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Answers & Solutions

Time : 45 min. *for* **M.M. : 200**

CUET UG-2023

(Biology)

IMPORTANT INSTRUCTIONS:

1. The test is of 45 Minutes duration.
2. The test contains 50 Questions out of which 40 questions need to be attempted.
3. Marking Scheme of the test:
   a. Correct answer or the most appropriate answer: Five marks (+5)
   b. Any incorrect option marked will be given minus one mark (–1).
   c. Unanswered/Marked for Review will be given no mark (0).

Choose the correct answer :

1. Which is known as 'Terror of Bengal'?

(1) Water Lilly

(2) *Hydrilla*

(3) Water hyacinth

(4) *Lantana*

Answer (3)

Sol. Water hyacinth is considered as 'Terror of Bengal' which is one of the most invasive weeds found growing wherever there is standing water.

2. Identify the organism which is a source of single cell protein and is grown on commercial scale.

(1) *Azotobacter* (2) *Rhizobium*

(3) *Azospirillum* (4) *Spirulina*

Answer (4)

Sol. *Spirulina* is a blue green algae which can be easily grown on waste materials as a single cell protein on an industrial scale.

3. Match List I with List II

	List I		List II
A.	*Salmonella typhi*	I.	Common Cold
B.	Rhino viruses	II.	Typhoid
C.	*Streptococcus pneumoniae*	III.	Malaria
D.	*Plasmodium vivax*	IV	Pneumonia

Choose the correct answer from the options given below:

(1) A-II, B-IV, C-I, D-III (2) A-II, B-IV, C-III, D-I

(3) A-II, B-I, C-IV, D-III (4) A-I, B-II, C-III, D-IV

Answer (3)

Sol. The correct answer is Option (3) as it represents the correct match of List I and List II.

- *Salmonella typhi* is the causative agent of Typhoid.
- Common cold is caused by Rhino viruses
- Pneumonia is a bacterial disease caused by *Streptococcus pneumoniae* and *Haemophilus influenzae*.
- Malaria is caused by different species of *plasmodium*.

4. The organisation set up by the Indian Government to take decisions regarding the validity of GM research and the safety of introducing GM-organism is:

(1) Genetic Engineering Approval Committee (GEAC)

(2) Genetic Modification Approval Committee (GMAC)

(3) Indian Council of Agricultural Research (ICAR)

(4) All India Institute of Medical Sciences (AIIMS)

Answer (1)

Sol. Option (1) is the answer of this question because Genetic Engineering Approval Committee (GEAC) is the organisation set up by the Indian Government to take decisions regarding the validity of GM research and the safety of introducing GM organisms.

Option (2), (3) and (4) are not the answers because they don't take decisions regarding the validity of GM research.

5. Select the correct statement/s from the following:

A. Spermatogonia always undergo meiotic cell division.

B. Primary spermatocytes divide by mitotic cell division.

C. Secondary spermatocytes have 23 chromosomes and undergo second meiotic division

D. Spermatozoa are transformed into spermatids.

Choose the correct answer from the options given below:

(1) A and C only

(2) C only

(3) D only

(4) B and C only

Answer (2)

Sol. Option (2) is the answer because statement (C) is only correct. Secondary spermatocyte has only 23(n) chromosomes and undergo second meiotic division to form two spermatids.

Option (1) is incorrect because statement (A) is incorrect. Spermatogonia undergo mitotic divisions to increase their number and spermatogonia are transformed into primary spermatocytes before they undergo meiotic divisions.

Option (3) is incorrect because statement (D) is incorrect. Spermatids are transformed into spermatozoa.

Option (4) is incorrect because statement (B) is incorrect. Primary spermatocyte divides meiotically to form secondary spermatocytes.

6. Arrange the following events in correct sequence.

A. Formation of zygote

B. Formation of blastocyst

C. Implantation

D. Formation of morula

Choose the correct answer from the options given below:

(1) A, D, B, C

(2) A, B, D, C

(3) A, B, C, D

(4) C, D, B, A

Answer (1)

Sol. Option (1) is the answer because, the correct sequence of the given events is A, D, B, C as.

- Fusion of male and female gamete leads to formation of zygote

- Zygote undergoes cleavage and form 2, 4, 8, 16 daughter cells called blastomeres.
- The embryo with 8 to 16 blastomeres is called morula.
- The morula continues to divide and transforms into blastocyst.
- The blastocyst gets embedded in the uterus and this process is called implantation.

