

KCET - 2023

ZOOLOGY

Q1 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

Q2 An example for hormone releasing IUD is

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

Q3 MTPs are considered relatively safe during

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

Q4 From the following table, select the option that correctly characterizes various phases of menstrual cycle :

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



- Q5** Which of these is NOT an example for Adaptive radiation?
 (A) Placental mammals
 (B) Darwin's finches
 (C) Long-necked Giraffe
 (D) Australian marsupials
- Q6** 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
- Q7** 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
- Q8** 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
- Q9** 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
- Q10** 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
- Q11** 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
- Q12** Select the correct statement from the following:
 (A) The first step in PCR is heating which is used to separate both the strands of DNA
 (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
- Q13** 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
- Q14** Generally, bears avoid winter by undergoing
 (A) Aestivation (B) Diapause
 (C) Migration (D) Hibernation
- Q15** PCR is used for
 (A) DNA digestion
 (B) DNA isolation
 (C) DNA amplification
 (D) DNA ligation



Q16 Find out the correct match.

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

Q17 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

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

Q18 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

Q19 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



- Q20** 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

- Q21** 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, 4-s
 (C) 1-s, 2-p, 3-r, 4-p
 (D) 1-s, 2-q, 3-r, 4-p

- Q22** 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 L/hour (B) 5.04 L/hour
 (C) 50.40 L/hour (D) 30.24 L/hour

- Q23** Function of contractile vacuole in Amoeba is

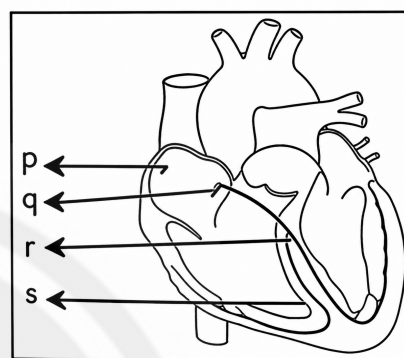
- (A) Osmoregulation and movements
 (B) Excretion and osmoregulation
 (C) Digestion and excretion
 (D) Digestion and respiration

- Q24** Atrial Natriuretic Factor (ANF) acts as a

- (A) Vasoconstrictor
 (B) Check on Renin-Angiotension mechanism
 (C) Hypertension inducer
 (D) Promoter on Renin-Angiotension mechanism

- Q25** The vibrations from the ear drum are transmitted through ear ossicles to
 (A) Tectorial membrane
 (B) Cochlea
 (C) Auditory nerves
 (D) Oval window

- Q26** 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-AVN, r-Bundle of His, s-Interventricular septum
 (C) p-Interventricular septum, q-AVN, r-Bundle of His, s-SAN
 (D) p-AVN, q-SAN, r-Interventricular septum, s-Bundle of His

- Q27** 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



Q28 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

Q29 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

Q30 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 mobility
4. Tail	s. Contains haploid nucleus

Choose the correct option from the following:

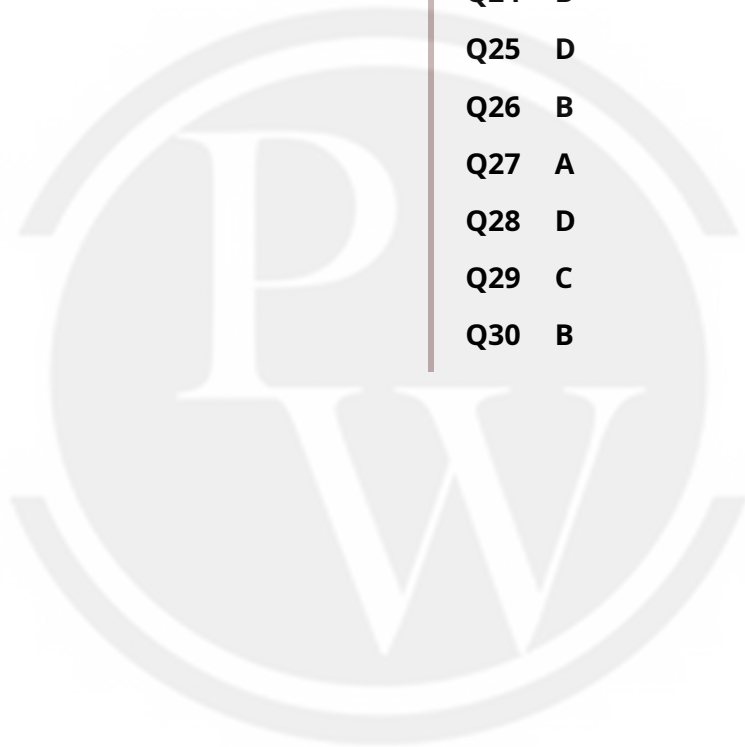
- (A) 1-q, 2-s, 3-r, 4-p
- (B) 1-s, 2-p, 3-q, 4-r
- (C) 1-r, 2-q, 3-s, 4-p
- (D) 1-s, 2-r, 3-n. 4-q



