

CUET 2024

BIOLOGY ANSWER KEY

1. Analogous structures are a result of :
 - (1) **Convergent evolution**
 - (2) Divergent evolution
 - (3) Parallel evolution
 - (4) Retrogressive evolution

2. Which of the following does *not* affect the Hardy-Weinberg equilibrium ?
 - (1) Natural selection
 - (2) Genetic drift
 - (3) **Gene pool**
 - (4) Gene migration

3. Which of the following primates was more like an ape ?
 - (1) *Homo erectus*
 - (2) ***Dryopithecus***
 - (3) *Australopithecines*
 - (4) *Ramapithecus*

4. Nucleosome is associated with _____ molecules of histones.
 - (1) Four
 - (2) Nine
 - (3) Two
 - (4) **Eight**

5. Select the observations drawn from the human genome project which are correct.
 - (A) The human genome contains 3164.7 million bp.
 - (B) The average gene consists of 3000 bases.
 - (C) Total number of genes is estimated at 30,000.
 - (D) The functions are unknown for over 50% of discovered genes.
 - (E) Less than 2% of the genome codes for proteins.

Choose the *correct* answer from the options given below :

 - (1) (A), (B), (C) and (D) only
 - (2) (A), (C), (D) and (E) only
 - (3) (A), (C) and (E) only
 - (4) **(A), (B), (C), (D) and (E)**

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6. Match List-I with List-II :

List-I Placental mammals	List-II Counterpart Marsupials
(A) Anteater	(I) Spotted cuscus
(B) Bobcat	(II) Numbat
(C) Lemur	(III) Flying Phalanger
(D) Flying squirrel	(IV) Tasmanian tiger cat

Choose the **correct** answer from the options given below :

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

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

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

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

7. Identify the **incorrect** statement/s :

(A) Intestinal perforation and death may occur in severe cases of typhoid infection.

(B) Common cold is caused by Rhinoviruses.

(C) Lips and fingernails may turn grey to bluish colour in severe cases of pneumonia.

(D) Pneumonia is caused by *Salmonella*.

(E) Typhoid fever could be confirmed by Widal test.

Choose the answer from the options given below

(1) (A), (C) and (D) only

(2) (B) and (E) only

(3) (D) only

(4) (A) and (D) only

8. Match List-I with List-II :

List-I Types of barriers	List-II Examples
(A) Cytokine barriers	(I) Mucus coating
(B) Physical barriers	(II) Tears from eyes
(C) Cellular barriers	(III) Phagocytosis
(D) Physiological barriers	(IV) Interferons

Choose the **correct** answer from the options given below :

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

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

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

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

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9. Smack is chemically :

- (1) **Diacetyl morphine**
(3) Benzodiazepine

- ##
☆ (2) Cocaine
□ (4) Amphetamine

10. Antibodies are secreted by :

- (1) T-Cells
(3) α -Cells

- ##
☆ (2) **B-Cells**
□ (4) β -Cells

11. In sewage treatment, flocs are :

- (1) the solids that settle during sedimentation.
(2) the supernatant that is formed above the primary sludge.
(3) **the masses of bacteria associated with fungal filaments.**
(4) the bacteria which grow anaerobically and are also called anaerobic sludge digesters.

12. Match List-I with List-II :

List-I Products	List-II Organisms
(A) Statin	(I) <i>Streptococcus</i>
(B) Clot buster	(II) <i>Trichoderma</i>
(C) Swiss cheese	(III) <i>Monascus</i>
(D) Cyclosporin-A	(IV) <i>Propionibacterium</i>

Choose the **correct** answer from the options given below :

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

13. The beetle used as a biocontrol agent for aphids and mosquitoes is :

- (1) *Trichoderma*

- (3) **Ladybird**

- ##
☆
□ (2) Dragonflies
☆ (4) Silver fish

14. Downstream processing method involves :

- (1) Identification
(3) Fermentation

- ##
☆
□ (2) Amplification
(4) **Purification**

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15. Which of the following is *not* the correctly matched pair of organism and its respective cell wall degrading enzyme?