7. Which of the following statements are correct regarding decomposition?

A. Decomposition is largely oxygen-requiring process

B. The rate of decomposition is controlled by chemical composition of detritus and climatic factors

C. Dry and cold environment favour the decomposition

D. If detritus is rich in lignin and chitin, the decomposition rate is faster

Choose the correct answer from the options given below:

(1) A and B only

(2) C and D only

(3) B and C only

(4) A and D only

Answer (1)

Sol. In a particular climatic condition, decomposition rate is slower if detritus is rich in lignin and chitin and quicker, if detritus is rich in nitrogen and water-soluble substance.

Warm and moist environment favour decomposition whereas low temperature and anaerobiosis inhibit decomposition.

8. Match List I with List II

	List-I		List-II
A.	The primates with brain capacity of around 900 cc.	I.	Neanderthal man
B.	The primates with brain capacity of 1400 cc and lived in east and central Asia	II.	*Homo erectus*
C.	The primates which arose in Africa and moved across continents and developed into distinct races	III.	*Homo sapiens*
D.	The primates with the brain capacities between 650-800 cc and probably did not eat meat.	IV	Australopithecines
		V.	*Homo habilis*

Choose the correct answer from the options given below:

(1) A-III, B-I, C-V, D-II (2) A-II, B-I, C-III, D-V

(3) A-I, B-IV, C-III, D-V (4) A-I, B-III, C-IV, D-II

Answer (2)

Sol. Option (2) is the answer because,

A. *Homo erectus* had a large brain around 900 cc and they probably ate meat.

B. The Neanderthal man with a brain size of 1400 cc lived in near east and central Asia between 1,00,000 – 40,000 years back.

C. *Homo sapiens* arose in Africa and moved across continents and developed into distinct races.

D. *Homo habilis* had brain capacities in between 650 – 800 cc. They probably did not eat meat.

9. Mature mRNA is a fully processed _____

(1) hnRNA

(2) snRNA

(3) 28S RNA

(4) 5srRNA

Answer (1)

Sol. The RNA which had undergone splicing, capping and tailing was the fully processed hnRNA, now called mRNA, that is transported out of the nucleus for translation.

10. Inbreeding is carried out in animal husbandry because it:

(1) Increase hybrid vigour

(2) Improves the breed

(3) Increase heterozygosity

(4) Increase homozygosity

Answer (4)

Sol. Option (4) is correct because inbreeding increases homozygosity. It helps to evolve a pure line in any animal. Inbreeding helps in accumulation of superior genes.

Option (1) is incorrect because mating between different species is required to develop hybrid vigour.

Option (2) is incorrect because cross-breeding is required to improve the breed.

Option (3) is incorrect because cross between two different breeds will produce heterozygous offsprings.

11. Which of the following metal cannot be recovered from manual recycling process of e-wastes?

(1) Gold

(2) Mercury

(3) Copper

(4) Nickel

Answer (2)

Sol. In comparison to gold, copper and nickel, mercury metal is not recovered from manual recycling process of e-waste because mercury is very hazardous to the health as compared to rest ones.

12. $(p+q)^2 = p^2 + 2pq + q^2 = 1$ represents Hardy Weinberg equation. It is used in:

(1) Population genetics

(2) Mendelian genetics

(3) Biometrics

(4) Molecular genetics

Answer (1)

Sol. Option (1) is correct because Hardy-Weinberg equation emphasises the population genetics. Population genetics is the study of genetic variation within and among populations and the evolutionary factors that explains this variation.

Options (2), (3) and (4) are incorrect because mendelian genetics is a type of biological inheritance following Mendelian laws. Molecular genetics is concerned with the structure and function of genes at molecular level. Biometrics are unique physical characteristics.

13. Bt toxin produced by *Bacillus thuringiensis* is resistant to:

(1) Drought (2) Insects

(3) Nematodes (4) Viruses

Answer (2)

Sol. Option (2) is correct because Bt toxin produced by certain strains of *Bacillus thuringiensis* kill certain insects such as lepidopterans, coleopterans and dipterans.

Options (1), (3) and (4) are not correct as Bt-toxin has no role in controlling nematodes, viruses and drought.

