Roll Number		

SET A

INDIAN SCHOOL MUSCAT
SECOND PRELIMINARY EXAMINATION
BIOLOGY [THEORY]

CLASS: XII | Sub. Code: 044 | Time Allotted: 3 Hrs.

13.02.2019 | Max. Marks: 70

General Instructions:

1. All questions are compulsory.
2. The question paper consists of four sections A, B, C and D.
3. Internal choice is given in all the sections. **A student has to attempt only one of the alternatives in such questions.**
4. Section–A contains 5 questions of 1 mark each.
5. Section–B has 7 questions of 2 marks each.
6. Section–C is of 12 questions of 3 marks each
7. Section–D has 3 questions of 5 marks each.
8. Wherever necessary, the diagrams drawn should be neat and properly labelled.

SECTION - A

1. A garden pea plant A produced inflated yellow pod and another plant B of the same species produced constricted green pods. Identify the dominant traits. 1

OR

Name the common ancestors of the great apes and man.

2. What causes swelling of the lower limbs in patients suffering from filariasis? 1

3. How can bacterial DNA be released from the bacterial cell for biotechnology experiments? 1

4. State what happens when an alien gene is ligated at SalI site of pBR322 plasmid. 1

OR

Mention the source of thermostable DNA polymerase.

5. Between amphibians and birds, which will be able to cope with global warming? Give reason. 1

SECTION - B

6. "Pollen grains in wheat are shed at 3-celled stage while in peas they are shed at 2-celled stage. Explain. Where are the germ pores present in a pollen grain? 2

7. State two postulates of Oparin and Haldane with reference to origin of life. 2

8. a) Mention the function of RNA polymerase II in eukaryotes. 2
b) How is a degenerate code different from an unambiguous code?

9. Name the type of immunity the colosturm provides to a newborn baby. Write giving an example where this type of immunity should be provided to a person. 2

OR

How can healthy potato plants be obtained from a desired potato variety which is virus infected. Explain.

10. Name the following: 2
a) A fungal symbiont that is used as biofertiliser.
b) The bacterium, Alexander Fleming was working on.
c) A common methanogen.
d) The source organism from which the first antibiotic was produced.

11. a) Mention the cause and body system affected by ADA deficiency in humans. 2
b) Name the vector used for transferring the functional ADA gene into the recipient cells in the affected human. Name the recipient cells.

12. What is Joint Forest Management? How can it help in conservation of forests? 2

OR

List four causes of biodiversity loss.

SECTION – C

13. How does Cleistogamy ensure autogamy? 3

14. Draw a diagram of a male gametophyte of an angiosperm. Label any four parts. Why is sporopollenin considered the most resistance organic material? 3

OR

Define spermiogenesis. Differentiate between the location and function of Sertoli cells and Leydig cells.

15. a) Name the kind of disease that are likely to occur in humans if,
(i) Mutation in the gene that codes for an enzyme phenyl alanine hydrolase occurs.
(ii) There is an extra copy of chromosome 21.
(iii) The karyotype is XXY
b) Mention any one symptom of the diseases named above.

OR

The base sequence in one of the strands of DNA is TAGCATGAT
i) Give the base sequence of its complementary strand.
ii) How are these base pairs held together in a DNA molecule?
iii) Explain the base complementarity rules. Name the scientists who framed this rule.

16. How are structural genes activated in the lac operon in E.coli? 3

OR

Why is haemophilia rare in human females? Mention a clinical symptom for the disease.

17. Branching descent and natural selection are the two key concepts of Darwinian Theory of Evolution. Explain each concept with the help of a suitable example. 3

18. Enumerate any six essentials of good effective dairy farm management practices. 3

OR

Given below is a list of six micro organisms. State their usefulness to humans.

a) *Nucleopolyhedrovirus*
b) *Saccharomyces cerevisiae*
c) *Monascus purpureus*
d) *Trichoderma polysporum*
e) *Penicillium notatum*
f) *Propionibacterium sharmanii*

19. a) Organic farmers prefer biofertilisers to chemical fertilizers these days. Explain. 3
b) Give an example of a bacterium a fungus and an insect that are used as biocontrol agents.