- (1) Fungi – Chitinase
 (2) **Algae – Methylase**
 (3) Plant cells – Cellulase
 (4) Bacteria – Lysozyme

16. Arrange the following steps involved in transformation of bacteria in a sequence from initiation to end

- (A) Incubation of rDNA with bacterial cell on ice
 (B) Treatment with divalent cations
 (C) Heat shock treatment
 (D) Selection on antibiotic containing agar plate
 (E) Placed them again on ice

Choose the *correct* answer from the options given below :

- (1) (A), (B), (D), (C), (E)
 (2) **(B), (A), (C), (E), (D)**
 (3) (B), (C), (D), (A), (E)
 (4) (A), (C), (B), (D), (E)

17. Which of the following statements are *incorrect*?

- (A) Fragments of DNA can be separated by ELISA
 (B) Transformation is a procedure through which a piece of DNA is introduced in a host bacterium.
 (C) Recombinant DNA technology does not involve isolation of a desired DNA fragment.
 (D) DNA ligases are used for stitching DNA fragments into a vector.

Choose the answer from the options given below :

- (1) **(A) and (C) only**
 (2) (A) and (B) only
 (3) (B) and (C) only
 (4) (A), (C) and (D) only

18. Which of the following statements are *true*?

- (A) Milk obtained from 'Rosie' is nutritionally more balanced for human babies than natural human milk.
 (B) Biopiracy refers to the use of bioresources without proper authorisation from MNCs.
 (C) GEAC is the decisive body for safety and validity of GMOs and GM research respectively.
 (D) **Transgenic animals help us** to understand the contribution of genes in the development of disease.

Choose the *correct* answer from the options given below :

- (1) (A) and (C) only
 (2) **(C) and (D) only**
 (3) (A) and (D) only
 (4) (B) and (C) only

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19. Match List-I with List-II :

(10)

List-I Transgene	List-II Used for/Products
(A) α -1-antitrypsin	(I) <i>Meloidogyne incognita</i>
(B) <i>cryIAc</i>	(II) Corn borer
(C) Antisense RNA	(III) Treat emphysema
(D) <i>cryIAb</i>	(IV) Cotton bollworms

Choose the **correct** answer from the options given below :

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

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

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

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

20. Expand "GEAC" :

(1) Genetic and Environmental Advisory Committee

(2) Gene Establishment Approval Committee

(3) Genetic Engineering Advisory Committee

(4) Genetic Engineering Approval Committee

21. When an insect feeds on the *Bt* plant, the insect dies due to the conversion of inactive protein to active protein in :

(1) Alkaline pH of the gut.

(2) Acidic pH of the gut.

(3) Acidic pH of saliva.

(4) Alkaline pH of saliva.

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22. Match List-I with List-II :

List-I Interspecies Relationships	List-II Features
(A) Commensalism	(I) One species is benefitted at the expense of the other
(B) Mutualism	(II) One species is harmed and the other is unaffected
(C) Amensalism	(III) Both the species are benefitted
(D) Parasitism	(IV) One species benefits and other remains unaffected

Choose the **correct** answer from the options given below :

- (1) (A) - (I), (B) - (II), (C) - (III), (D) - (IV) (2) (A) - (IV), (B) - (III), (C) - (II), (D) - (I)
- (3) (A) - (II), (B) - (I), (C) - (III), (D) - (IV) (4) (A) - (III), (B) - (IV), (C) - (I), (D) - (II)
23. In a country, at any time, the population has the same number of young and mature ones. What type of growth does it reflect ?
- (1) Expanding (2) Declining (3) **Stable** (4) S-shaped
24. Two closely related species can co-exist indefinitely and violate the Gause's 'Competitive Exclusion Principle' by :
- (1) eliminating the inferior species.
- (2) **resource partitioning.**
- (3) interacting with each other symbiotically.
- (4) changing the area of grazing.
25. The process of mineralisation by microorganisms helps in the release of :
- (1) inorganic nutrients from detritus and formation of humus.
- (2) organic nutrients from humus.
- (3) **inorganic nutrients from humus.**
- (4) organic and inorganic nutrients from detritus.
26. In which ecosystem is the biomass of primary consumers greater than producers ?
- (1) Forests (2) Grassland (3) Desert (4) **Sea**

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27. Choose the correct statements with respect to decomposition from the following :