14. The puffed up appearance of dough is due to the production of :

(1) Oxygen gas

(2) CO_2 gas

(3) Ethyl alcohol

(4) Pyruvic acid

Answer (2)

Sol. The dough, which is used for making food such as *Dosa* and *Idli* are also fermented by bacteria. The puffed-up appearance of dough is due to the production of CO_2 gas

15. Match List I with List II

	LIST I (Drugs)		LIST II (Obtained from)
A.	Heroin	I.	Tobacco plant
B.	Cannabinoids	II.	*Erythroxylum coca*
C.	Cocaine	III.	*Cannabis sativa*
D.	Nicotine	IV.	*Papaver somniferum*

Choose the correct answer from the options given below:

(1) A-I, B-II, C-III, D-IV (2) A-II, B-I, C-III, D-IV

(3) A-I, B-II, C-IV, D-III (4) A-IV, B-III, C-II, D-I

Answer (4)

Sol. Option (4) is correct because

- Heroin is obtained by acetylation of morphine which is extracted from the latex of poppy plants *Papaver somniferum*.
- Cannabinoids are obtained from the inflorescences of the plant, *Cannabis sativa*.
- Cocaine is obtained from coca plant, *Erythroxylum coca*.
- Nicotine is an alkaloid present in tobacco plant.

16. Which of the following is used to make the bacterial cell as 'Competent cell' to take up DNA?

(1) Carbonate ion (2) Calcium ion

(3) Sodium ion (4) Sulphate ion

Answer (2)

Sol. Option (2) is the answer as bacterial cells are made competent to take up DNA by treating them with a specific concentration of a divalent cation, such as calcium, which increases the efficiency with which DNA enters the bacterium through pores in its cell wall.

17. In gel electrophoresis the separated DNA fragments can be visualised:

(1) In visible light

(2) In visible light with staining

(3) In UV radiation without staining

(4) In UV radiation after staining with ethidium bromide

Answer (4)

Sol. Option (4) is the answer as the separated DNA fragments *via* gel electrophoresis can be visualised only after staining the DNA with a compound known as ethidium bromide followed by exposure to UV radiation.

Option (1), (2) and (3) are incorrect as one cannot see pure DNA fragments in the visible light and without staining.

18. Mammals are able to survive in Antarctica or in the Sahara Desert as they are

(1) Conformers

(2) Partial regulators

(3) Regulators

(4) Migrants

Answer (3)

Sol. Mammals can survive in Antarctica or the Sahara Desert as they are regulators. They have the ability to maintain a constant body temperature in different weather conditions.

19. In some organisms, male has ZZ chromosomes and female has ZW chromosomes. This type of sex-determination is found in :

(1) *Drosophila*

(2) Hen

(3) Cockroach

(4) Snail

Answer (2)

Sol. The male has ZZ chromosome and female has ZW chromosome in hen. They show ZZ-ZW type of sex determination.

Drosophila has XY type of sex determination. In snails, the sex determination is environmentally induced, while in cockroaches it is XX-XO type.

20. Threatened animals and plants are taken out from their natural habitat and placed in special settings, protected and given special care is

(1) In situ conservation

(2) Ex situ conservation

(3) Conservation in national park

(4) Conservation in biosphere

Answer (2)

Sol. In the *ex-situ* conservation approach, threatened animals and plants are taken out from their natural habitat and placed in special setting where they can be protected and given special care.

21. Sequence the following steps in formation of female gametophyte of flowering plants.

A. Cell walls are laid down.

B. Formation of seven cells with eight nuclei.

C. Meiosis in megaspore mother cell and formation of megaspore tetrad.

D. Functional megaspore undergoes three mitotic divisions, results in formation of eight nuclei.

Choose the correct answer from the options given below :

(1) A, D, C, B

(2) A, C, B, D

(3) C, D, A, B

(4) C, A, B, D

Answer (3)

Sol. The correct sequence of steps in formation of female gametophyte of flowering plants is as follows

Meiosis in megaspore mother cell and formation of megaspore tetrad

↓

Functional megaspore undergoes three successive mitotic divisions, results in the formation of eight nuclei.

↓

Cell walls are laid down.

↓

Formation of seven cells with eight nuclei.

22. Methanogens do not produce :

(1) Carbon dioxide and Methane

(2) Methane and Hydrogen

(3) Hydrogen and Carbon dioxide

(4) Nitrogen and Oxygen

Answer (4)

Sol. Methanogens do not produce nitrogen and oxygen.

