INTERNATIONAL INDIAN SCHOOL-DAMMAM

I TERMINAL EXAMINATION- 2012-2013

XII- BIOLOGY

Time- 3 Hours | Max. Marks-70

SET-A

General Instructions:

I. All questions are compulsory.

II. The question paper consists of four sections A,B,C,&D. Section A contains 8 questions of 1 mark each, Section B is of 10 questions of 2 marks each, Section C has 9 questions of 3 marks each whereas Section D is of 3 questions of 5 marks each.

III. There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks, and all the three questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.

IV. Wherever necessary, the diagrams drawn should be neat and properly labeled.

SECTION-A

1. State the theory of spontaneous generation of life. Name the scientist who disproved this theory. 1
2. What are monoecious flowering plants? Give one example. 1
3. Mention the two reasons for rapid increase in population in India from 350 million in 1948 to 1 billion in 2000. 1
4. The genotype of a tall pea plant with round seeds is TtRr. Following the law of segregation, show the different types of gametes formed by this plant. 1
5. Why the testes are situated outside the abdominal cavity in all mammals? 1
6. What is frame-shift mutation? 1
7. What is pollen bank? What is its purpose? 1
8. Identify the processes A and B. In which cell type they occur?

   A B

   DNA----------→hn RNA----------→m RNA 1

SECTION-B

9. What are Homologous organs? Give one example each from plant and animal kingdom. 2
10. What is Apomixis? What is its advantage? 2
11. What is external fertilization? What is its disadvantage? 2
12. What is Multiple Allelism? Give an example. 2
13.

In an experiment Griffith injected virulent S- strain and non-virulent R-strain of Streptococcus pneumoniae into mice	Live S-strain	Mice die
	Live R-strain	Mice live
	Heat killed S-strain	Mice live
	Heat killed S- strain+ Live R-strain	Mice die and autopsy shows live S-strain bacteria in its tissues

What conclusions will you draw from the above observations? 2

14. Write one function each of LH and FSH in human males. 2
15. Describe sex determination in grasshoppers.

OR

Describe sex determination in domestic fowls. 2

16. What is parturition? Name the two hormones which facilitate the process. 2
17. What are albuminous and non-albuminous seeds? Give one example of each. 2
18. What is infertility? Which method of assisted reproductive technologies can be employed when the male partner produces immotile sperms? 2

SECTION-C

19. With a neat and labeled diagram explain the 7 celled, 8 nucleated nature of the female gametophyte. 3
20. Explain the mechanism of evolution through anthropogenic natural selection with reference to the population of a moth (Biston betularia) in England before and after industrialization. 3
21. What is placenta? How it is formed? Mention any two of its functions. 3

22. 3'- ACGTACATGCATGCATGCATGCAATCG-5'
    5'-TGCATGTACGTACGTACGTACGTTAGC-3'
    Write the nucleotide sequence of m RNA transcribed from the above DNA segment. And also underline the start and stop codons. 3
23. What is Down's syndrome? Why it is caused? Mention any four characteristics of an individual inflicted with Down's syndrome. 3
24. What are the steps involved in the artificial hybridization in plants? What are its advantages? 3
25. Draw a neat and labeled diagram of the sectional view of the human female reproductive system. 3
26. Describe the regulation of gene expression with reference to lac operon in E. coli with the help of its schematic representations.

    OR

    Mutations are usually recessive and detrimental even a single point mutation. Justify this statement with an example from your text book with illustrations. 3
27. What are IUD's? Name the three different types of IUD's and mention how they prevent pregnancy. 3

SECTION-D

28. Describe the menstrual cycle in human females highlighting the role of different hormones.

    OR

    Describe the following post fertilization events occur in a flower.
    a. Formation of endosperm
    b. Formation of embryo in dicots and monocots
    Support your answer with labeled diagrams. 5
29. Describe the process of DNA replication. How it is proved that the DNA replicates semi-conservatively?

