

CUET – 2023
Biology
Mock Paper - 1

Time: 45 min

Maximum Marks: 200

General Instructions:

- (i) Total duration of **Biology** Paper is **45** min.
- (ii) You have to attempt any 40 questions out of 50 in each Domain subjects.
- (iii) All the questions provided are in MCQ format and have only single correct option.
- (iv) Each questions carries 5 marks. For each correct response, the candidate will get 5 marks. For each incorrect response 1 mark will be deducted from the total score.

Note: Select the most appropriate option from those given below for each question:

1. Offspring formed by sexual reproduction exhibit more variation than those formed by asexual reproduction because
 - (a) Sexual reproduction is a lengthy process.
 - (b) Gametes of parents have qualitatively different genetic composition.
 - (c) Genetic material comes from parents of two different species.
 - (d) Greater amount of DNA is involved in sexual reproduction.

2. When pollen is transferred from the anther of a flower to the stigma of another flower of the same plant, the pollination is referred to as _____.
 - (a) Geitonogamy
 - (b) Allogamy
 - (c) Xenogamy
 - (d) Siphonogamy

3. A common indicator organism of water pollution is
 - (a) *Eichhornia crassipes*
 - (b) *Escherichia coli*
 - (c) *Entamoeba histolytica*
 - (d) *Streptococcus pneumoniae*

4. Match List I to List II.

	List I		List II
a	Trophoblast	i	Embedding of blastocyst in the endometrium
b	Cleavage	ii	Group of cells that would differentiate as embryo
c	Inner cell mass	iii	Outer layer of blastocyst attached to the endometrium
d	Implantation	iv	Mitotic division of zygote

Choose the correct answer from the options given below:

- (a) a – iii, b – i, c – ii, d – iv
- (b) a – ii, b – iv, c – ii, d – iii
- (c) a – iii, b – iv, c – ii, d – i
- (d) a – iv, b – iii, c – ii, d – i

5. Regeneration of a plant cell to give rise to a new plant is called

- (a) Reproduction
- (b) Budding
- (c) Totipotency
- (d) Pluripotency

6. A test-tube baby means a baby born when

- (a) It is developed in a test tube.
- (b) It develops from a non-fertilised egg.
- (c) The ovum is fertilised externally and thereafter implanted in the uterus.
- (d) It is developed by tissue culture method.

7. Which type of DNA molecule consists of only 8 base pairs per turn?

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

8. The gas mixture used by Miller in his experiment comprised of

- (a) CH₄, CO₂, N₂, H₂O
- (b) NH₃, CO₂, H₂O, N₂
- (c) CH₂, NH₃, N₂, H₂O
- (d) CH₄, NH₃, H₂O, H₂

9. Which one of the following depresses brain activity and produces a feeling of calmness, relaxation, and drowsiness?

- (a) Valium
- (b) Morphine
- (c) Hashish
- (d) Amphetamines

10. Rearing and breeding of fish in ponds, lakes and artificial reservoirs is called

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

11. In double fertilisation _____.

- (a) Two male gametes fuse with two eggs
- (b) One male gamete fuses with the egg and the other fuses with the secondary nucleus
- (c) One male gamete fuses with the egg, while the other fuses with the antipodal
- (d) One male gamete fuses with the antipodal, while the other fuses with the diploid nucleus

12. Diaphragms are contraceptive devices used by females.

- i. They are introduced into the uterus.
- ii. They are placed to cover the cervical region.
- iii. They act as physical barriers for sperm entry.
- iv. They act as spermicidal agents.

