

CUET UG 2023 Biology Question Paper PDF (May 27, 2023) (Shift 1)

1. The two closely linked genes HBA1 and HBA2 are associated with _____

(a) α thalassemia (b) β thalassemia
(c) Haemophilia (d) Sickle cell anaemia

2. Match List I with List II

List I
(Crops)

A. Wheat
B. Cauliflower
C. Brassica
D. Chilli

List II
(Variety)

I. Pusa Sadabahar
II. Himgiri
III. Pusa Shubhra
IV. Pusa Swarnim

Choose the correct answer from the options given below:

(a) A-III, B-I, C-IV, D-II (b) A-II, B-III, C-IV, D-I
(c) A-III, B-IV, C-II, D-I (d) A-I, B-III, C-II, D-IV

3. Identify the tools for recombinant DNA technology:

A. Restriction enzymes and host organism
B. Ligases and vectors
C. Ribosome
D. Polymerase enzyme

Choose the correct answer from the options given below:

(a) A, B and D only (b) A, B and C only
(c) A, B, C and D (d) A, C and D only

4. Match List I with List II

List I

A. Mucus lining
B. Acid in stomach
C. PMNL-neutrophils
D. Interferons

List II

I. Physiological barrier
II. Cellular barrier
III. Physical barrier
IV. Cytokine barrier

Choose the correct answer from the options given below:

(a) A-II, B-I, C-IV, D-III (b) A-III, B-II, C-IV, D-I
(c) A-II, B-III, C-I, D-IV (d) A-III, B-I, C-II, D-IV

5. The parturition is induced by a complex neuroendocrine mechanism. Which of the following hormone is not involved on this process?

(a) Estrogen (b) Cortisol
(c) Oxytocin (d) Melanin

6. Identify curative method (s) used to treat ADA deficiency disease in human.

A. Gene Therapy
B. Bone Marrow Transplantation
C. Complete Blood Replacement

- D. Enzyme Replacement Therapy

Choose the correct answer from the options given below:

(a) A, B and D only (b) B, C and D only
(c) A, C and D only (d) A and C only

7. Montreal protocol is related to _____

(a) Ozone depletion (b) Green house gases
(c) Acid rain (d) Deforestation

8. Which of the following serve as an important biofertiliser in paddy field?

(a) *Glomus* (b) *Oscillatoria*
(c) *Rhizobium* (d) *Azospirillum*

9. Progestasert and LNG-20 are the examples of:

(a) Copper releasing IUD's
(b) Hormone releasing IUD's
(c) Oral Contraceptives
(d) Non-medicated IUD's

10. Which of the following statements are correct about the structure of a sperm?

A. It is composed of head, thorax, neck and tail
B. The neck region contains a lot of mitochondria
C. The mitochondria produces energy for the movement of tail
D. The tail facilitate sperm motility essential for fertilisation

Choose the most appropriate answer from the options given below:

(a) A and B only (b) B and C only
(c) C and D only (d) B and D only

11. In the process of protein synthesis the amino acids bind to tRNA at:

(a) Anticodon site (b) 3' end
(c) 5' end (d) any place of tRNA

12. Match List I with List II

LIST I

(Microorganism)

A. *Trichoderma polysporum*
B. *Monascus purpureus*
C. *Saccharomyces cerevisiae*
D. *Aspergillus niger*

LIST II

(Product Obtained)

I. Ethanol
II. Citric Acid
III. Cyclosporin A
IV. Statins

Choose the correct answer from the options given below:

- (a) A-II, B-IV, C-I, D-III (b) A-IV, B-III, C-I, D-II
(c) A-III, B-IV, C-II, D-I (d) A-III, B-IV, C-I, D-II

13. GEAC is:

- (a) Genetic Engineering Approval Committee
(b) Genetic Engineering Addressal Committee
(c) Genetic Engineering Approval Council
(d) Genetic Engineering Approving Council

14. Which of the following does not affect genetic equilibrium/Hardy Weinberg Equilibrium?

- (a) Mutation
(b) Genetic drift
(c) Genetic recombination
(d) Random mating

15. Extinction of Steller's sea Cow and passenger pigeon is due to _____

- (a) Invasion of alien species
(b) Over exploitation by human
(c) Habitat loss and fragmentation
(d) Co-extinction

16. Select the condition(s) in which decomposition does not take place in

- A. In warm and moist environment
B. In presence of decomposers
C. In absence of decomposers
D. In absence of detritivores
E. In presence of complex compounds like lignin and chitin.