20. Name the cells HIV attacks first when it gains entry into a human body. How does this virus replicate further to cause immune deficiency in the body? 3

21. How are DNA fragments separated and isolated for DNA fingerprinting? Explain. 3

22. Name the nematode that damages the roots of tobacco plants. How is nematode resistant transgenic tobacco plant made using biotechnology? 3

23. Explain giving three reasons why tropics show greatest levels of species diversity. 3

24. Explain any three measures which will control vehicular pollution in Indian cities. 3

SECTION - D

25. a) Why should we conserve biodiversity? How can we do it? 5
b) Explain the importance of biodiversity hot-spots and sacred groves.

OR

a) Differentiate between primary and secondary ecological successions.
b) Explain different steps of xerarch succession occurring in nature.

26. a) Describe the process of megasporogenesis in angiosperms until 8 nucleated stage. 5

b) Draw labeled structure of embryosac.

OR

Explain the process of fertilization and implantation.

27. a) Describe the experiment which demonstrated the Transforming principle. 5
b) How was the biochemical nature of this transforming principle determined by Avery, Mc Leod and Mc Carty?

OR

A tall pea plant with yellow seeds is crossed with a dwarf pea plant with green seed. Using a Punnet square work out the cross to show the phenotypes and the genotypes of F1 generation.

End of the Question Paper

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SET B

INDIAN SCHOOL MUSCAT
SECOND PRELIMINARY EXAMINATION
BIOLOGY [THEORY]

CLASS: XII
13.02.2019

Sub. Code: 044

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8. Wherever necessary, the diagrams drawn should be neat and properly labelled.

SECTION - A

1. State what happens when an alien gene is ligated at SalI site of pBR322 plasmid. 1

OR

Mention the source of thermostable DNA polymerase.

2. Between amphibians and birds, which will be able to cope with global warming? Give reason. 1

3. Name the types of antibodies present in colostrums and produced during allergy. 1

4. A garden pea plant A produced inflated yellow pod and another plant B of the same species produced constricted green pods. Identify the dominant traits. 1

OR

Name the common ancestors of the great apes and man.

5. India has more than 50,000 strains of rice. Mention the level of biodiversity it represents. 1

SECTION - B

6. What is Joint Forest Management? How can it help in conservation of forests? 2

OR

List four causes of biodiversity loss.

7. According to Hardy-Weinberg's principle the allele frequency of a population remains constant. How do you interpret the change of frequency of alleles in a population? 2

8. Name the type of immunity the colostrum provides to a newborn baby. Write giving an example where this type of immunity should be provided to a person. 2

OR

How can healthy potato plants be obtained from a desired potato variety which is virus infected. Explain.

9. Name the following: 2
   a) A fungal symbiont that is used as biofertiliser.
   b) The bacterium, Alexander Fleming was working on.
   c) A common methanogen.
   d) The source organism from which the first antibiotic was produced.

10. a) Mention the function of RNA polymerase II in eukaryotes. 2
    b) How is a degenerate code different from an unambiguous code?

11. Why is proinsulin so called? How is mature insulin different from it? 2

12. "Pollen grains in wheat are shed at 3-celled stage while in peas they are shed at 2-celled stage. Explain. Where are the germ pores present in a pollen grain? 2

SECTION - C

13. a) Name the kind of disease that are likely to occur in humans if, 3
       (i) Mutation in the gene that codes for an enzyme phenyl alanine hydrolase occurs.
       (ii) There is an extra copy of chromosome 21.
       (iii) The karyotype is XXY
    b) Mention any one symptom of the diseases named above.

OR

The base sequence in one of the strands of DNA is TAGCATGAT
   i) Give the base sequence of its complementary strand.
   ii) How are these base pairs held together in a DNA molecule?
   iii) Explain the base complementarity rules. Name the scientists who framed this rule.