Choose the correct option from the statements given below:

- (a) Both (i) and (ii) are correct
- (b) Both (i) and (iii) are correct
- (c) Both (ii) and (iii) are correct
- (d) Both (iii) and (iv) are correct

13. The bones of forelimbs of whale, bat, cheetah and man are similar in structure, because

- (a) one organism has given rise to another
- (b) they share a common ancestor
- (c) they perform the same function
- (d) they have biochemical similarities

14. Match List I to List II

	List I		List II
a	Water lily	i	<i>Rosa multiflora</i>
b	Hibiscus	ii	<i>Brassica nigra</i>
c	Mustard	iii	<i>Nymphaea odorata</i>
d	Rose	iv	<i>Hibiscus rosa-sinensis</i>

Choose the correct answer from the options given below:

- (a) a – iii, b – iv, c – ii, d – i
- (b) a – ii, b – iv, c – ii, d – iii
- (c) a – i, b – iv, c – ii, d – iii
- (d) a – iv, b – iii, c – ii, d – i

- 15.** In a random mating population in equilibrium, which of the following brings about a change in gene frequency in a non-directional manner?
- (a) Selection
 - (b) Migration
 - (c) Mutations
 - (d) Random drift
- 16.** Each immunoglobulin has two heavy chains and two light chains. The antigen binding site is present in:
- (a) Variable region of heavy chain
 - (b) Variable region of both heavy and light chain
 - (c) Variable region of light chain
 - (d) Constant region of light chain
- 17.** Who among the following was awarded the Nobel Prize for the development of PCR technique?
- (a) Herbert Boyer
 - (b) Har Gobind Khurana
 - (c) Kary Mullis
 - (d) Arthur Kornberg
- 18.** Insect control proteins are extracted from which of the following organisms?
- (a) *Trichoderma polysporum*
 - (b) *Pseudomonas putida*
 - (c) *Penicillium notatum*
 - (d) *Bacillus thuringiensis*
- 19.** The plants of this group are adapted to live partly in water and partly above the substratum and free from water. They are called
- (a) Xerophytes
 - (b) Thallophytes
 - (c) Helophytes
 - (d) Hydrophytes
- 20.** In a food chain, the total amount of living material is depicted by the
- (a) Pyramid of biomass
 - (b) Trophic levels
 - (c) Pyramid of numbers
 - (d) Pyramid of energy

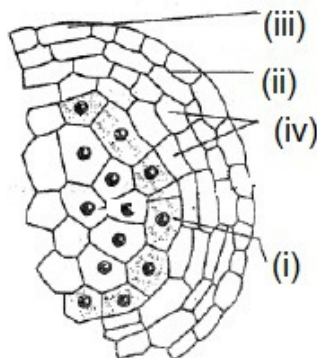
- 21.** An inverted pyramid of numbers and an inverted pyramid of biomass are respectively seen in
- (a) Grassland and tree ecosystems
 - (b) Sea and tree ecosystems
 - (c) Tree and sea ecosystems
 - (d) Sea and grassland ecosystems
- 22.** List of endangered species was released by
- (a) IUCN
 - (b) BBC
 - (c) WCC
 - (d) UN
- 23.** Amensalism is an association between two species where
- (a) One species is harmed and other is benefitted
 - (b) One species is harmed and other is unaffected
 - (c) One species is benefitted and other is unaffected
 - (d) Both the species are harmed
- 24.** Which of the following is used in the treatment of certain kinds of cancer?
- (a) Interferon
 - (b) Interleukin
 - (c) Tumour necrosis factor
 - (d) All of the above
- 25.** Which of the following is not a cause for the loss of biodiversity?
- (a) Destruction of habitat
 - (b) Invasion by alien species
 - (c) Keeping animals in zoological parks
 - (d) Over- exploitation of natural resources
- 26.** Strontium-90 accumulates in the
- (a) RBCs
 - (b) WBCs
 - (c) Bone
 - (d) Brain
- 27.** Which of the following correctly represents the stages in solid waste management?
- (a) Transportation - Collection - Segregation – Dumping
 - (b) Collection - Segregation - Transportation - Dumping
 - (c) Segregation - Collection - Transportation - Dumping
 - (d) Collection - Segregation - Dumping - Transportation

