

Sample Paper (C)

Class 12 Biology

General instructions

All questions are compulsory

The question paper has five sections and 35 questions .

All questions are compulsory

Section A has 18 questions of one mark each

Section B has 7 questions of 2 marks each

Section C has 5 questions of 3 marks each

Section D has two case study based questions of 4 marks

Section E has three questions of 5 marks each

There is no over all choice however internal choice have been provided in some questions student has to attempt only one of the alternative questions

Wherever necessary draw properly labelled diagrams

Section A

1.The structure of bilobed anther consists of:

- | | |
|--------------------------|--------------------------|
| a) 2 thecae, 2 sporangia | b) 4 thecae, 4 sporangia |
| b) 4 thecae, 2 sporangia | d) 2 thecae, 4 sporangia |

2. The thalamus contributes to the fruit formation in :

- | | |
|---------------|-----------|
| a) Banana | b) Orange |
| c) Strawberry | d) Guava |

3. What is present in the middle piece of sperm

- | | |
|-------------|-----------------------|
| a) Acrosome | b) Mitochondria |
| c) Nucleus | d) Proximal centriole |

4. A female undergoing IVF treatment has blocked fallopian tubes. The technique by which the embryo With more than 8 blastomeres will be transferred into the female for further development is:

- | | |
|--------|---------|
| a)ZIFT | b) GIFT |
| c) IUT | d) AI |

5. How many types of gametes would be produced if the genotype of a parent is Aa BB?

- | | |
|------|------|
| a) 1 | b) 2 |
| c) 3 | d) 4 |

6. In Antirrhinum, RR is phenotypically red flower rr is white and Rr is pink. Select the correct phenotypic ratio in F1 generation when a cross is performed between RRxRr

- | | |
|---------------------|-----------------|
| a)1red:2pink:1white | b) 2pink:1white |
| c) 2red:2pink | d) AU pink |

7. Which of the following RNA is not required for the synthesis of protein?

- | | |
|----------|--------|
| a) SiRNA | b)mRNA |
| c) tRNA | d)rRNA |

8. AGGTATCGCAT is a sequence from the coding strand of a gene. What will be the corresponding

sequence of the transcribed mRNA?

- a) UGGTUTCGCAT
- b) ACCUAUGCGAU
- c) AGGUAUCGCAU
- d) UCCAUAGCGUA

9. How many mya, the jawless fish probably evolved?

- a) 320
- b) 350
- c) 400
- d) 500

10. Coelacanth was a:

- a) Invertebrate
- b) Fish
- c) Amphibian
- d) Reptile

11. The amount of nutrients such as carbon ,nitrogen, phosphorus and calcium present in the soil at any given time is referred as:

- a) Standing crop
- b) Climax
- b) Climax community
- d) Standing state

12. If a population of 50 paramecia present in a pool increase to 150 after an hour what would be the growth rate of population?

- a) 50 per hour
- b) 200 per hour
- c) 5 per hour
- d) 100 per hour

13. In the equation $GPP - R = NPP$, R represents.

- a) Respiration losses
- b) Radiant energy
- c) Retardation factor
- d) Environment factor

14. Which one of the following plants shows a very close relationship with a species of moth where none of the two can complete its life cycle without the other?

- a) Yucca
- b) Banana
- b) Hydrilla
- d) Viola

Assertion-Reason type questions:

These question consists of two statements each printed as Assertion and Reason. While answering these questions you are required to choose any one of the following responses.

- A. If both Assertion and Reason are true, Reason is correct explanation of the Assertion.
- B. If both Assertion and Reason are true but Reason is not correct explanation of the Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.

15. Assertion: Interferons are a type of antibodies produced by cells infected by bacteria

Reason: Interferons stimulate inflammation at the site of injury.

- A
- B
- C
- D

16. Assertion: Insulin is a type of antibiotic

Reason: It is synthesized by the process of fermentation.

- A
- B
- C
- D

17. Assertion: Nitrogen fixing bacteria of legume nodules live in O_2 -depleted cells

Reason: Leghaemoglobin completely remove O_2 from nodule cells.

- A
- B
- C
- D

18. Assertion: A person who has received a cut and is bleeding needs to be given anti-tetanus treatment

Reason: Anti-tetanus injection provides immunity by introducing antibodies for tetanus

- A
- B
- C
- D

19. Name the two types of immune systems in a human body. Why are they called so?

OR

Name the plant source of the drug commonly called "Smack" How does it affect the body of abuser.

20. Name the bacterium responsible for large holes seen in "Swiss Cheese". What are those holes due to

21. What is the source of cyclosporin-A? what is its significance.

22. Name the first transgenic cow. Which gene was introduced into this cow?

23. What is incomplete dominance? Explain it with suitable example.

OR

What is pleiotropy? Give one example of it.

24. Write four features of genetic code.

25. Write difference between homologous and analogous organs.

Section:C

26. Draw a labelled diagram of a typical anatropous ovule.

OR

Explain the different ways apomictic seeds can develop. Give an example.

27. Why is haemophilia generally observed in human males? Explain the conditions under which a human female can be haemophilic.

OR

Both Haemophilia and Thalassaemia are blood related disorders in humans. Write their cause and difference between the two. Name the category of genetic disorder they both come under.

28. Explain the importance of "selectable marker" with the help of suitable example.

29. Explain the different types of ecological pyramids.

30. Write a short note on in-situ conservation of bio-diversity.

Section D

31. X and Y are communicable diseases whereas W and Z are non-communicable diseases. X is transmitted through vectors whereas Y is transmitted through droplet infection. W is caused due to hormone deficiency whereas Z is a degenerative disease.

Based on the above information answer the following questions.

1. Give an example :- Communicable disease, non-communicable disease.
2. What is vector name a vector transmitted disease.
3. How will you differentiate between communicable and non-communicable disease.

OR

Write the different modes of transmissions of communicable disease.

32. Aditya went to his hometown located in countryside along with his parents during the summer vacations. His grandparents' house is surrounded by farmland from all sides. Lots of crops were growing nearby and Aditya was very excited to visit the crop fields.

He sought permission from his mother to play in farmland along with his friends and then went to play in the fields. On returning back he had running nose, watering eyes and continuous sneezing which was very frequent. The symptoms worsened with time.

Based on above information answer the following questions.

1. What symptoms were observed when Aditya visited the crop fields?
2. What is the cause of the symptoms Aditya was suffering from?
3. How the symptoms can be overcome?

OR

Why did Aditya suffer on visiting the farm land?

Section E

33. What is spermatogenesis ? Give schematic representation of spermatogenesis.

OR

What is oogenesis? Give schematic representation of oogenesis.

34. Write the different components of lac-operon in E coli. Explain its expression while in an open state.

OR

Describe Meselson&Stahl's experiment that was carried in 1958 in E coli. Write the conclusion they arrived after experimentation.

35. Give an account of the production of human insulin in transgenic organisms.

OR

How did the process of RNA interference help to control the nematode from infecting roots of tobacco plants? Explain