23. The method of producing thousands of plants through tissue culture is called as:

(1) Somaclones

(2) Micro-propagation

(3) Somatic hybridisation

(4) Vegetative propagation

Answer (2)

Sol. The method of producing thousands of plants through tissue culture is called as micro-propagation.

24. Early Greek thinkers thought that units of life called spores were transferred to different planets including earth. Identify the term associated with the above.

(1) Abiogenesis

(2) Panspermia

(3) Spontaneous generation

(4) Biogenesis

Answer (2)

Sol. Option (2) is the answer as 'Panspermia' is the term associated with the idea that unit of life called 'Spores' were transferred to different planets including Earth.

Option (1) is not the answer as the theory of abiogenesis states that the evolution of living forms from non-living matter is spontaneous.

Option (3) is not the answer as the theory of spontaneous generation stated that life came out of decaying and rotting matter like straw, mud, etc.

Option (4) is not the answer as theory of biogenesis explains that living organisms came from other living organisms.

25. Succession occurring after flood is:

(1) Hydrarch succession

(2) Primary succession

(3) Secondary succession

(4) Mesarch succession

Answer (3)

Sol. Succession occurring after flood is secondary succession.

Secondary succession starts in areas that somehow lost all the living organism that existed there.

26. Identify the gene which is effective against corn borer.

(1) *crylAc* (2) *crylAb*

(3) *crylIAb* (4) *z* gene

Answer (2)

Sol. Option (2) is the answer because, *crylAb* control corn borer.

Option (1) and (3) are not the answers because, *crylAc* and *crylIAb* control the cotton bollworms.

Option (4) is not the answer because *z* gene is not used in the production of *Bt* crops.

27. Select the incorrect statements given below :

A. Methane and Carbon dioxide are green house gases.

B. The Montreal Protocol is associated with the control of emission of ozone depleting substances.

C. Use of incinerators is not crucial to dispose off hospital wastes.

D. Dobson units is used to measure water quality.

Choose the correct answer from the options given below:

(1) A and B (2) C and D

(3) A and C (4) B and D

Answer (2)

Sol. The use of incinerator is crucial for disposal of hospital waste.

Thickness of the ozone in a column of air from the ground to the top of the atmosphere is measured in terms of Dobson units. (DU)

28. Match List I with List II

List-I		List-II	
A.	Dominant trait of pod colour in garden pea	I.	Polygenic traits
B.	The physical association of two genes on a chromosome	II.	Pleiotropy
C.	The traits generally controlled by three or more genes	III.	Yellow
D.	When a single gene exhibit multiple phenotypic expression	IV.	Linkage
		V.	Green

Choose the correct answer from the options given below:

(1) A-III, B-II, C-I, D-V

(2) A-II, B-III, C-V, D-I

(3) A-III, B-II, C-I, D-IV

(4) A-V, B-IV, C-I, D-II

Answer (4)

Sol. (i) Dominant trait of pod colour in garden pea – Green.

(ii) The physical association of two genes on a chromosome – Linkage

(iii) The trait generally controlled by three or more genes – Polygenic trait

(iv) When a single gene exhibit multiple phenotypic expression – Pleiotropy

Therefore option (4) is correct.

29. Match List-I with List-II

List-I		List-II	
A.	Down's syndrome	I.	44 + XXY
B.	Thalassemia	II.	Autosomal recessive trait
C.	Klinefelter's syndrome	III.	44 + XO
D.	Turner's Syndrome	IV.	45 + XY/XX

Choose the correct answer from the options given below:

(1) A-IV, B-II, C-III, D-I (2) A-IV, B-II, C-I, D-III

(3) A-I, B-III, C-IV, D-II (4) A-II, B-IV, C-III, D-I

Answer (2)

Sol. Down's syndrome occurs due to the trisomy of chromosome 21. Thus, its karyotype is 45 + XX/XY.

Thalassemia is an autosomal-linked recessive blood disorder due to either mutation or deletion which ultimately results in reduced rate of synthesis of one of the globin chain of haemoglobin.

The karyotype of individuals infected with Klinefetter's syndrome is 44 + XXY

The karyotype of individuals infected with Turner's syndrome is 44 + XO

Thus, correct answer is (2)

30. Select the organism which does not undergoes parthenogenesis.

(1) Honeybee (2) Rotifer

(3) Turkey (4) Fruit fly

Answer (4)

Sol. Option (4) is the answer because, in fruit fly internal fertilization occurs whereas in parthenogenesis the female gamete undergoes development to form new organism without fertilization.