- 28.** Which of the following is a characteristic of a food web?
- (a) Interlinking food chains
 - (b) Checking overpopulation
 - (c) Ecosystem development
 - (d) All of the above
- 29.** Cold-blooded animals fall under the category of
- (a) Ectotherms
 - (b) Psychotherms
 - (c) Endotherms
 - (d) Thermophiles
- 30.** Which one of the following groups includes sexually transmitted diseases?
- (a) AIDS, Syphilis, Cholera
 - (b) HIV, Malaria, Trichomoniasis
 - (c) Gonorrhoea, Hepatitis B, Chlamydiasis
 - (d) Hepatitis B, Haemophilia, AIDS
- 31.** Where will you look for the sporozoites of the malarial parasite?
- (a) RBCs of humans suffering from malaria
 - (b) Spleen of infected person
 - (c) Salivary glands of freshly moulted female *Anopheles* mosquito
 - (d) Saliva of infected female *Anopheles* mosquito
- 32.** Transgenic plants are
- (a) Generated by introducing foreign DNA into a cell and regenerating a plant from the cell
 - (b) Produced after protoplast fusion in an artificial medium
 - (c) Grown in an artificial medium after hybridisation in the field
 - (d) Produced by a somatic embryo in an artificial medium
- 33.** In malignant tumors, the cells proliferate, grow rapidly, and move to other parts of the body to form new tumors. This stage of disease is called
- (a) metagenesis
 - (b) metastasis
 - (c) teratogenesis
 - (d) mitosis
- 34.** According to Lamarckism, long necked giraffes evolved because
- (a) Nature selected only long necked giraffes
 - (b) Humans preferred only long necked giraffes
 - (c) Short necked giraffes suddenly became long necked
 - (d) By stretching of necks over several generations

35. Which of the following is correct for mammalian testes?

- (a) Graafian follicle, Sertoli cells, Leydig cells
- (b) Sertoli cells, Seminiferous tubules, Leydig cells
- (c) Graafian follicle, Leydig cells, Seminiferous tubules
- (d) Graafian follicle, Sertoli cells, Seminiferous tubules

36. The given diagram shows the transverse section of a young anther. Choose the labellings showing correct placement of the wall layers from the table given below:



	(i)	(ii)	(iii)	(iv)
(a)	Epidermis	Middle layers	Tapetum	Endothecium
(b)	Tapetum	Endothecium	Epidermis	Middle layers
(c)	Endothecium	Tapetum	Middle layers	Epidermis
(d)	Middle layers	Epidermis	Endothecium	Tapetum

37.

Statement I: Leguminous plants can grow well in nitrogen deficient soils.

Statement II: They need little nitrogen.

In the light of the above statements, choose the most appropriate answer from the options given below.

- (a) Both Statement I and Statement II are correct.
- (b) Both Statement I and Statement II are incorrect.
- (c) Statement I is correct and Statement II is incorrect.
- (d) Statement I is incorrect and Statement II is correct.

38.

Statement I: A single mRNA strand is capable of forming a number of different polypeptide chains.

Statement II: The mRNA strand has terminator codons.

In the light of the above statements, choose the most appropriate answer from the options given below.

- (a) Both Statement I and Statement II are correct.
- (b) Both Statement I and Statement II are incorrect.
- (c) Statement I is correct and Statement II is incorrect.
- (d) Statement I is incorrect and Statement II is correct.

39.

Statement I: Plasmids are single stranded extrachromosomal DNA. **Statement II:** Plasmids are usually present in eukaryotic cells. In the light of the above statement, choose the most appropriate answer from the options given below. (a) Both Statement I and Statement II are correct. (b) Both Statement I and Statement II are incorrect. (c) Statement I is correct and Statement II is incorrect. (d) Statement I is incorrect and Statement II is correct.

40.

Statement I: Animals cannot adopt different strategies to survive in hostile environments.