Answer Key

Q1 B
Q2 B
Q3 C
Q4 A
Q5 C
Q6 D
Q7 B
Q8 B
Q9 A
Q10 A
Q11 D
Q12 A
Q13 C
Q14 D
Q15 C

Q16 B
Q17 D
Q18 D
Q19 D
Q20 C
Q21 A
Q22 A
Q23 B
Q24 B
Q25 D
Q26 B
Q27 A
Q28 D
Q29 C
Q30 B



Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Text Solution:

Answer: (B) Zygote Intra Fallopian Transfer (ZIFT)

Explanation:

ZIFT is an Assisted Reproductive Technology (ART) in which a zygote or early embryo (up to 8 blastomeres) formed by IVF is transferred into the fallopian tube. Fertilization occurs outside the body, while further development takes place naturally inside the female reproductive tract.

Q2 Text Solution:

Answer: (B) LNG-20

Explanation:

LNG-20 is a hormone-releasing intrauterine device (IUD) that continuously releases levonorgestrel. It thickens cervical mucus, suppresses endometrial growth, and may inhibit ovulation, thereby preventing pregnancy.

Q3 Text Solution:

Answer: (C) First trimester

Explanation:

Medical Termination of Pregnancy (MTP) is considered safest during the first trimester (up to 12 weeks). At this stage, complications such as excessive bleeding and infection are minimal compared to later stages of pregnancy.

Q4 Text Solution:

Answer: (A)

Explanation:

The menstrual cycle consists of menstrual, follicular and luteal phases. Menstruation involves shedding of the endometrium, the follicular phase ends with the LH surge that causes ovulation, and the luteal phase maintains the endometrium under the influence of progesterone.

Q5 Text Solution:

(C) Long-necked Giraffe

Explanation:

Adaptive radiation refers to the evolution of many species from a common ancestor to occupy different ecological niches. Darwin's finches, Australian marsupials and placental mammals are examples, whereas the long neck of giraffe is simply an adaptive trait.

Q6 Text Solution:

Answer: (D) 0.48

Explanation:

According to the Hardy-Weinberg principle, $q^2 = 0.16$, so $q = 0.4$ and $p = 0.6$. Therefore, the heterozygous frequency is $2pq = 2 \times 0.6 \times 0.4 = 0.48$.

Q7 Text Solution:

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

Explanation:

Pneumonia is a bacterial or viral infection of the alveoli. The air sacs become inflamed and filled with fluid, resulting in fever, cough, chills, chest discomfort and difficulty in breathing.

Q8 Text Solution:

Answer: (B) Inbreeding decreases homozygosity

Explanation:

Inbreeding actually **increases homozygosity**, bringing similar alleles together. It helps identify and eliminate harmful recessive genes and is also used to develop pure lines in animal breeding.



Q9 Text Solution:**Answer: (A) 8 – 32 celled stage****Explanation:**

In Multiple Ovulation Embryo Transfer (MOET), embryos are collected when they reach the 8–32 cell stage. These embryos are then transferred into surrogate mothers for further development.

Q10 Text Solution:**Answer: (A) Malaria****Explanation:**

The malaria parasite digests haemoglobin inside red blood cells and produces a toxic pigment called haemozoin. When infected RBCs rupture, haemozoin is released into the blood, causing recurring fever and chills.

Q11 Text Solution:**Answer: (D) Elution****Explanation:**

Elution is a laboratory technique used to recover DNA fragments from agarose gel after electrophoresis. It is not used to make host cells competent for DNA uptake, unlike microinjection, biolistics or vector-mediated transfer

Q12 Text Solution:**Answer: (A)****Explanation:**

The first step of PCR is **denaturation**, in which DNA is heated to about 94–95°C. This separates the two complementary strands, allowing primers to bind during the next step.

Q13 Text Solution:**Answer: (C) Eliminates dilute urine****Explanation:**

Kangaroo rats are desert animals that conserve water efficiently. They produce highly concentrated urine and obtain most of their water from oxidation of stored fats, making the statement about dilute urine incorrect.