- (A) Decomposition is an anaerobic process. ☒
 (B) Decomposition rate of detritus depends upon the chemical nature of it. ☒
 (C) Water-soluble organic nutrients go into the soil and get precipitated in the process of leaching. ☐
 (D) Humification follows mineralisation. ☒

Choose the **correct** answer from the options given below :

(1) (B) and (D) only

(3) (B) and (C) only

☐ (2) (A) and (C) only

☒ (4) (A) and (D) only

28. Match List-I with List-II :

List-I Concepts	List-II Explanation
(A) Standing state	(I) Available biomass for the consumption of heterotrophs
(B) Secondary productivity	(II) Rate of formation of organic matter by consumers
(C) Standing crop	(III) Mass of living matter in a trophic level at a given time
(D) Net primary productivity	(IV) Amount of mineral nutrients in the soil at a given time

Choose the **correct** answer from the options given below :

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

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

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

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

Read the passage carefully and give the answer to the next five questions :

India was amongst the first countries in the world to initiate action plans and programmes at a national level to attain total reproductive health as a social goal. These programmes called 'family planning' were initiated in 1951 and were periodically assessed over the past decades. Improved programmes covering wider reproduction-related areas are currently in operation. Creating awareness among the people about various reproduction-related aspects and providing facilities and support for building up a reproductively healthy society are the major tasks under these programmes.

29. Which of the following is **not** a Sexually Transmitted Disease ?

(1) Chlamydia

(2) Filariasis

(3) Genital herpes

(4) Trichomoniasis

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30. Which of the following statements is **incorrect** with respect to Medical Termination of Pregnancy ?

- (1) They are considered safe during the first trimester.
 (2) It is legalised in India from 1971.
 (3) **MTPs can be performed** even after 24 weeks, but with the opinion of 2 registered medical practitioners on specific grounds.
 (4) About 20% of the total number of conceived pregnancies undergo MTP in a year globally.

31. Match List-I with List-II :

List-I Various Assisted Reproductive Technologies	List-II Process Involved
(A) ZIFT	(I) Formation of embryo <i>in vitro</i> by injecting sperm directly into ovum
(B) ICSI	(II) Transferring of embryo with more than 8 blastomeres into the uterus
(C) IUI	(III) Transferring of fertilised egg up to 8 blastomeres into fallopian tube
(D) IUT	(IV) Transfer of semen from a healthy donor into the uterus artificially

Choose the **correct** answer from the options given below :

- (1) (A) - (III), (B) - (I), (C) - (II), (D) - (IV) (2) **(A) - (III), (B) - (I), (C) - (IV), (D) - (II)**
 (3) (A) - (II), (B) - (III), (C) - (IV), (D) - (I) (4) (A) - (IV), (B) - (III), (C) - (I), (D) - (II)

32. Which of the following methods of contraception is **not** meant for females ?

- (1) IUDs
 (2) Lactational amenorrhea
 (3) **Vasectomy**
 (4) Condoms

33. 'Saheli' – an oral contraceptive pill, also known as the 'Once a week' pill, was developed by :

- (1) AIIMS (2) NBRI
 (3) **CDRI** (4) NBPGR

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Read the passage carefully and give the answers to the next five questions :

Does the number of species in a community really matter to the functioning of the ecosystem ? This is a question for which ecologists have not been able to give a definitive answer. For many decades, ecologists believed that communities with more species, generally, tend to be more stable than those with less species. According to the International Union for Conservation of Nature and Natural Resources (IUCN) (2004), the total number of plant and animal species described so far is more than 1.5 million.