Statement II: Praying mantis is green in colour which merges with plant foliage.

In the light of the above statement, choose the most appropriate answer from the options given below

- (a) Both Statement I and Statement II are correct.
- (b) Both Statement I and Statement II are incorrect.
- (c) Statement I is correct and Statement II is incorrect.
- (d) Statement I is incorrect and Statement II is correct.

Read the following passage and answer the questions from 41 to 45.

We use microbes or products derived from them in our everyday life. A common example is the production of curd from milk. Micro-organisms such as *Lactobacillus* and others commonly called lactic acid bacteria (LAB) grow in milk and convert it to curd. During growth, the LAB produce acids that coagulate and partially digest the milk proteins. A small amount of curd added to the fresh milk as inoculum or starter contains millions of LAB, which at suitable temperatures multiply, thus converting milk to curd, which also improves its nutritional quality by increasing vitamin B12. LAB play very beneficial role in checking disease causing microbes in our stomach too.

41. Probiotics are

- (a) Food preservatives
- (b) Food allergens
- (c) Live microbial food supplement
- (d) Safe antibiotics

42. Lactic acid is formed by the process of

- (a) Fermentation
- (b) Glycolysis
- (c) Krebs cycle
- (d) HMP Pathway

43. A small amount of _____ added to the fresh milk as inoculum or starter contains millions of LAB, which at suitable temperatures multiply, thus converting milk to curd.

- (a) Vinegar
- (b) Curd
- (c) Lactic acid
- (d) Carbon dioxide

44. The dough which is used for making foods such as dosa and idli is fermented by _____.

- (a) Bacteria
- (b) Fungi
- (c) Protozoa
- (d) Virus

45. **Statement I:** Different varieties of cheese are known by their characteristic texture, flavour and taste, the specificity coming from the microbes used.

Statement II: The large holes in 'Swiss cheese' are due to the production of a large amount of CO₂ by a bacterium named *Propionibacterium sharmanii*.

Choose the correct statement from the following.

- (a) Both statement I and II are correct
- (b) Both statement I and II are incorrect.
- (c) Only statement I is correct.
- (d) Only statement II is incorrect.

Read the following passage and answer the questions from 46 to 50.

Chromosomal disorders are caused due to the absence or excess or abnormal arrangement of one or more chromosomes. Failure of segregation of chromatids during cell division results in the gain or loss of a chromosome(s), called aneuploidy. Examples of chromosomal disorders include Down's syndrome and Turner's syndrome. Failure of cytokinesis after telophase stage of cell division results in an increase in a whole set of chromosomes in an organism and, this phenomenon is known as polyploidy. This condition is often seen in plants. The total number of chromosomes of a normal human being is 46 (23 pairs). Out of these 22 pairs are autosomes and one pair of chromosomes are sex chromosomes. Sometimes, though rarely, either an additional copy of a chromosome may be included in an individual or an individual may lack one of any one pair of chromosomes. These situations are known as trisomy or monosomy of a chromosome.

46. Down's syndrome is due to:

- (a) Linkage
- (b) Sex-linked inheritance
- (c) Crossing over
- (d) Non-disjunction of chromosome

- 47.** The cause of Down's syndrome is the presence of an additional copy of the chromosome number:
(a) 21 (b) 15 (c) 16 (d) 8
- 48.** Which of the following is NOT correct symptom of Down's syndrome?
(a) Short statured
(b) Small round head
(c) Partially open mouth
(d) Rudimentary ovaries
- 49.** _____ is caused due to the presence of an additional copy of X-chromosome resulting into a karyotype of 47, XXY.
(a) Down's Syndrome
(b) Klinefelter's Syndrome
(c) Turner's Syndrome
(d) Haemophilia
- 50.** _____ is caused due to the absence of one of the X chromosomes.
(a) Down's Syndrome
(b) Klinefelter's Syndrome
(c) Turner's Syndrome
(d) Haemophilia