Option (1), (2) and (3) *i.e.*, Honey bee, rotifer and turkey undergo parthenogenesis, therefore these are not the answers.

31. Which of the following is a hormone releasing IUD?

(1) Multiload 375 (2) LNG-20

(3) Cervical Cap (4) Vault

Answer (2)

Sol. Option (2) is the answer because, LNG-20 is the hormone releasing IUD (Intra Uterine Devices).

Option (1) is not the answer because, it is a copper releasing IUD (CuT, CuT, Multiload 375).

Option (3) and (4) are not the answers because these two *i.e.* cervical caps and vaults are barrier methods of contraception and are inserted into the female reproductive tract to cover cervix during coitus.

32. The correct sequence of steps involved in polymerase chain reaction (PCR) are:

A. DNA polymerase is used to extends the primers using oligonucleotides.

B. Desired DNA fragments are denatured.

C. Amplified fragments are ligated with the vector for cloning.

D. Oligonucleotides are added

Choose the correct answer from the options given below:

(1) C, A, B, D (2) A, C, B. D

(3) A, D, B, C (4) B, D, A, C

Answer (4)

Sol. The correct answer is option (4) as it represents the correct sequence of steps involved in polymerase chain reaction *i.e.*,

B $\rightarrow$ Desired DNA fragments are denatured

D $\rightarrow$ Oligonucleotides are added

A $\rightarrow$ DNA polymerase is used to extend the primers using oligonucleotides

C $\rightarrow$ Amplified fragments are ligated with the vector for cloning

33. Biofertilisers are the organisms that enrich the nutrient quality of the soil. Which of the following is not a source of biofertiliser?

(1) Bacteria (2) Fungi

(3) Baculoviruses (4) Cyanobacteria

Answer (3)

Sol. The main sources of biofertilisers are bacteria, fungi and cyanobacteria. Baculoviruses are used as biocontrol agents against insects and other arthropods.

34. Identify the statement which do not hold true for Deoxyribose Nucleic Acid.

A. Only purine bases are present in DNA.

B. Deoxyribose sugar is present

C. A nitrogenous base is linked to the 1'C pentose sugar through N-glycosidic linkage.

D. Phosphate group is linked to OH of 4'C of a nucleotide.

Choose the correct answer from the options given below:

(1) A and D only (2) A and B only

(3) C and D only (4) B and C only

Answer (4)

Sol. Statement A is incorrect as both purine and pyrimidine bases are present in DNA.

Statement B is correct as 2′-deoxyribose sugar is present in the nucleotides that constitute DNA.

Statement C is correct as the nitrogenous base is linked to the OH of 1′C of pentose sugar through a N-glycosidic linkage to form a nucleoside.

Statement D is incorrect as phosphate group is linked to OH of 5′C of a nucleoside through phosphoster linkage.

35. In which process unusual nucleotide (methyl guanosine triphosphate) is added to the 5' end of hnRNA.

(1) Splicing

(2) Capping

(3) Tailing

(4) Transcription factor

Answer (2)

Sol. In capping unusual nucleotide (Methyl guanosine triphosphate) is added to the 5′ end of hnRNA. Thus, option (2) is correct.

Addition of poly A tail at 3′ end of hnRNA is called tailing.

Removal of introns and joining of exons in hnRNA is called splicing.

Transcription factors aid in the process of transcription.

36. Match List I with List II

	LIST I		**LIST II**
A.	Wheat	I.	Perisperm
B.	Black pepper	II.	Polyembryony
C.	Cashew	III.	Albuminous seed
D.	Citrus	IV.	False fruits

Choose the correct answer from the options given below:

(1) A-III, B-II, C-I, D-IV

(2) A-II, B-I, C-III, D-IV

(3) A-III, B-I, C-IV, D-II

(4) A-I, B-II, C-IV, D-III

Answer (3)

Sol. Albuminous seeds retain a part of endosperm as it is not completely used up during embryo development *e.g.*, → wheat.

In some seeds such as black pepper remnants of nucellus are also persistent which is known as perisperm.

In species of cashew, the thalamus also contributes to fruit formation. Such fruits are called false fruits.