14. Suggest two advantages to a farmer for using apomictic seeds of hybrid varieties. 3

15. How are structural genes activated in the lac operon in E.coli? 3

OR

Why is haemophilia rare in human females? Mention a clinical symptom for the disease.

16. Plant breeding technique has helped sugar industry in North India. Explain how? 3

OR

Given below is a list of six micro organisms. State their usefulness to humans.

a) *Nucleopolyhedrovirus*
b) *Saccharomyces cerevisiae*
c) *Monascus purpureus*
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17. Draw a diagram of a male gametophyte of an angiosperm. Label any four parts. Why is sporopollenin considered the most resistance organic material? 3

OR

Define spermiogenesis. Differentiate between the location and function of Sertoli cells and Leydig cells.

18. Branching descent and natural selection are the two key concepts of Darwinian Theory of Evolution. Explain each concept with the help of a suitable example. 3

19. Name the bacterium that causes typhoid. Mention two diagnostic symptoms. How is this disease transmitted to others? 3

20. Name the nematode that damages the roots of tobacco plants. How is nematode resistant transgenic tobacco plant made using biotechnology? 3

21. Name the cells HIV attacks first when it gains entry into a human body. How does this virus replicate further to cause immune deficiency in the body? 3

22. How are DNA fragments separated and isolated for DNA fingerprinting? Explain. 3

23. a) List any three ways of measuring population density of a habitat. 3
    b) Mention the essential information that can be obtained by studying the population density of an organism.

24. Explain any three measures which will control vehicular pollution in Indian cities. 3

SECTION - D

25. a) Why should we conserve biodiversity? How can we do it? 5
    b) Explain the importance of biodiversity hot-spots and sacred groves.

OR

a) Differentiate between primary and secondary ecological successions.
b) Explain different steps of xerarch succession occurring in nature.

26 a) Describe the process of megasporogenesis in angiosperms until 8 nucleated stage.

b) Draw labeled structure of embryosac.

OR

Explain the process of fertilization and implantation.

27 a) Describe the experiment which demonstrated the Transforming principle. 5

b) How was the biochemical nature of this transforming principle determined by Avery, Mc Leod and Mc Carty?

OR

A tall pea plant with yellow seeds is crossed with a dwarf pea plant with green seed. Using a Punnet square work out the cross to show the phenotypes and the genotypes of F1 generation.

End of the Question Paper

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SET C

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SECTION - A

1. State what happens when an alien gene is ligated at SalI site of pBR322 plasmid. 1

OR

Mention the source of thermostable DNA polymerase.

2. Between amphibians and birds, which will be able to cope with global warming? Give reason. 1

3. Name the types of antibodies present in colostrums and produced during allergy. 1

4. A garden pea plant A produced inflated yellow pod and another plant B of the same species produced constricted green pods. Identify the dominant traits. 1

OR

Name the common ancestors of the great apes and man.

5. India has more than 50,000 strains of rice. Mention the level of biodiversity it represents. 1

SECTION - B

6. "Pollen grains in wheat are shed at 3-celled stage while in peas they are shed at 2-celled stage. Explain. Where are the germ pores present in a pollen grain? 2
7. State two postulates of Oparin and Haldane with reference to origin of life. 2
8. a) Mention the function of RNA polymerase II in eukaryotes. 2
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9. Name the type of immunity the colostrum provides to a newborn baby. Write giving an example where this type of immunity should be provided to a person. 2

OR

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11. a) Mention the cause and body system affected by ADA deficiency in humans. 2
    b) Name the vector used for transferring the functional ADA gene into the recipient cells in the affected human. Name the recipient cells.

12. What is Joint Forest Management? How can it help in conservation of forests? 2

OR

List four causes of biodiversity loss.

SECTION – C

13. a) Name the kind of disease that are likely to occur in humans if, 3
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SECTION - D

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