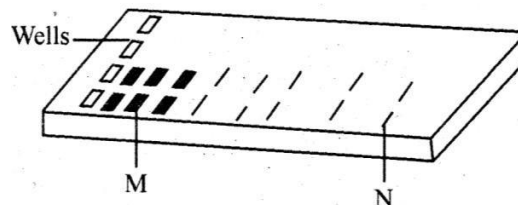
11. From the given combinations of steps in PCR, identify the enzyme dependent step/s.
- (A) Extension only (B) Annealing and extension
 (C) Annealing and denaturation (D) Denaturation and extension

Ans (A)

12. Biolistics method is suitable for gene transfer into _____
- (A) Plant cells (B) Viruses (C) Animal cells (D) Bacteria

Ans (A)

13. Identify the labels M and N in the following Agarose gel electrophoresis representation.



- (A) M - Smallest DNA bands, N - Largest DNA bands
 (B) M - Digested DNA bands, N - Undigested DNA bands
 (C) M - Hybridized DNA bands, N - Unhybridized DNA bands
 (D) M - Largest DNA bands, N - Smallest DNA bands

Ans (D)

14. In RNA interference, the dsRNA molecule prevents _____
- (A) aminoacylation
 (B) transcription of mRNA
 (C) transport of RNA from nucleus to cytoplasm
 (D) translation of mRNA

Ans (D)

15. Now-a-days, the early diagnosis of bacterial or viral infection in humans is possible using
- (A) CT Scan (B) Serum analyzer (C) DNA sequencer (D) PCR

Ans (D)

16. Which of the following features of plants is not helpful in adapting to desert life?
- (A) Absence of trichomes on leaf surface (B) Presence of thick cuticle on the leaf surface
 (C) Leaves modified into spines (D) Presence of sunken stomata

Ans (A)

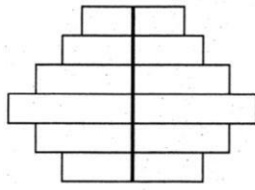
17. In the following equation of Verhulst-Pearl logistic growth, the letter 'r' denotes _____

$$\frac{dN}{dt} = rN \left(\frac{K - N}{K} \right)$$

- (A) Population density (B) Extrinsic rate of natural increase
 (C) Intrinsic rate of natural increase (D) Carrying capacity

Ans (C)

18. The shape of the pyramids reflects the growth status of the population. Identify the type of age pyramid represented below for human population.



- (A) Declining (B) Ascending (C) Expanding (D) Stable

Ans (A)

19. Identify the possible link 'M' in the following food chain:

Plant → Insect → M → Snake → Eagle

- (A) Ichthyophis (B) Rabbit (C) Wolf (D) Frog

Ans (D)

20. The organisms which invade a bare area to initiate an ecological succession are known as

- (A) Pioneer species (B) Key stone species
(C) Climatic species (D) Endemic species

Ans (A)

21. Which one of the following is not included under *in-situ* conservation?

- (A) Biosphere Reserve (B) National Park
(C) Sanctuary (D) Botanical Garden

Ans (D)

22. Which one of the following is a wrong statement?

- (A) Ozone in upper part of the atmosphere is harmful to animals.
(B) Most of the forests have been lost in tropical areas.
(C) Green house effect is a natural phenomenon.
(D) Eutrophication is a natural phenomenon in fresh water lakes.

Ans (A)

23. According to Supreme Court of India, ruling with respect to 'Bharat Stage VI' Norms, from which date, these are supposed to be implemented in the country?

- (A) 10th December, 2020 (B) 1st April, 2020
(C) 1st June, 2021 (D) 1st January, 2021

Ans (B)

24. Match the following classes of Fungi (Column-I) with the examples (Column-II).

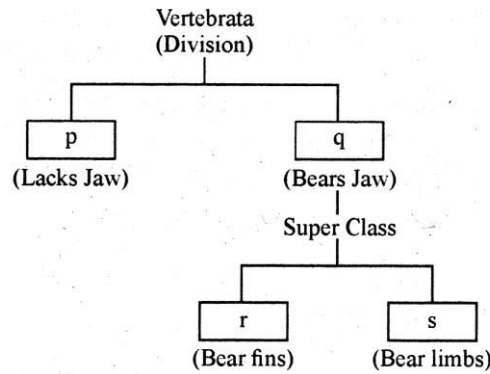
Column I		Column II	
(1)	Phycomycetes	(p)	Penicillium
(2)	Ascomycetes	(q)	Alternaria
(3)	Basidiomycetes	(r)	Albugo
(4)	Deuteromycetes	(s)	Puccinia