Choose the correct answer from the options given below:

- (a) C, D and E only (b) C and D only
(c) A, D and E only (d) B, D and E only

17. Match List I with List II

List I	List II
A. Curd	I. <i>Streptococcus</i>
B. Butyric acid	II. <i>Propionibacterium sharmanii</i>
C. Swiss cheese	III. <i>Clostridium butylicum</i>
D. Clot buster	IV. <i>Lactobacillus</i>

Choose the correct answer from the options given below:

- (a) A-I, B-II, C-III, D-IV
(b) A-IV, B-III, C-II, D-I
(c) A-I, B-II, C-IV, D-III
(d) A-IV, B-III, C-I, D-II

18. Which one of the following is not an example of terrestrial ecosystem?

- (a) Forest (b) Grassland
(c) Estuaries (d) Deserts

19. Which of the following is not a marine fish?

- (a) Hilsa (b) Rohu
(c) Sardines (d) Pomfrets

20. Which one of the following is an example of community protected biodiversity conservation method?

- (a) Wild life sanctuaries (b) Biosphere reserves
(c) Sacred groves (d) Botanical gardens

21. Trisomy of Chromosome 21 in humans leads to

- (a) Klinefelter's syndrome (b) Turner's syndrome
(c) Down's syndrome (d) Phenylketonuria

22. Which one of the following is an example of co-evolution?

- (a) Sea anemone and clown fish
(b) Barnacles and Whale
(c) Wasp and Fig
(d) Cuckoo and crow

23. Arrange the following events of Meselson and Stahl's experiment in order of their occurrence

- A. DNA extracted from the culture, twenty minutes after transfer from ^{15}N to ^{14}N medium had a hybrid density.
B. *E. Coli* with heavy DNA were transferred into a medium with $^{14}\text{NH}_4\text{Cl}$.
C. *E. Coli* were grown in a medium containing $^{15}\text{NH}_4\text{Cl}$.
D. DNA extracted from the culture after forty minutes had equal amounts of hybrid DNA and light DNA.

Choose the correct answer from the options given below:

- (a) A, B, C, D (b) D, C, A, B
(c) B, A, D, C (d) C, B, A, D

24. Cross between two different but related species is called

- (a) Cross breeding
(b) Interspecific hybridisation
(c) Out crossing
(d) Out breeding

25. Match List I with List II

LIST I	LIST II
A. Homology	I. Darwin's finches
B. Analogy	II. Single step large mutation
C. Adaptive radiation	III. Convergent Evolution
D. Saltation	IV. Divergent Evolution

Choose the correct answer from the option given below:

- (a) A-III, B-I, C-IV, D-II
(b) A-IV, B-III, C-I, D-II
(c) A-IV, B-I, C-III, D-II
(d) A-I, B-IV, C-II, D-III

26. Bamboo species exhibit unusual flowering phenomenon, because it flowers:

- (a) Once in 12 years in their life time.
- (b) Only once in their life time.
- (c) Three times in their life span.
- (d) Many times in their life span.

27. Which one is not a unit of vegetative propagation?

- (a) Bulb
- (b) Runner
- (c) Tuber
- (d) Seed

28. In an electrostatic precipitator electrodes wires produce a corona that releases _____ to make dust particles get attracted towards collecting plate.

- (a) Protons
- (b) Electrons
- (c) Neutrons
- (d) Positrons

29. Match List I with List-II

LIST I

A. One species is benefitted and other harmed.

B. One species is benefitted and other neither harmed nor benefitted.

C. Both the interacting species are benefitted.

D. One species is harmed and other remains unaffected.

LIST II

I. Amensalism

II. Parasitism

III. Commensalism

IV. Mutualism

Choose the correct answer from the options given below:

- (a) A-I, B-III, C-IV, D-II
- (b) A-II, B-III, C-I, D-IV
- (c) A-II, B-III, C-IV, D-I
- (d) A-IV, B-II, C-I, D-III

30. Which one of the following is NOT a method of molecular diagnosis for early detection of a disease?

- (a) rDNA technology
- (b) RNAi
- (c) PCR
- (d) ELISA

31. Hind-II cuts DNA at a particular by recognising a specific sequence of _____

- (a) 6 bp
- (b) 5 bp
- (c) 4 bp
- (d) 3 bp

32. Match List I with List II

List I

A. Transforming principle

B. Replication of DNA

C. Lac operon concept

D. DNA Fingerprinting

List II

I. Jacob and Monod

II. Frederick Griffith

III. Alec Jeffreys

IV. Watson and Crick

Choose the correct answer from the options given below

- (a) A-II, B-III, C-IV, D-I
- (b) A-II, B-IV, C-I, D-III
- (c) A-IV, B-II, C-III, D-I
- (d) A-I, B-III, C-II, D-IV

33. Which of the following is/are not the characteristic of wind pollinated flowers?

- A. Light and non-sticky
- B. Possess well exposed stamens
- C. Large and often feathery stigma
- D. Often have many ovules in each ovary.

