

- i) Eyes of octopus and mammals.
- ii) Thorns of Bougainvillea and tendrils of cucurbita.
10. Where are Leydig's cells present? What is their role in reproduction?(2)
- 11.a) Draw well labelled diagram of T.S. of anther.
- b) Give function of endothecium. (3)
- 12.a) Draw a labelled diagram of human spermatozoa. (3)
- b) Give the function of mitochondria and acrosome.
13. Name the different type of IUDs used for birth control. How they bring about their action? (3)
- 14.a) Why are grasshopper and Drosophila said to show male heterogamety? Explain.
- b) Explain female heterogamety with the help of an example. (3)
15. A tRNA is charged with the amino acid phenylalanine
- i) At what end of tRNA is the amino acid attached?
- ii) What is the mRNA codon that codes for phenylalanine?
- iii) Name the enzyme responsible for this attachment. (3)
16. What does the following equation represent?  
Explain  $p^2 + 2pq + q^2 = 1$  (3)
- 17a) Name the stage of Plasmodium that gains entry into the human body.(3)
- b) Trace the stage of plasmodium in the body of female anopheles after its entry.
- c) Explain the cause of periodic recurrence of chill and fever during malarial attack in humans.

18. Name the type of cell that act as HIV factory in human when infected with HIV. Explain the events that occur in infected cell. (3)
19. Name the type of pollination in maize. List the features of adaptation in it for this type of pollination. (3)
20. What are the stage of spermatogenesis, show these stages diagrammatically. (3)
21. Explain the phenomenon of multiple allelism and co-dominance taking ABO blood group as an example. (3)
22. Explain the significance of satellite DNA in DNA fingerprinting technique.

**OR**

What is apomixis. Comment on its significance. How can it be commercial used? (3)

**Section - D**

23. 23. Your school has been selected by the department of education to organise and host an interschool seminar on "Reproductive health-Problems and Practices." However many parents are reluctant to permit their wards to attend it.  
Put forth four arguments with appropriate reasons and explanation to justify the topic to be very essential and timely. (4)
- 24.a) Draw a well labelled diagram of dicot embryo.
- b) Explain the development of male gametophyte in plants.

**OR**

Explain the development of embryo upto implantation in human. Draw diagram also. (5)

**BUDHA DAL PUBLIC SCHOOL PATIALA ( 22 Sept. 2014)**

**UNIT - I**

**Class - XII**

**Paper - Biology (Medical)**

**(Set - B)**

**Time: 3 hrs.**

**MM: 70**

**General Instructions:**

- 1) *All questions are compulsory*
- 2) *Wherever necessary, the diagrams drawn should be neat and properly labelled.*

**Section - A**

1. Name an organism that reproduces asexually through zoospores. Why are these reproductive unit called so? (1)
2. Name a cultivated plant in which neither fruits nor seeds are formed.(1)
3. If the frequency of a parental form is higher than 25% in a dihybrid test cross, what does that indicate about the two genes involved? (1)
4. Name the biggest dinosaurs with dagger like teeth. (1)
5. Define interferons. (1)

**Section - B**

6. With help of one example provide genetic explanation for the following observation.  
 $F_1$  generation does not resemble either of the parents. (2)
7. Explain the dual function of AUG codon. Give the sequence of bases it is transcribed from and its anticodon. (2)
8. What is allergy? Name the antibody responsible for it. Also mention two chemicals released from the mast cells during an allergic reaction. (2)
9. Identify the type of organ and evolution in the following. (2)

25. A snapdragon plant homozygous for red flower when crossed with a white flowered plant of the same species produced pink flower in  $F_1$  generation.

- a) What is this phenotypic expression called?
- b) Work out the cross to show that  $F_2$  generation, when  $F_1$  was self pollinated. Give the phenotypic and genotypic ratios of  $F_2$  generation.
- c) How do you compare the  $F_2$  phenotypic and genotypic ratio with those of mendelian monohybrid  $F_2$  ratios? (5)

**OR**

Draw a well labelled diagram of female reproductive system. Differentiate between oogenesis and spermatogenesis.

