



ANGEL'S PUBLIC SCHOOL

HALF YEARLY EXAMINATION

(SAMPLE PAPER)

SESSION 2026 – 27
SUBJECT : BIOLOGY
GRADE –XII

TIME : 03 HRS

M.M:70

General Instructions:

- (a) All questions are compulsory.
- (b) The question paper has five sections: Section A, B, C, D and E.
- (c) Section – A Q. 1 to 16 are Multiple Choice Questions, 1 mark each.
- (d) Section – B Q. 17 to 21 are Very Short Answer, 2 marks each.
- (e) Section – C Q. 22 to 28 are Short Answer, 3 marks each.
- (f) Section – D Q. 29 to 30 are Case-Based, 4 marks each.
- (g) Section – E Q. 31 to 33 are Long Answer, 5 marks each.
- (h) There is no overall choice. However, internal choices have been provided.

SECTION – A

1 to .16 - Multiple Choice Questions:

(16x1=16)

1. The process of fusion of male and female gametes is called:
(a) Pollination (b) Fertilization (c) Germination (d) Syngamy
2. Which of the following is not a method of vegetative propagation?
(a) Runner (b) Budding (c) Grafting (d) Apomixis
3. The innermost layer of the anther wall is:
(a) Endothecium (b) Middle layers (c) Tapetum (d) Epidermis
4. Spermatogenesis starts at the age of:
(a) Birth (b) 5 years (c) Puberty (d) 25 years
5. Cu ions released by CuT suppress:
(a) Sperm motility (b) Sperm fertilizing capacity (c) Ovulation (d) Implantation
6. Mendel's law of segregation is based on F₂ ratio of:
(a) 9:3:3:1 (b) 3:1 (c) 1:2:1 (d) 1:1
7. A cross between AaBB x aaBB yields a genotypic ratio of:
(a) 1:1 (b) 3:1 (c) 1:2:1 (d) 9:3:3:1
8. The distance between two genes determines:
(a) Dominance (b) Linkage strength (c) Mutation rate (d) Codominance
9. The unequivocal proof that DNA is the genetic material came from:
(a) Griffith (b) Hershey and Chase (c) Avery (d) Watson and Crick
10. The codon AUG codes for:
(a) Valine (b) Methionine (c) Glycine (d) Stop codon
11. The eye of octopus and eye of mammals show:

- (a) Homology (b) Analogy (c) Divergent evolution (d) Both a and c
12. Hardy-Weinberg principle explains:
 (a) Genetic drift (b) Genetic equilibrium (c) Founder effect (d) Natural selection
13. Which of these is not an autoimmune disease?
 (a) Rheumatoid arthritis (b) Type-1 Diabetes (c) AIDS (d) Myasthenia gravis
14. Cancer cells differ from normal cells as they:
 (a) Show contact inhibition (b) Show metastasis (c) Are differentiated (d) Have low growth rate

15. Assertion-Reason:

Assertion: Tapetum nourishes developing pollen grains.

Reason: Tapetum is the outermost wall layer of anther.

- (a) Both A and R true, R explains A (b) Both true, R not correct explanation
 (c) A true, R false (d) A false, R true

16. Assertion-Reason:

Assertion: Lactational amenorrhea is a natural contraceptive method.

Reason: Prolactin inhibits secretion of GnRH during lactation.

- (a) Both A and R true, R explains A (b) Both true, R not correct explanation
 (c) A true, R false (d) A false, R true

SECTION – B

(2x5=10)

17. Differentiate between spermatogenesis and oogenesis. Write any two points.
 18. Name two copper releasing IUDs. How do they act as contraceptives?
 19. What is incomplete dominance? Give one example.
 20. List any two salient features of the Double-helix structure of DNA.
 21. Name the causative organism of filariasis. Mention its symptoms.

OR

What are interferons? How do they help in controlling viral infections?

SECTION – C

(3x7=21)

22. Draw a labelled diagram of L.S. of an anatropous ovule. Explain the structure of embryo sac.
 23. Describe the hormonal control of the human male reproductive system.
 24. Explain the law of independent assortment using a dihybrid cross.
 25. Differentiate between DNA and RNA. Write any three points.
 26. Explain Oparin-Haldane theory of chemical evolution.
 27. How does HIV infection spread? Why is it called a syndrome and not a disease?
 28. A child suffering from Thalassemia is born to a normal couple. Explain the type of trait and give the genotypes of parents.

OR

Explain pleiotropy with the example of phenylketonuria.

SECTION – D

(4x2=8)

CASE-BASED QUESTIONS

29. Read the following and answer:

Sickle cell anaemia is an autosomal recessive disorder. A couple both of whom are carriers of the disease have a child. The disease is caused by a point mutation in the beta-globin chain of haemoglobin.

- (a) What is the probability that their child will be diseased? 1
- (b) Write the genotypes of parents and diseased child. 1
- (c) Name the type of point mutation. How does it affect the structure of RBC? 2

30. Read the following passage and answer the question that follow:

A group of Class XII students visited a primary health centre. The doctor explained various methods of contraception and the importance of reproductive health. She emphasized that MTP is not a contraceptive method and should be used only in specific cases.

- (a) Why is MTP not considered a contraceptive method? 1
- (b) Mention any two possible ill-effects of using MTP to abort even the first pregnancy. 1
- (c) Name two STDs caused by bacteria and one by virus. 2

SECTION – E

(5x3=15)

31. (a) Explain adaptive radiation with an example.

- (b) How do fossils support evolution? Give two examples.

OR

- (a) What is innate immunity? Describe any four types of barriers.
- (b) Differentiate between active and passive immunity.

32. (a) Draw a labelled diagram of T.S. of a mature anther.

- (b) Explain the development of male gametophyte in angiosperms.

OR

- (a) Draw a schematic diagram of spermatogenesis.
- (b) Describe the structure of a sperm with a labelled diagram.

33. (a) Explain the process of DNA replication. Why is it called semiconservative?

- (b) Name the enzyme involved in transcription and its function.

OR

- (a) Explain Lac operon with a labelled diagram.
- (b) Differentiate between regulatory and structural genes.