Choose the correct answer from the options given below:

- (a) A and C only
- (b) C only
- (c) B and D only
- (d) D only

34. Arrange the following steps regarding HIV infection in correct sequence

- A. Viral RNA produced by the infected cell
- B. Virus infects macrophages.
- C. Viral DNA is produced by reverse transcriptase
- D. Viral RNA is introduced into the cell.
- E. Viral DNA incorporates into the host genome.

Choose the correct answer from the options given below:

- (a) D, B, A, C, E
- (b) B, C, D, A, E
- (c) B, D, C, E, A
- (d) D, C, B, E, A

35. The endosperm is absent in the seed of :

- (a) Wheat
- (b) Castor
- (c) Maize
- (d) Pea

36. Identify the diagnostic test used to detect the sex of the foetus from the following:

- (a) ELISA
- (b) WIDAL
- (c) Amniocentesis
- (d) Urine analysis

37. Which of the following statement is FALSE in relation to colour blindness?

- (a) Colour blindness is an autosome-linked recessive disorder
- (b) Boys are more likely to be colour blind than girls
- (c) A daughter will not normally be colour blind, unless her mother is a carrier and her father is colour blind
- (d) Colour blind people generally fail to discriminate between red and green color

38. Arrange the following steps of gel electrophoresis in correct order.

- (A) DNA fragments were forced to move towards anode under electric field through agarose gel
- (B) Staining DNA fragments with Ethidium Bromide
- (C) DNA fragments separated according to their size
- (D) Visualising them in UV rays

Choose the correct answer from the options given below:

- (a) A, C, B, D
- (b) A, B, C, D
- (c) B, A, C, D
- (d) B, C, D, A

39. Which one of the following human ancestors probably lived in East African grasslands two million years ago?

- (a) *Ramapithecus*
- (b) *Dryopithecus*
- (c) *Australopithecines*
- (d) *Neanderthal* man

40. Widal test is used to diagnose:

- (a) Typhoid
- (b) Malaria
- (c) Pneumonia
- (d) Cancer

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

If a person is born with a hereditary disease, can a corrective therapy be taken for such a disease? Gene therapy is an attempt to do this. Gene therapy is a collection of methods that allows correction of a gene defect that has been diagnosed in a child/embryo. Here genes are inserted into a person's cells and tissues to treat disease.

ADA enzyme is crucial for the functioning of _____

- (a) Immune System
- (b) Respiratory System
- (c) Cardiovascular System
- (d) Excretory System

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

If a person is born with a hereditary disease, can a corrective therapy be taken for such a disease? Gene therapy is an attempt to do this. Gene therapy is a collection of methods that allows correction of a gene defect that has been diagnosed in a child/embryo. Here genes are inserted into a person's cells and tissues to treat disease.

ADA deficiency can be permanently cured by

- A. Bone Marrow Transplant
- B. Gene therapy
- C. Enzyme replacement therapy
- D. DNA recombination

Choose the correct answer from the options given below:

- (a) A, B and D only
- (b) B only
- (c) B and C only
- (d) C only

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

If a person is born with a hereditary disease, can a corrective therapy be taken for such a disease? Gene therapy is an attempt to do this. Gene therapy is a collection of methods that allows correction of a gene defect that has been diagnosed in a child/embryo. Here genes are inserted into a person's cells and tissues to treat disease.

Gene therapy method involves:

- (a) Cloning of cells with alternative gene
- (b) Delivery of normal functional gene in the embryo to compensate for non functional gene
- (c) Modification of defective genes in the cells
- (d) cDNA recombination

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

If a person is born with a hereditary disease, can a corrective therapy be taken for such a disease? Gene therapy is an attempt to do this. Gene therapy is a collection of methods that allows correction of a gene defect that has been diagnosed in a child/embryo. Here genes are inserted into a person's cells and tissues to treat disease.

ADA deficiency is caused due to:

- (a) Deficiency of bone marrow
- (b) Deletion of gene for adenosine deaminase
- (c) Addition of Adenosine
- (d) Deletion of amino group in genome

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

If a person is born with a hereditary disease, can a corrective therapy be taken for such a disease? Gene therapy is an attempt to do this. Gene therapy is a collection of methods that allows correction of a gene defect that has been diagnosed in a child/embryo. Here genes are inserted into a person's cells and tissues to treat disease.