In *Citrus*, some of the nucellar cells surrounding the embryo sac start dividing, protrude into the embryo sac and develop into the embryo. This phenomenon of having more than one embryo is known as polyembryony.

37. Which forest also known as the 'lungs of the planet earth'?

(1) Amazon rain forest

(2) Rain forest of north-east India

(3) Tiaga forest

(4) Tundra forest

Answer (1)

Sol. The Amazon rain forest is so huge that it is called the 'lungs of the planet'.

38. Match List I with List II.

	LIST I		**LIST I**
A.	Tubectomy	I.	Barrier method
B.	Copper ions	II	Surgical method of sterilisation in human male
C.	Cervical Cap	III.	Surgical method of sterilisation in human female
D.	Vasectomy	IV.	Suppress motility of sperms

Choose the correct answer from the options given below:

(1) A-III, B-IV, C-I, D-II (2) A-III, B-I, C-IV, D-II

(3) A-II, B-I, C-IV, D-III (4) A-IV, B-II, C-III, D-I

Answer (1)

Sol. Correct answer is option (1) as it represents the correct match of List I with List II**.**

Tubectomy – Surgical method of sterilisation in human female

Copper ions – Suppress motility of sperm

Cervical cap – Barrier method

Vasectomy – Surgical method of sterilisation in human male

39. Identify the equation representing logistic growth of a population.

(1) $\frac{dN}{dt} = rN\left(\frac{K-N}{K}\right)$ (2) $\frac{dN}{dt} = rN$

(3) $\frac{dN}{dt} = N\left(\frac{N-K}{K}\right)$ (4) $\frac{dN}{dt} = rN$

Answer (1)

Sol. Logistic growth can be described by the equation:

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

Thus, option (1) is correct.

$\frac{dN}{dt} = rN$ describes exponential growth.

40. Select the statements which **do not** hold true for Cancer :

A. Cancerous cells show a property of contact inhibition.

B. Metastasis is the most feared property of malignant tumors.

C. Malignant tumor cells invade and damage the surrounding tissue.

D. Malignant tumor cells grows slowly.

Choose the correct answer from the options given below :

(1) A and B only (2) B and C only

(3) A and D only (4) B and D only

Answer (3)

Sol. Option (3) is the correct answer because statements A and D are incorrect. Normal cells show a property called contact inhibition by virtue of which contact with other cells inhibits their uncontrolled growth. The malignant tumors, on the other hand are a mass of proliferating cells called neoplastic cells. These cells grow very rapidly.

Option (1), (2) and (4) are not correct answer because these options include the correct statements.

41. Read the passage and answer the question given below.

When a host is exposed to antigens, which may be in the form of living or dead microbes or other proteins, antibodies are produced in the host body. This type of immunity is called **active immunity**. Active immunity is slow and takes time to give its full effective response. Injecting the microbes deliberately during immunisation or infectious organisms gaining access into body during natural infection induce active immunity. When antibodies are directly given to protect the body against foreign agents, it is called **passive immunity**.

Colostrum secreted by mother during initial stage of lactation provided passive immunity as it is rich in

(1) Placental lactogen (2) Prolactin

(3) Antigen (4) IgA antibodies

Answer (4)

Sol. The correct answer is option (4) as the yellowish fluid colostrum secreted by mother during the initial days of lactation has abundant antibodies (IgA) to protect the infant.

Placental lactogen and prolactin are hormones. Antigens are not responsible for protection of the body.

42. Read the passage and answer the question given below.

When a host is exposed to antigens, which may be in the form of living or dead microbes or other proteins, antibodies are produced in the host body. This type of immunity is called **active immunity**. Active immunity is slow and takes time to give its full effective response. Injecting the microbes deliberately during immunisation or infectious organisms gaining access into body during natural infection induce active immunity. When antibodies are directly given to protect the body against foreign agents, it is called **passive immunity.**

Which of the following is passive immunisation?

(1) injecting inactivated pathogens

(2) injecting antigenic preparation

(3) injecting preformed antibodies

(4) injected weakened pathogens

Answer (3)

Sol. Option (3) is the correct answer because when antibodies are directly given to protect the body against foreign agents, it is called passive immunity.

Options (1), (2) and (4) are not correct because when a host is exposed to antigen, which may be in the form of living or dead microbes or other proteins, antibodies are produced in the host body. This type of immunity is called active immunity. Injecting the microbes deliberately during immunisation or infections organisms gaining access into body during natural infections induce active immunity.