34. Which of the following is **not** a characteristic of a stable biological community ?
- (1) It must be resistant to invasions by alien species.
 - (2) It should not show too much variation in productivity from year to year.
 - (3) **All the species are** equally important in a stable community and absence of any one leads to its instability.
 - (4) It is resilient to occasional disturbances, whether natural or man-made.
35. In 'rivet popper hypothesis' the 'rivet' signifies :
- (1) Key species
 - (2) Endemic species
 - (3) Community
 - (4) **Species**
36. The scientist who proved that species richness directly correlates with the stability of a community, was _____.
- (1) Paul Ehrlich
 - (2) **David Tilman**
 - (3) Robert May
 - (4) Edward Wilson
37. Among the vertebrates, which of the following is the most species-rich group ?
- (1) Reptiles
 - (2) **Fishes**
 - (3) Insects
 - (4) Mammals
38. The following are the various hypotheses proposed in explaining the greatest biological diversity in tropics *except* :
- (1) Temperate regions are subjected to glaciations, but tropical latitudes have remained relatively undisturbed.
 - (2) **Tropical environments have more** humidity/moisture which helps the diversity to flourish.
 - (3) Tropical environments are less seasonal and more constant.
 - (4) There is more solar energy available in the tropics which contributes to higher productivity and hence, biodiversity.

39. Cells present in the mature pollen grains are _____

(1) Central cell and generative cell

(2) Antipodal cell and vegetative cell

(3) Vegetative cell and generative cell

(4) Filiform cell and micropylar cell

40. Match List-I with List-II :

List-I Structures	List-II Functions
(A) Filiform apparatus	(I) Made up of sporopollenin
(B) Tapetum	(II) Attachment of ovule to the placenta
(C) Exine	(III) Guides pollen tube into the synergid
(D) Funicle	(IV) Nourishes the pollen grain

Choose the **correct** answer from the options given below

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

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

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

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

41. Primary Endosperm Nucleus is the product of :

(1) Double fusion

(2) Triple fusion

(3) Parthenogenesis

(4) Apomixis

42. In humans, mammary gland is divided into _____ lobes.

(1) 10 - 12

(2) 25 - 30

(3) 30 - 35

(4) 5 - 20

43. Sex in human embryo is determined by :

(1) 'X' chromosome of egg

(2) 'X' or 'Y' chromosome of sperm

(3) Only 'Y' chromosome of sperm

(4) Health of mother

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44. Arrange the following stages of oogenesis in order of their occurrence.

(A) Ovum

(B) Oogonia

(C) Primary oocyte

(D) Secondary oocyte

Choose the *correct* answer from the options given below :

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

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

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

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

45. Which of the following pair of contrasting traits was *not* studied by Mendel ?

(1) Pink and white flowers

(2) Inflated and constricted pods

(3) Axial and terminal flowers

(4) Green and yellow pods

46. Failure of chromatids to segregate during cell division cycle results in :

(1) Polyploidy

(2) Euploidy

(3) Aneuploidy

(4) Autopolyploidy

47. Select the correctly matched pair about sickle cell anaemia :

Genotype : Phenotype

(A) $Hb^A Hb^A$: Diseased phenotype

(B) $Hb^A Hb^S$: Diseased phenotype

(C) $Hb^S Hb^S$: Diseased phenotype

(D) $Hb^S Hb^A$: Carrier of disease

Choose the *correct* answer from the options given below :

(1) (C) and (D) only

(2) (A) and (C) only

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

(4) (A), (B), and (C) only

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48. Match List-I with List-II :

List-I Scientists	List-II Discoveries
(A) Sutton and Boveri	(I) X-Body
(B) Sturtevant	(II) Chromosomal Theory of Inheritance
(C) Henking	(III) Transformation in bacteria
(D) Griffith	(IV) Genetic maps

Choose the *correct* answer from the options given below :

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

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

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

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

49. Which of the following statements are *incorrect* with respect to nucleotides ?

(A) Purines and pyrimidines are nitrogenous bases.

(B) Nucleotides are non-enzymatic molecules.

(C) Phosphate group is linked to - OH of 5' C of a nucleoside through phosphoester linkage.

(D) In RNA, every nucleotide residue has an additional - OH group present at 2' position in the ribose.

(E) Thymine is an example of Pyrimidine.

Choose the *correct* answer from the options given below :

(1) (A), (B) and (E) only

(2) (D) and (E) only

(3) (B) and (D) only

(4) (B) and (E) only

50. Arrange the given steps of DNA fingerprinting in the sequence from initiation to end.

(A) Digestion of DNA by restriction endonuclease

(B) Isolation of DNA

(C) Hybridisation using labelled VNTR probe

(D) Transferring (blotting) of separated DNA fragments to synthetic membrane

Choose the *correct* answer from the options given below :

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

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

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

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

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