The first clinical gene therapy was given in _____ to

- (a) 1990, 4 year old boy
- (b) 1990, 4 year old girl
- (c) 1992, 3 year old boy
- (d) 1992, 3 year old girl

46. Read the paragraph given below and answer the question.

Bee-keeping is the maintenance of hives of honeybees for the production of honey. Honey is a food of high nutritive value and also finds use in the indigenous systems of medicine. Honeybee also produces bee-wax, which finds many uses in industry, such as in the preparation of cosmetics and polishes of various kinds. The increased demand of honey has led to large-scale beekeeping practices; it has become an established income generating industry, whether practiced on a small scale or on a large scale.

Bee-keeping can be practiced in any area where there are sufficient bee pastures. There are several species of honeybees which can be reared. Beehives can be kept in one's courtyard, on the verandah of the house or even on the roof.

Bee-keeping is also known as:

- (a) Sericulture
- (b) Apiculture
- (c) Pisciculture
- (d) Aquaculture

47. Read the paragraph given below and answer the question. Bee-keeping is the maintenance of hives of honeybees for the production of honey. Honey is a food of high nutritive value and also finds use in the indigenous systems of medicine. Honeybee also produces beeswax, which finds many uses in industry, such as in the preparation of cosmetics and polishes of various kinds. The increased demand of honey has led to large-scale beekeeping practices; it has become an established income generating industry, whether practiced on a small scale or on a large scale.

Bee-keeping can be practiced in any area where there are sufficient bee pastures. There are several species of honeybees which can be reared. Beehives can be kept in one's courtyard, on the verandah of the house or even on the roof.

Which of the following is not suitable for practicing bee-keeping?

- (a) Wild Shrubs (b) Fruit Orchards
(c) Barren Land (d) Cultivated crops

48. Read the paragraph given below and answer the question. Bee-keeping is the maintenance of hives of honeybees for the production of honey. Honey is a food of high nutritive value and also finds use in the indigenous systems of medicine. Honeybee also produces bee wax, which finds many uses in industry, such as in the preparation of cosmetics and polishes of various kinds. The increased demand of honey has led to large-scale beekeeping practices; it has become an established income generating industry, whether practiced on a small scale or on a large scale.

Bee-keeping can be practiced in any area where there are sufficient bee pastures. There are several species of honeybees which can be reared. Beehives can be kept in one's courtyard, on the verandah of the house or even on the roof.

Bees help the farmers by:

- (a) Visiting pesticide free plants
(b) Decreasing crop yield
(c) Pollinating Crops
(d) Collecting nector

49. Read the paragraph given below and answer the question. Bee-keeping is the maintenance of hives of honeybees for the production of honey. Honey is a food of high nutritive value and also finds use in the indigenous systems of medicine. Honeybee also produces beeswax,

which finds many uses in industry, such as in the preparation of cosmetics and polishes of various kinds. The increased demand of honey has led to large-scale beekeeping practices; it has become an established income generating industry, whether practiced on a small scale or on a large scale.

Bee-keeping can be practiced in any area where there are sufficient bee pastures. There are several species of honeybees which can be reared. Beehives can be kept in one's courtyard, on the verandah of the house or even on the roof.

Identify the reasons as to why a bee-keeper could not get enough honey with the practiced beekeeping in the garden of his home.

- A. He had used chemical pesticides in his garden.
B. There were not enough flowers in the garden.
C. There were no medicinal plants growing in his garden.
D. There was no verandah in his courtyard.

Choose the correct answer from the options given below:

- (a) A and C only (b) A and B only
(c) B and C only (d) C and D only

50. Read the paragraph given below and answer the question. Bee-keeping is the maintenance of hives of honeybees for the production of honey. Honey is a food of high nutritive value and also finds use in the indigenous systems of medicine. Honeybee also produces beeswax, which finds many uses in industry, such as in the preparation of cosmetics and polishes of various kinds. The increased demand of honey has led to large-scale beekeeping practices; it has become an established income generating industry, whether practiced on a small scale or on a large scale.

Bee-keeping can be practiced in any area where there are sufficient bee pastures. There are several species of honeybees which can be reared. Beehives can be kept in one's courtyard, on the verandah of the house or even on the roof.

Identify the statements which are not true for bee-keeping

- A. Bee-keeping is a very old cottage industry.
B. Bee-keeping is a labour intensive activity.
C. The demand for honey is poor.
D. Bee-keeping also yields beeswax.

Choose the correct answer from the options given below:

- (a) A and B only (b) A and C only
(c) C and D only (d) B and C only