Options (1), (2) and (4) are incorrect as they represent active immunisation.

43. Read the passage and answer the question given below.

When a host is exposed to antigens, which may be in the form of living or dead microbes or other proteins, antibodies are produced in the host body. This type of immunity is called **active immunity**. Active immunity is slow and takes time to give its full effective response. Injecting the microbes deliberately during immunisation or infectious organisms gaining access into body during natural infection induce active immunity. When antibodies are directly given to protect the body against foreign agents, it is called **passive immunity.**

Immunity provided to the foetus from the mother through placenta during pregnancy is:

(1) Active immunity

(2) Passive immunity

(3) Non-specific immunity

(4) Innate immunity

Answer (2)

Sol. Option (2) is the correct answer because the foetus also receives some antibodies from their mother through the placenta during pregnancy. This is an example of passive immunity.

Option (1) is not the correct answer because when a host is exposed to antigens, which may be in the form of living or dead microbes or other proteins, antibodies are produced in the host body. This type of immunity is called active immunity.

Option (3) and (4) are not the correct answer because innate immunity is non-specific, that is present at the time of birth.

44. Read the passage and answer the question given below.

When a host is exposed to antigens, which may be in the form of living or dead microbes or other proteins, antibodies are produced in the host body. This type of immunity is called **active immunity**. Active immunity is slow and takes time to give its full effective response. Injecting the microbes deliberately during immunisation or infectious organisms gaining access into body during natural infection induce active immunity. When antibodies are directly given to protect the body against foreign agents, it is called **passive immunity**.

Production of antibodies against antigens in the body is :

(1) Innate immunity

(2) Passive immunity

(3) Active immunity

(4) Non-Specific immunity

Answer (3)

Sol. Option (3) is the correct answer because when a host is exposed to antigens, which may be in the form of living or dead microbes or other proteins, antibodies are produced in the host body. This type of immunity is called active immunity.

Option (1), (2) and (4) are not the correct answer because when antibodies are directly given to protect the body against foreign agents, it is called passive immunity. Innate immunity is non specific type of defense, that is present at the time of birth.

45. Read the passage and answer the question given below.

When a host is exposed to antigens, which may be in the form of living or dead microbes or other proteins, antibodies are produced in the host body. This type of immunity is called **active immunity**. Active immunity is slow and takes time to give its full effective response. Injecting the microbes deliberately during immunisation or infectious organisms gaining access into body during natural infection induce active immunity. When antibodies are directly given to protect the body against foreign agents, it is called **passive immunity**.

Match List I with List II

	List I		List II
A	Physical Barrier	I	Saliva
B	Cellular Barrier	II	Interferons
C	Physiological Barrier	III	Skin
D	Cytokine Barrier	IV	Polymorpho-nuclear leukocytes

Choose the correct answer from the options given below:

(1) A-III, B-I, C-II, D-IV

(2) A-III, B-IV, C-I, D-II

(3) A-I, B-IV, C-III, D-II

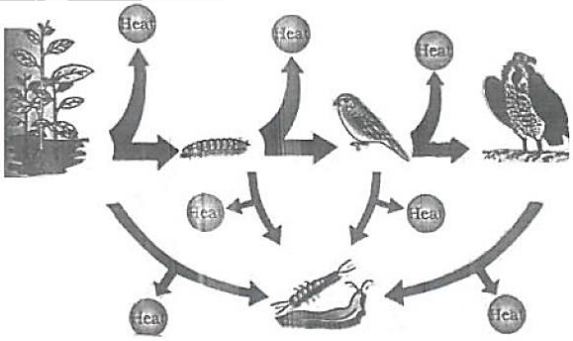
(4) A-IV, B-I, C-III, D-II

Answer (2)

Sol. Option (2) is the correct answer because this is correctly matched. Skin on our body is the main physical barrier which prevents entry of micro-organisms. Acid in the stomach, saliva and tears are physiological barriers. Certain types of WBCs of our body like polymorphonuclear leukocytes (PMNL – neutronphils) form cellular barriers. Cytokine barriers include interferons which protect non-infected cells from further viral infections.

Option (1), (3) and (4) are not correct because they are not correctly matched.

46. Observe the diagram and answer the question given below.



Which of the following constitutes the first trophic level?

