First Term Examination (23 September 2017)

Class XII (Medical)
Subject - Biology
(Set - A)

Time: 3hrs **M.M.70**

General Instructions:

i) **Draw a neat and well labelled diagram wherever required.**
ii) **All the questions of section A and B are compulsory. There is internal choice in one question of three marks and all the questions of five marks.**

Section - A

Q1. In halpoid organism that undergo sexual reproduction, name the stage in the life cycle in which meiosis occur. **(1)**

Q2. Even if a character shows multiple allelism, an individual will only have two alleles for that character. Why? **(1)**

Q3. State the significance of coelacanth in evolution. **(1)**

Q4. What is the vector responsible for Chikungunya? **(1)**

Q5. When is the oogenesis initiated in human females? **(1)**

Section – B

Q6. Name any two types of cell which act as cellular barrier to provide innate immunity in humans. **(2)**

Q7. Differentiate between a template strand and a coding strand of DNA. **(2)**

Q8. A normal visioned woman whose father is colour blind marries a normal visioned man. What would be probability of her sons and daughters to be colour blind? **(2)**

Make a cross to support your answer.

Q9. How does Cu-T act as an effective contraceptive for human female? **(2)**

Q10. A flower of tomato plant following the process of sexual reproduction produces 240 viable seeds. **(2)**

a) What is the minimum number of pollen grain that must have been involved in the pollination of it pistil?
b) What would have been minimum number of ovule present in the ovary?
c) How many megaspore mother cells were involved?
d) What is the minimum number of microspore mother cells involved in the above case?

Section - C

Q11. Give reasons why- **(3)**

a) Apple and Cashew are not called true fruits.

b) Micropyle remain as a small pore in the seed coat of a seed

c) Integuments of an ovule harden and the water content is highly reduced as the seed matures.

Q12. Write the specific functions of the following cells in human males **(3)**

a) leydig cells

b) primary spermatocytes

c) prostate gland

Q13. Briefly explain IVF and ET. What are the conditions in which these methods are advised? **(3)**

Q14. a) Discuss the genetic basis of wrinkled phenotype of pea seed. **(3)**

b) What are the characteristic features of true breeding line?

Q15. Name a disorder, give the Genotype and write the symptoms where a human male suffers as a result of an additional X-chromosome. **(3)**

Q16. Evolution is a change in gene frequencies in a population in response to changes in the environment in a time scale of years and not centuries. Justify this statement with reference to DDT. How does Hugo de Vries support this? **(3)**

OR

a) How does the Hardy-Weinberg's expression explain that genetic equilibrium is maintained in a population?

b) List any two factors that can disturb the genetic equilibrium.

Q17. Name the virus that causes AIDS in human. Explain the sequence of events that follows when this virus attacks to cause immune deficiency in human. **(3)**

Q18. a) Draw a well labelled diagram of nucleosome. **(3)**

b) What is the function of poly A tail in a mature RNA?

Q19. What is hnRNA? Explain the changes hnRNA undergo during its processing to form mRNA? **(3)**

Q20. a) Explain the inheritance of haemophilia in human. **(3)**

b) Why is the possibility of a human female becoming a haemophilic extremely rare? Explain.

Q21. Spermatogenesis in human male is a hormone regulated process. Justify. **(3)**

Q22. Differentiate between geitonogamy and xenogamy in plants. Which one between the two lead to inbreeding depression. Why? **(3)**

Section – D

Q23. An active member of an awareness group conducts regular programme to sensitive public against alcoholism amongst youth – a serious health hazard in his locality. **(4)**

a) Why is alcoholism a serious issue?

b) How can this member sensitise the public?

c) Identify the values this member is trying to propagate amongst the people in his locality.

Q24. a) What is inducer in the lac operon? **(5)**

b) Explain the inducible system of gene regulation.

OR

When a cross is made between tall plant with yellow seed (TtYy) and tall plant with green seed (Ttyy). What proportion of phenotype in the offspring could be expected to be (a) tall and green (b) dwarf and green

Q25. a) Describe the sequence of events that lead to the development of 3 celled pollen grain from microspore mother cell. Draw diagrams also. **(5)**

b) What is triple fision. Mention its significance.

OR

a) What is foetal ejection reflex? Explain how it leads to parturition?

b) Give schematic representation of oogenesis in humans. Mention the number of chromosome at each stage.

Q26. a) Explain with the help of diagram life cycle of malarial parasite. **(5)**

b) At what stage does plasmodium enter into a human body?

c) Why does the victim show symptoms of chilled high fever?

OR

a) What is DNA finger printing?

b) Explain the procedure of DNA fingerprinting.

c) Give its application.