

KCET - 2020

ZOOLOGY

Q1 Injection of an antidote against snakebite is an example of
 (A) auto immunity
 (B) innate immunity
 (C) active immunity
 (D) passive immunity

Q2 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

Q3 The transport of which neurotransmitter is interfered by cocaine?
 (A) Dopamine (B) Acetylcholine
 (C) Serotonin (D) GABA

Q4 In the life cycle of Plasmodium, fertilisation takes place in
 (A) liver cells
 (B) salivary glands of mosquito
 (C) RBCs of humans
 (D) stomach of mosquito

Q5 Which of the following plant tissues cannot be used as explant in tissue culture?
 (A) Collenchyma (B) Meristem
 (C) Parenchyma (D) Sclerenchyma

Q6 The hybridisation between naturally incompatible plants like potato and tomato can be achieved through
 (A) mutation breeding
 (B) artificial pollination
 (C) somatic hybridisation
 (D) conventional breeding

Q7 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 hybridisation
 (C) Meristem culture
 (D) Self-pollination

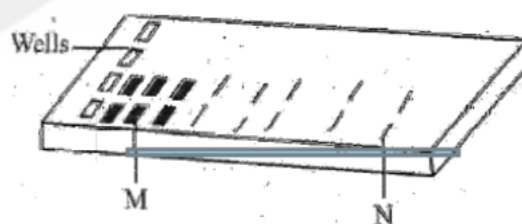
Q8 From the given combinations of steps in PCR, identify the enzyme dependent step.

- (A) Extension only
 (B) Annealing and extension
 (C) Annealing and denaturation
 (D) Denaturation and extension

Q9 Biolistics method is suitable for gene transfer into _____

- (A) Plant cells (B) Viruses
 (C) Animal cells (D) Bacteria

Q10 Identify the labels M and N in the following agarose gel electrophoresis representation



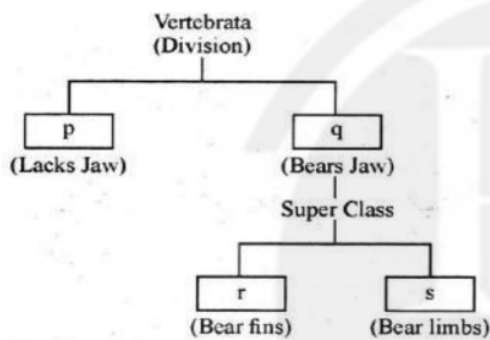
- (A) M – smallest DNA bands, N – Largest DNA bands
 (B) M – Digested DNA bands, N – Undigested DNA bands
 (C) M – Hybridised DNA bands, N – Unhybridised DNA bands
 (D) M – Largest DNA bands, N – smallest DNA bands



- Q11** 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

- Q12** Now – a – days, the early diagnosis of bacterial or viral infection in humans is possible using
- (A) CT scan (B) Serum analyser
(C) DNA sequencer (D) PCR

- Q13** Observe the following simplified scheme and choose the correct option that matches with the letter given in the boxes



- (A) 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 - Tetrapodam q - Pisces, r - Gnathostomata, s - Agnatha
- Q14** The element whose percentage weight is highest in both Earth's crust and human body is
- (A) Calcium (B) Hydrogen
(C) Carbon (D) Oxygen

- Q15** 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)
- Q16** 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%

- (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)
- Q17** In which part of the human of the human brain corpora quadrigemina is located?
- (A) Cerebral hemisphere
(B) Forebrain
(C) Hindbrain
(D) Midbrain

- Q18** 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



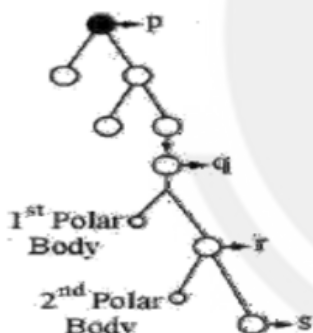
- Q19** Match the months listed in column – I with the organogenesis of foetus in Column – II

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

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

- Q20** 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

- Q21** Identify the cells represents 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