26. Explain Lac operon model for gene expression.

**OR**

- a) Why are colour blindness and thalassaemia categorised as Mendelian disorders? Write the symptoms of these diseases seen in people suffering from them.
- b) About 8% of human male population suffers from colour blindness whereas about 0.4% of human female population suffers from this disease. Write an explanation to show how it is possible. (5)

### Section - C

- 11a) Draw a labelled diagram of the internal structure of a mature embryo sac in an angiosperm.
- b) Give functions of synergid
- 12a) Draw a well labelled diagram of Graafian follicle. (3)
- b) Give the function of Corpus Leutum.
13. Explain the zygote intra fallopian transfer technique (ZIFT). How is intrauterine transfer (IUT) technique different from it? (3)
- 14a) 'Sickle cell anaemia is a point mutation.' Comment on it. (3)
- b) Write the genotypes of both the normal parents who have produced a sickle cell anaemic offspring. (3)
15. A tRNA is charged with the amino acid methionine. (3)
- (i) At what site in the ribosome will the tRNA bind?
- (ii) Give the anticodon of this tRNA.
- (iii) What is the mRNA codon for methionine?
- (iv) What does tRNA look like in actual and secondary structure?
16. State in what way Stanley Miller stimulated the condition of
- a) Primitive atmosphere on earth.
- b) Energy source at the time of origin of life.
- c) Formation of organic molecules of life to prove the theory of chemical evolution. (3)
- 17a) Draw a well labelled diagram of antibody.
- b) Write the chemical nature of an antibody. (3)

18. A heavily bleeding and bruised road accident victim was brought to a nursing home. The doctor immediately gave him an injection to protect him against a deadly disease.
- a) Write what did the doctor inject into patient body?
- b) How do you think this injection would protect the patient against the disease?
- c) Name the disease against which this injection was given and the kind of immunity it provides. (3)
- 19a) List the outbreeding devices that prevent self pollination.
- b) Why is geitonogamy also referred to as genetical autogamy. (3)
20. In which part of human female reproductive system do the following events take place:
- i) Release of 1st polar body    ii) Release of 2nd polar body
- iii) Fertilization                      iv) Implantation (3)
21. What is the cause of Phenylketonuria? Explain the disorder. (3)
22. State what is apomixis. Comment on its significance. How can it be commercially used? (3)

### OR

Explain the significance of satellite DNA in DNA fingerprinting techniques.

### Section-D

23. Your school has been selected by the department of education to organise and host an interschool seminar on "Reproductive health-Problems and

Practices." However many parents are reluctant to permit their wards to attend it.

Put forth four arguments with appropriate reasons and explanation to justify the topic to be very essential and timely. (4)

24. Describe the role of pituitary and ovarian hormones during the menstrual cycle in a human female.

**OR**

Explain the development of female gametophyte in plants with the help of diagram. (5)

25. Explain oogenesis in detail. Differentiate it from spermatogenesis.

**OR**

- a) A true breeding pea plant, homozygous for inflated green pod (FFGG) is crossed with another pea plant with constricted yellow pods (ffgg). What would be the phenotype and genotype of F1 and F2 generation? Give the phenotype ratio of F2 generation. Explain.
- b) State the generalisation proposed by Mendel on the basis of the above mentioned cross. (5)

26. Explain Hershey & Chase experiment to show that DNA is the genetic material.

**OR**

Explain Lac operon model for gene expression. (5)

**BUDHA DAL PUBLIC SCHOOL PATIALA ( 22 Sept. 2015)**

**UNIT - I**

**Class - XII**

**Paper - Biology (Medical)**

**(Set - A)**

**Time: 3 hrs.**

**MM: 70**

**General Instructions:**

- 1) *All questions are compulsory*
- 2) *Wherever necessary, the diagrams drawn should be neat and properly labelled.*

**Section - A**

1. Mention the unique flowering phenomenon exhibited by strobilanthus Kunthiana (neelakuranaji). (1)
2. Mention the scientific term used for modified form of reproduction in which the seeds are formed without fusion of gametes. (1)
3. Expand UTR and give their function. (1)
4. Name the extinct animals that are thought to be ancestor of amphibians. (1)
5. Name the antibody produced during allergy. (1)
6. Recently a girl baby has been reported to suffer from haemophilia. Explain with the help of cross. (2)
7. Write the full form of VNTR. How is VNTR different from probe? (2)
8. Where are MALT present in human body? Give its function. (2)
9. Identify the type of organ and evolution in the following.
  - i) Flippers of penguins and dolphins.
  - ii) Wings of birds and bat. (2)
10. Placenta act as endocrine tissue. Justify. (2)