(1) Plants (2) Herbivores

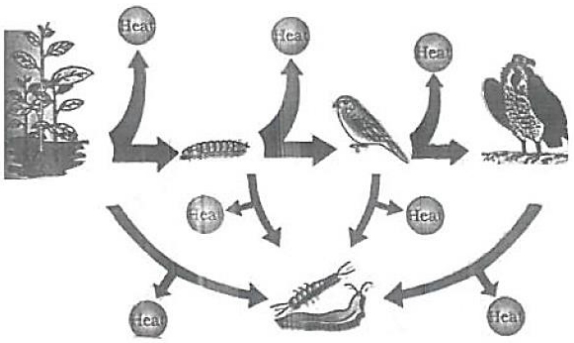
(3) Carnivores (4) Omnivores

Answer (1)

Sol. Producers (plants) belong to the first trophic level in grazing food chain depicted in the figure. Thus, option 1 is correct

Herbivore belongs (primary consumer) to the second and carnivores (secondary consumers) belong to the third trophic level.

47. Observe the diagram and answer the question given below.



Sparrow comes under which of the following categories:

(1) Producers

(2) Primary consumers

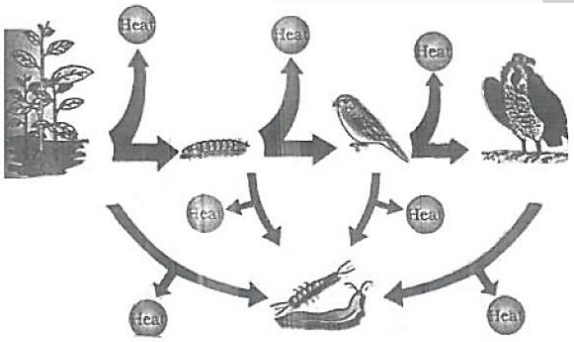
(3) Secondary consumers

(4) Tertiary consumers

Answer (3)

Sol. As per the given figure sparrow is a secondary consumer as it is present on the third trophic level.

48. Observe the diagram and answer the question given below.



Each trophic level has a certain mass of living material at a particular time called as:

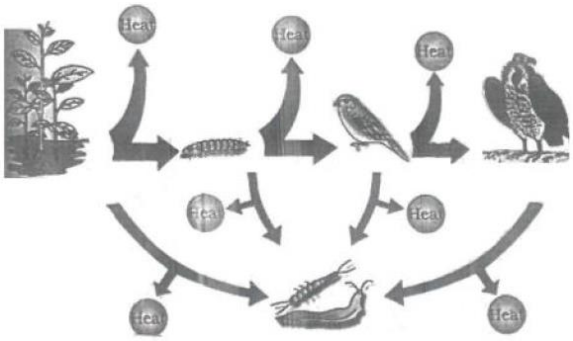
(1) Standing crop (2) Living crop

(3) Standing life (4) Time crop

Answer (1)

Sol. Each trophic level has a certain mass of living material at a particular time called as the standing crop.

49. Observe the diagram and answer the question given below.



Which among the following is not a primary consumer?

(1) Snake (2) Grasshopper

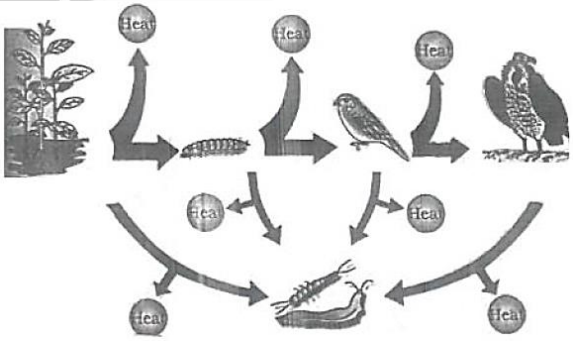
(3) Zooplankton (4) Caterpillar

Answer (1)

Sol. Herbivores occupy the second trophic level thus they are considered as primary consumer.

Snake is a carnivore thus it is not a primary consumer. Thus option 1 is incorrect.

50. Observe the diagram and answer the question given below.



Which of the following is a part of detritus food chain?

(1) Earthworm (2) Birds

(3) Man (4) Snake

Answer (1)

Sol. Earthworm is a detritivore as it consumes detritus (composed of dead organic matter). Thus, it belongs to detritus food chain. Thus, option 1 is correct.

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