Choose the correct option:

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

Ans (A)

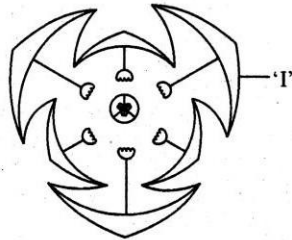
25. Observe the following simplified scheme and choose the correct option that matches with the letters given in the boxes.



- (A) p - Agnatha, q - Gnathostomata, r - Tetrapoda, s - Pisces
- (B) p - Agnatha, q - Gnathostomata, r - Pisces, s - Tetrapoda
- (C) p - Gnathostomata, q - Agnatha, r - Tetrapoda, s - Pisces
- (D) p - Tetrapoda, q - Pisces, r - Gnathostomata, s - Agnatha

Ans (B)

26. Identify the floral unit 'I' in the given floral diagram.



- (A) Perianth
- (B) Sepal
- (C) Petal
- (D) Tepal

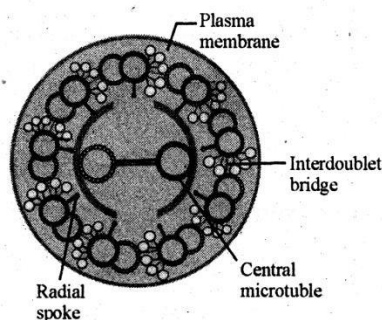
Ans (D)

27. A student observes grass and Hibiscus plants in his garden during noon. To his surprise, only the leaves of grass were found rolled inwards. The reason could be

- (A) Due to higher rate of transpiration
- (B) Presence of more number of stomata on the grass leaves.
- (C) Undifferentiated mesophyll in grass leaves.
- (D) Presence of Bulliform cells in the grass leaves.

Ans (D)

28. In the below diagram, identify the part which connects the peripheral microtubules to the central sheath.



- (A) Radial spoke
- (B) Plasma membrane
- (C) Interdoublet bridge
- (D) Central microtubule

Ans (A)

29. The element whose percentage weight is highest in both earth's crust and human body is
 (A) Calcium (B) Hydrogen (C) Carbon (D) Oxygen
Ans (D)
30. Identify the event in meiosis mediated by the enzyme recombinase.
 (A) Interkinesis (B) Synaptic pairing (C) Terminalization (D) Crossing Over
Ans (D)
31. The deficiency of which of these elements interrupts photolysis of water during photosynthesis?
 (A) N and P (B) Mn and Cl (C) Zn and Cu (D) Ca and K
Ans (B)
32. In C_4 plants, C_3 cycle takes place in
 (A) Bundle sheath cells (B) Mesophyll cells
 (C) Bulliform cells (D) Companion cells
Ans (A)
33. During Citric Acid cycle, the various organic acid undergo decarboxylation. Which of the following organic acids of the above cycle have 4C, 5C and 6C respectively?
 (A) Pyruvic acid, α -Ketoglutaric acid and Citric acid
 (B) Oxaloacetic acid, Citric acid and Succinic acid
 (C) Succinic acid, α -Ketoglutaric acid and citric acid.
 (D) Pyruvic acid, Malic acid and α -Ketoglutaric acid.
Ans (C)
34. Consider the following statements regarding photosynthesis and respiration in plants and select the correct option.
 I. RuBisCO has high affinity to oxygen in low CO_2 concentration.
 II. The Calvin pathway occurs in the chloroplast of bundle sheath cells of C_4 plants.
 III. Yeast poison themselves when the concentration of alcohol reaches 7%.
 IV. Oxygen is a final hydrogen acceptor during aerobic respiration.
 (A) Statements I & IV are correct, III is wrong.
 (B) Statements II & IV are correct, I is wrong.
 (C) Statements I & II are correct, IV is wrong.
 (D) Statements I & III are correct, II is wrong.
Ans (A)
35. Match the digestive glands given in Column-I with their respective enzymes given in Column-II and choose the correct combination from the given options.