- Q22** 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

- Q23** 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 a 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

- Q24** 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

- Q25** Which among the following was the biggest land dinosaur?
 (A) Triceratops
 (B) Stegosaurus
 (C) Tyrannosaurus rex
 (D) Brachiosaurus



Q26 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

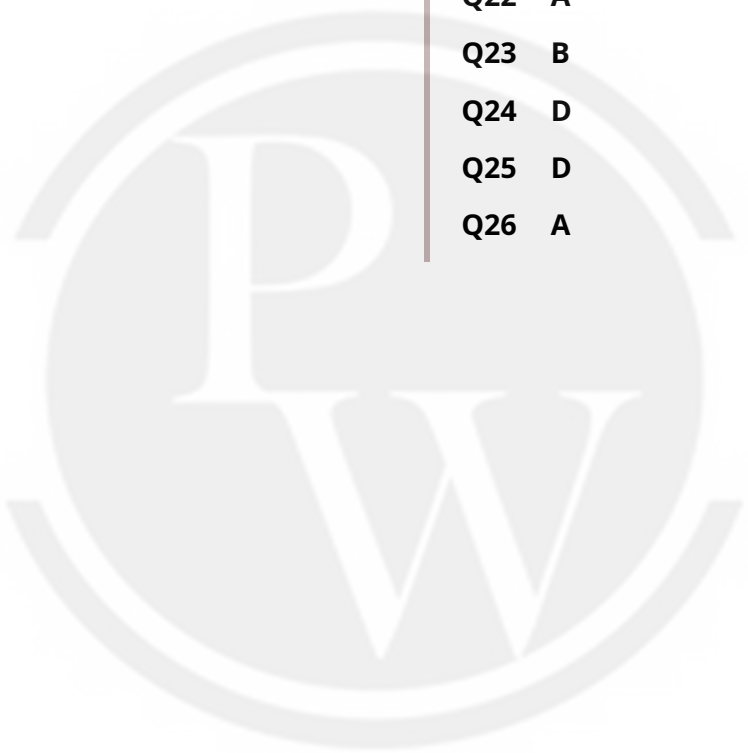
- (A) Disruptive (B) Balancing
(C) Directional (D) Stabilizing



Answer Key

Q1 D
Q2 C
Q3 A
Q4 D
Q5 D
Q6 C
Q7 C
Q8 A
Q9 A
Q10 D
Q11 D
Q12 D
Q13 B

Q14 D
Q15 C
Q16 A
Q17 D
Q18 C
Q19 A
Q20 A
Q21 A
Q22 A
Q23 B
Q24 D
Q25 D
Q26 A



Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Text Solution:

1. Antibodies are directly injected into the body.
2. Protection is immediate but temporary.
3. Antibodies are produced outside the body.
4. No memory cells are formed.
5. Snake antivenom contains preformed antibodies

Q2 Text Solution:

1. Malignant tumours grow rapidly.
2. They spread to nearby tissues.
3. Cells show uncontrolled division.
4. They may metastasize to distant organs.
5. They damage normal body tissues.

Q3 Text Solution:

1. Cocaine affects dopamine transporters.
2. Dopamine accumulates in synapse.
3. It stimulates reward pathways.
4. Causes temporary euphoria.
5. Leads to addiction and dependence.

Q4 Text Solution:

1. Gametocytes enter mosquito during bite.
2. Male and female gametes are formed.
3. Fusion occurs inside mosquito gut.
4. Zygote develops into ookinete.
5. Sexual reproduction occurs in mosquito.

Q5 Text Solution:

1. Explants require living cells.
2. Sclerenchyma cells are dead.
3. Dead cells cannot divide.
4. Meristematic tissues divide actively.
5. Parenchyma can regenerate plants

Q6 Text Solution:

1. Cell walls are removed enzymatically.
2. Naked protoplasts are fused.
3. Hybrid cells are produced artificially.
4. Overcomes sexual incompatibility.
5. Used in crop improvement.

Q7 Text Solution:

1. Meristem is free from viruses.
2. Apical cells divide rapidly.
3. Virus spread is limited there.
4. Tissue culture develops healthy plants.
5. Commonly used in horticulture.