Q14 Text Solution:**Answer: (D) Hibernation****Explanation:**

During winter, bears undergo hibernation, a state of prolonged inactivity in which body temperature, heart rate and metabolic activity decrease, helping conserve energy when food is scarce.

Q15 Text Solution:**Answer: (C) DNA amplification****Explanation:**

PCR (Polymerase Chain Reaction) is used to produce millions of copies of a specific DNA sequence within a few hours. It is widely used in medical diagnosis, forensic science and genetic research.

Q16 Text Solution:**Answer: (B) Ringworm – Fungus – Skin****Explanation:**

Ringworm is caused by fungi belonging to genera such as *Microsporum* and *Trichophyton*. It is a superficial infection affecting the skin, nails or scalp.

Q17 Text Solution:**Answer: (D)****Explanation:**

Correct matching is:

- *Haemophilus influenzae* Pneumonia
- *Entamoeba histolytica* Amoebiasis
- *Plasmodium falciparum* Malignant malaria
- *Wuchereria bancrofti* Elephantiasis

Q18 Text Solution:**. Answer: (D)****Explanation:**

Cloning a bacterial gene into animal cells requires restriction endonucleases (DNA cutting), DNA ligase (joining DNA), microinjection (gene transfer), lysozyme (breaking bacterial cell wall) and electrophoresis (DNA separation).



Q19 Text Solution:**Answer: (D) Osmoregulation and Excretion****Explanation:**

Flame cells are specialized excretory structures of flatworms. They remove nitrogenous wastes and maintain water and ionic balance through osmoregulation.

Q20 Text Solution:**Answer: (C) Increasing the effective area of absorption****Explanation:**

Typhlosole is an internal fold of the intestinal wall in earthworms. It increases the absorptive surface area, thereby improving the efficiency of nutrient absorption.

Q21 Text Solution:**Answer: (A)****Explanation:**

Collagen forms the intercellular matrix of connective tissue, trypsin is a digestive enzyme, insulin is a hormone regulating blood glucose, and antibodies protect the body against pathogens.

Q22 Text Solution:**Answer: (A) 302.4 L/hour****Explanation:**

Cardiac output = Stroke volume $\times$ Heart rate = $70 \text{ mL} \times 72 \text{ beats/min} = 5040 \text{ mL/min} = 5.04 \text{ L/min}$. In one hour, cardiac output = $5.04 \times 60 = 302.4 \text{ L/hour}$.

Q23 Text Solution:**Answer: (B) Excretion and Osmoregulation****Explanation:**

The contractile vacuole periodically collects excess water and metabolic wastes and expels them outside the cell. This maintains osmotic balance in freshwater Amoeba.

Q24 Text Solution:**Answer: (B) Check on Renin-Angiotensin mechanism****Explanation:**

Atrial Natriuretic Factor (ANF) is released when blood pressure increases. It inhibits the renin-angiotensin-aldosterone system (RAAS), promoting sodium and water excretion and lowering blood pressure.

Q25 Text Solution:**Answer: (D) Oval window****Explanation:**

Sound vibrations travel from the tympanic membrane to the malleus, incus and stapes. The stapes transmits these vibrations to the oval window, which passes them into the cochlea.

Q26 Text Solution:**Answer: (B)****Explanation:**

The impulse generated at the sinoatrial node (SAN) passes to the atrioventricular node (AVN), then to the Bundle of His and finally through Purkinje fibres, coordinating ventricular contraction.

Q27 Text Solution:**Answer: (A) Clitoris****Explanation:**

The clitoris is a small erectile organ located at the upper junction of the labia minora above the urethral opening. It is rich in sensory nerve endings and is homologous to the penis.

Q28 Text Solution:**Answer: (D) Both statements are correct****Explanation:**

The hymen is not a reliable indicator of virginity because it can tear due to physical activity or remain intact after intercourse. The father determines the sex of the child because sperm contribute either an X or a Y chromosome



Q29 Text Solution:

Answer: (C) Rete testis, vasa efferentia, epididymis and vas deferens

Explanation:

These ducts transport sperm from the testes to the urethra. Seminal vesicles are accessory glands, not accessory ducts.

Q30 Text Solution:

Answer: (B)

Explanation:

The head contains the haploid nucleus, the acrosome contains enzymes required for fertilization, the middle piece is rich in mitochondria to provide ATP, and the tail is responsible for sperm motility.

[Android App](#)[iOS App](#)[PW Website](#)