Column I		Column II	
(1)	Pancreas	(p)	Pepsin
(2)	Gastric glands	(q)	Enterokinase
(3)	Small intestine	(r)	Ptyalin
(4)	Salivary glands	(s)	Trypsin

Choose the correct option:

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

Ans (C)

36. Match the different types of Leucocytes (Column-I) with their percentage of occurrence (Column-II) in a healthy adult human and choose the correct answer.

Column I		Column II	
(1)	Neutrophils	(p)	6 - 8%
(2)	Lymphocytes	(q)	60 - 65%
(3)	Monocytes	(r)	0.5 - 1%
(4)	Basophils	(s)	2 - 3%
(5)	Eosinophils	(t)	20 - 25%

Choose the correct option:

- (A) (1) - (q), (2) - (t), (3) - (p), (4) - (r), (5) - (s)
 (B) (1) - (q), (2) - (r), (3) - (s), (4) - (t), (5) - (p)
 (C) (1) - (r), (2) - (s), (3) - (t), (4) - (q), (5) - (p)
 (D) (1) - (q), (2) - (t), (3) - (r), (4) - (s), (5) - (p)

Ans (A)

37. In which part of the human brain corpora quadrigemina is located?

- (A) Cerebral hemisphere (B) Forebrain
 (C) Hindbrain (D) Midbrain

Ans (D)

38. A girl after attaining sexual maturity shows development of growing ovarian follicles, development of mammary glands and high pitch of voice. These changes are attributed to _____ hormones.

- (A) Androgens (B) Melatonin (C) Estrogens (D) Progesterone

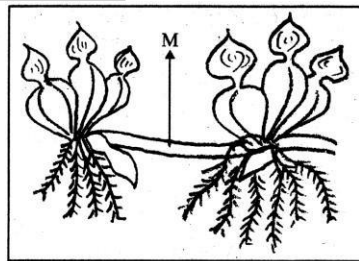
Ans (C)

39. In apple, the chromosome number of gametes is 17. What is the chromosome number in its Primary Endosperm Nucleus (PEN)?

- (A) 51 (B) 34 (C) 68 (D) 17

Ans (A)

40. Identify the vegetative propagule 'M' in the following diagram:



- (A) Runner (B) Bulbil (C) Offset (D) Rhizome

Ans (C)

41. During an excavation of soil, Pollen fossils were retrieved from deepest layer of soil. The pollen grains remained as fossils because

- (A) Pollen grains are asexual reproductive structures.
 (B) The intine of pollen grains is made up of pectin.
 (C) Exine has spiny Ornamentation.
 (D) The exine of pollen grains is highly resistant to enzyme action.

Ans (D)

42. Identify the mismatch.

- (A) Primary Endosperm Nucleus - Triploid (B) Antipodals - Haploid
(C) Zygote - Diploid (D) Synergids - Diploid

Ans (D)

43. Identify the correct order of events in pollen-pistil interaction from the options given below:

- I. Release of male gametes into the embryo sac.
II. Deposition of pollen grains on stigma.
III. Entry of pollen tube into embryo sac.
IV. Development of pollen tube
V. Entry of pollen tube into the ovule.
- (A) V → IV → III → II → I (B) IV → III → II → I → V
(C) II → IV → V → III → I (D) II → IV → III → V → I

Ans (C)

44. Match the months listed in Column-I with the organogenesis of foetus in Column-II.

Column - I		Column - II	
(i)	First month	(a)	Separation of eye lids
(ii)	Second month	(b)	Hairs on head
(iii)	Fifth month	(c)	Heart
(iv)	Six month	(d)	Limbs and digits

- (i) (ii) (iii) (iv)
- (A) (c) (d) (b) (a)
(B) (c) (d) (a) (b)
(C) (b) (c) (d) (a)
(D) (d) (b) (c) (a)

Ans (A)

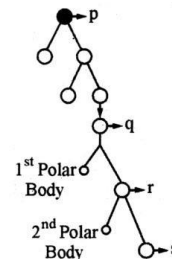
45. When the fallopian tube is blocked at ampullary region, the ovum fails to move from

- (A) Infundibulum to Isthmus (B) Isthmus to infundibulum
(C) Ovary to ampulla (D) Isthmus to Uterus

Ans (A)

46. Identify the cells represented as p, q, r and s in the schematic representation of Oogenesis, shown below and choose the correct option.