    OR

    Describe the principle, procedure and applications of DNA fingerprinting. 5
30. Explain Hardy-Weinberg genetic equilibrium. What are the factors that affect this equilibrium? Write briefly how these factors affect the genetic equilibrium.

    OR

    In a garden Pea plant, the inflated (full) and green pods trait is dominant over constricted and yellow pods. When a cross is made between a pure Pea plant with inflated green pods and a pure Pea plant with constricted yellow pods what proportions of phenotypes in the offspring could be expected to have inflated yellow pods and constricted green pods. 5

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SET-B

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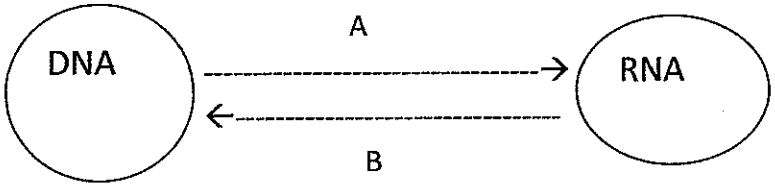
IV. Wherever necessary, the diagrams drawn should be neat and properly labeled.

SECTION-A

1. What are dioecious flowering plants? Give one example. 1
2. What is frame-shift mutation? 1
3. The genotype of a Pea plant with inflated and green pods is AaGg. Following the law of segregation, show the different types of gametes formed by this plant. 1
4. Mention the two unhealthy and disturbing trends observed in India with respect to Medical Termination of Pregnancy (MTP's). 1
5. Why is geographical distribution of some Bryophytes and Pteridophytes limited? 1
6. What are Darwin's Finches? Mention the underlying phenomenon exhibited by them. 1
7. Why not all copulations in humans lead to fertilization and pregnancy? 1
8. Identify the processes A and B. Name the enzymes involved.



1

SECTION-B

9. Write one function each of FSH and LH in human females. 2

10. What are true and false fruits? Give one example of each.

11.

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	Live R-strain	Mice live
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What conclusions will you draw from the above observations? 2

12. Draw the neat and labeled diagram of a mature sperm cell. 2

13. Define a 'Test Cross". What is its significance? 2

14. What are analogous organs? Give one example each from plant and animal kingdom. 2

15. Describe sex determination in grasshoppers.

OR

Describe sex determination in domestic fowls. 2

16. What is infertility? Which method of assisted reproductive technologies can be employed when the male partner do not produces sperms? 2

17. What is internal fertilization? What is its advantage? 2

18. What is Apomixis? What is its advantage? 2

SECTION-C

19. What is placenta? How it is formed? Mention any two of its functions. 3

20. Give the schematic representation of a transcription unit in eukaryotes. Mention the three events involved in gene maturation. 3

21. Draw a neat and labeled diagram of the sectional view of the female Reproductive System. 3

22. What are the steps involved in the artificial hybridization in plants? What are its advantages? 3

23. What are OC's? Name the two different types of OC's and mention how they prevent pregnancy. 3

24. What is Aneuploidy? Why it is caused? Mention the ploidy and characteristics of an individual inflicted with Klinefelter's syndrome.

25. Describe the regulation of gene expression with reference to lac operon in E. coli with the help of its schematic representations.

OR

Mutations are usually recessive and detrimental even a single point mutation. Justify this statement with an example from your text book with illustrations. 3

26. Explain the mechanism of evolution through anthropogenic natural selection with reference to the population of a moth (Biston betularia) in England before and after industrialization. 3

27. With a neat and labeled diagram explain the 7 celled, 8 nucleated nature of the female gametophyte. 3

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28. Describe the process of DNA replication. How it is proved that the DNA replicates semi- conservatively?

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Describe the principle, procedure and applications of DNA fingerprinting. 5

29. Describe the menstrual cycle in human females emphasizing the role of different hormones.

OR

Describe the following post fertilization events occur in a flower.

(a) Formation of endosperm

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Support your answer with labeled diagrams. 5

30. Explain Hardy-Weinberg genetic equilibrium. What are the factors that affect this equilibrium? Write briefly how these factors affect the genetic equilibrium.

OR

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