Q8 Text Solution:

1. DNA polymerase works in extension step.
2. Nucleotides are added to primer end.
3. Complementary DNA strand is synthesized.
4. Annealing needs no enzyme.
5. Denaturation occurs by heating

Q9 Text Solution:

1. DNA coated particles are used.
2. Gold or tungsten particles carry DNA.
3. Particles are shot into cells.
4. Commonly used in plants.
5. Enables genetic transformation



Q10 Text Solution:

1. DNA moves towards anode.
2. Smaller fragments move faster.
3. Larger fragments remain near wells.
4. Agarose acts as molecular sieve.
5. Separation depends on fragment size.

Q11 Text Solution:

1. dsRNA binds complementary mRNA.
2. mRNA gets degraded.
3. Protein synthesis is blocked.
4. Expression of gene is suppressed.
5. Used in pest resistance studies

Q12 Text Solution:

1. PCR amplifies target DNA.
2. Detects pathogen at early stage.
3. Requires very little sample.
4. Highly sensitive technique.
5. Widely used in diagnosis.

Q13 Text Solution:

1. Agnatha lack jaws.
2. Gnathostomata possess jaws.
3. Pisces are aquatic vertebrates.
4. Tetrapods possess four limbs.
5. Classification based on characters.

Q14 Text Solution:

1. Oxygen abundant in crust.
2. Major component of water.
3. Essential for respiration.
4. Present in biomolecules.
5. Most abundant body element

Q15 Text Solution:

1. Pancreas secretes trypsin.
2. Gastric glands produce pepsin.
3. Small intestine secretes enterokinase.
4. Salivary glands produce ptyalin.
5. Enzymes aid digestion of food.

Q16 Text Solution:

1. Neutrophils are most abundant.
2. Lymphocytes form immune response.
3. Monocytes become macrophages.
4. Basophils release histamine.
5. Eosinophils fight allergies.

Q17 Text Solution:

1. Midbrain lies between forebrain and hindbrain.
2. Corpora quadrigemina has four lobes.
3. Controls visual reflexes.
4. Controls auditory reflexes.
5. Part of central nervous system.

Q18 Text Solution:

1. Estrogen develops secondary sex characters.
2. Promotes follicle growth.
3. Mammary glands enlarge.
4. Voice becomes high pitched.
5. Secreted by ovaries.

Q19 Text Solution:

1. Heart forms in first month.
2. Limbs develop in second month.
3. Hair appears in fifth month.
4. Eyelids separate in sixth month.
5. Organogenesis occurs gradually.



Q20 Text Solution:

1. Ampulla lies between regions.
2. Ovum enters infundibulum first.
3. Movement occurs towards uterus.
4. Fertilization usually occurs in ampulla.
5. Blockage prevents transport

Q21 Text Solution:

1. Oogonia divide mitotically.
2. Primary oocyte enters meiosis-I.
3. Secondary oocyte forms after meiosis-I.
4. Ovum forms after meiosis-II.
5. Polar bodies are produced.

Q22 Text Solution:

1. Used after unprotected intercourse.
2. Prevents implantation or ovulation.
3. Effective within 72 hours.
4. Hormonal pills are commonly used.
5. Reduces chances of pregnancy.

Q23 Text Solution:

1. Gametes are transferred into tube.
2. Fertilization occurs inside body.
3. Useful in infertility treatment.
4. Requires healthy fallopian tube.
5. Involves assisted reproductive technology.

Q24 Text Solution:

1. PCR produces many DNA copies.
2. Requires small initial sample.
3. Used in fingerprinting.
4. Rapid and sensitive technique.
5. Helps forensic analysis

Q25 Text Solution:

1. Brachiosaurus was gigantic herbivore.
2. Had very long neck.
3. Lived during Jurassic period.
4. One of largest land animals.
5. Belonged to reptiles.

Q26 Text Solution:

1. Both extreme traits are favored.
2. Intermediate forms are selected against.
3. Population splits into groups.
4. Increases variation in population.
5. May lead to speciation

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