- (A) p - Oogonia, q - Primary oocyte, r - Secondary oocyte, s - Ovum
(B) p - Ovum, q - Oogonia, r - Primary oocyte, s - Secondary oocyte
(C) p - Secondary oocyte, q - Primary oocyte, r - Ovum, s - Oogonia
(D) p - Ovum, q - Secondary oocyte, r - Primary oocyte, s - Ovum



Ans (A)

47. Which of the following contraceptives could be effective in avoiding pregnancy if used within 72 hours after casual unprotected intercourse?

- (A) Progestogen – Estrogen combination (B) Androgen – FSH combination
(C) Testosterone – Relaxin combination (D) Relaxin – Oxytocin combination

Ans (A)

48. Choose the correct statement regarding the GIFT (Gamete Intrafallopian Tube Transfer) procedure.
- (A) Ova are collected from a female donor and are transferred to the uterus of recipient.
 (B) Ova collected from a female donor are transferred to the fallopian tube to facilitate zygote formation in the recipient.
 (C) Zygote is collected from female donor and transferred to the fallopian tube of recipient.
 (D) Zygote is collected from a female donor and transferred to the uterus of recipient.
- Ans (B)**
49. Which of the following characters was not studied by Mendel in his Pea plant experiments?
- (A) Leaf shape (B) Stem height (C) Pod shape (D) Seed shape
- Ans (A)**
50. In an Organism, mutation in a single gene exhibits multiple phenotypic expressions. Identify the underlying genetic mechanism in the above instance.
- (A) Multiple allelism (B) Pleiotropy
 (C) Incomplete dominance (D) Polygenic inheritance
- Ans (B)**
51. A pure breeding pea plant with round yellow seeds was crossed with pea plant having wrinkled green seeds. On selfing of F₁ hybrid of his cross, 64 progenies were obtained in F₂ generation. Find out the number of F₂ progenies showing non-parental characters.
- (A) 24 (B) 36 (C) 4 (D) 12
- Ans (A)**
52. A man with blood group A marries a woman having blood group B. The maximum possible blood groups among their progenies are
- (A) A, B, AB, O (B) AB only (C) A, B, AB (D) A, B
- Ans (A)**
53. The length of DNA helix in a typical nucleosome is
- (A) 6.6×10^9 bp (B) 200 bp (C) 1000 bp (D) 3.2×10^6 bp
- Ans (B)**
54. Which of the following types of RNA carries amino acids towards ribosome during translation?
- (A) mRNA (B) rRNA (C) dsRNA (D) tRNA
- Ans (D)**
55. In eukaryotes, the entire base sequence of a gene do not appear in mature RNA because
- (A) Some gene sequences are removed by exonuclease.
 (B) Transcription in eukaryotes consumes more energy.
 (C) Coding sequences are removed during processing.
 (D) Introns are removed during processing.
- Ans (D)**
56. Suppose DNA samples collected for DNA fingerprinting analysis are less than the required quantity. Which of the following techniques is helpful to make the samples sufficient for above analysis?
- (A) DNA probing (B) Electrophoresis
 (C) Chromatography (D) PCR
- Ans (D)**

57. When *Escherichia coli* cells are cultured in a medium where Lactose is absent, the 'i' gene of *Lac Operon* continues to produce repressor mRNA, because it is
- (A) a structural gene. (B) a non-coding gene.
(C) an operator gene. (D) a constitutive gene.

Ans (D)

58. For the given sequence of DNA, identify the complementary sequence of bases on its mRNA from the options given below:

DNA 3' – ATGCATGCATGC – 5'

- (A) 5' – GCATGCATGCAT – 3' (B) 5' – UACGUACGUACG – 3'
(C) 5' – TACGTACGTACG – 3' (D) 3' – UACGUACGUACG – 5'

Ans (B)

59. Which among the following was the biggest land dinosaur?

- (A) Triceratops (B) Stegosaurus
(C) Tyrannosaurus rex (D) Brachiosaurus

Ans (C)

60. In a population of plants, some were extremely tall and the remaining were extremely dwarf. No plants of the population showed intermediate height. The type of operation of natural selection in the above case is

- (A) Disruptive (B) Balancing
(C) Directional (D) Stabilizing

Ans (A)

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