



Strive for Perfection

# ANGEL'S PUBLIC SCHOOL

## SAMPLE PAPER

HALF YEARS EXAM SESSION 2023 – 24

CLASS – XII

TIME: 3 HRS

SUBJECT : BIOLOGY

M.M:70

General instructions.

- (a) All questions are compulsory.
- (b) Section – A contains question number 1 to 20, multiple choice questions of one mark each.
- (c) Section – B contains question number 21 to 30, short answer type questions of two marks each.
- (d) Section – C contains question number 31 to 35, long answer questions of three marks each.
- (e) Section – D contains question number 36 to 38, very long answer questions of five marks each.

### SECTION – A

1. Which of the following groups is formed only of the hermaphrodite organisms?  
(a) Earthworm, tapeworm, housefly, frog  
(b) Earthworm, tapeworm, sea horse, housefly  
(c) Earthworm, leech, sponge, roundworm  
(d) Earthworm, tapeworm, leech, sponge
2. Which of the following options shows bisexual animals only?  
(a) Amoeba, sponge, leech  
(b) Sponge, cockroach, amoeba  
(c) Earthworm, sponge, leech  
(d) Tapeworm, earthworm, honeybee
3. Read the following statements and select the incorrect one.  
(a) Cucurbits and coconuts are monoecious plants. (b) Papayas and date palms are dioecious plants.  
(c) Leeches and tapeworms are bisexual animals. (d) Sponges and coelenterates are unisexual animals.
4. Meiosis does not occur in \_\_\_\_\_.  
(a) asexually reproducing diploid individuals  
(b) sexually reproducing haploid individuals  
(c) sexually reproducing diploid individuals  
(d) all of these
5. Analogous organs arise from \_\_\_\_\_.  
(a) divergent evolution (b) convergent evolution (c) artificial selection (d) genetic drift
6. Repressor Lac operon protein is attached to the \_\_\_\_\_.  
(a) operator (b) onducer (c) regulator (d) beta galactosidase
7. If a butterfly has chromosome number 360 in its meiocyte (2n). What will be the chromosome number in its gametes?  
(a) 380 (b) 190 (c) 95 (d) 760
8. In flowering plants, both male and female gametes are non-motile. The method to bring them together for fertilisation is \_\_\_\_\_.  
(a) water (b) air (c) pollination (d) apomixis
9. In which of the following plants, sepals do not fall off after fertilisation and remain attached to the fruit?  
(a) Brinjal (b) Cucumber (c) Papaya (d) Bitter gourd
10. What is the function of filiform apparatus in an angiospermic embryo sac?  
(a) Brings about opening of the pollen tube (b) Guides the pollen tube into a synergid.  
(c) Prevents entry of more than one pollen tube into a synergid.

- (d) None of these
11. The female gametophyte of a typical dicot at the time of fertilisation is \_\_\_\_\_.  
 (a) 8 – celled                      (b) 7 – celled                      (c) 6 – celled                      (d) 5 – celled
12. Polygonum type of embryo sac is \_\_\_\_\_.  
 (a) 8 – nucleate, 7 – celled                      (b) 8 – nucleate, 8 – celled  
 (c) 7 – nucleate, 7 – celled                      (d) 4 – nucleate, 3 – celled
13. Both chasmogamous and cleistogamous flowers are present in \_\_\_\_\_.  
 (a) helianthus                      (b) commelina                      (c) rosa                      (d) gossypium
14. Even in absence of pollinating agents seed-setting is assured in \_\_\_\_\_.  
 (a) commelina                      (b) zosteria                      (c) salvia                      (d) fig
15. Male and female flowers are present on different plants (dioecious) to ensure xenogamy, in \_\_\_\_\_.  
 (a) papaya                      (b) bottle gourd                      (c) maize                      (d) all of these
16. Which of the following is not a water pollinated plant?  
 (a) Zosteria                      (b) Vallisneria                      (c) Hydrilla                      (d) Cannabis

**SECTION – B**

17. What is meant by the Founder effect.
18. What are the factors that affect Hardy Weinberg equilibrium?
19. State the function of aminoacyl tRNA synthetase.
20. What is meant by monosporic development of female gametophyte?
21. What are chasmogamous flowers? Can cross-pollination occur in cleistogamous flowers?  
 Give reasons for your answer.

**OR**

Why RNA more reactive in comparison to DNA.

**SECTION – C**

22. Draw a well labelled diagram of the replication fork of DNA.
23. Write two major functions each of testis and ovary.
24. Define spermiogenesis and spermiation.
25. Why is DNA not RNA, the genetic material in majority of organisms?
26. Draw a well labeled diagram of a monocot seed.
27. Suggest the aspects of reproductive health which need to be given special attention in the present scenario.

**OR**

Why is Saheli a well accepted contraceptive pill?

28. Amniocentesis for sex determination is banned in our country. Is this ban necessary? Comment.

**SECTION – D**

29. Explain the role of Primary and Secondary Lymphoid organs with the help of suitable examples.

**OR**

(a) Explain the following phases in the menstrual cycle of a human female :

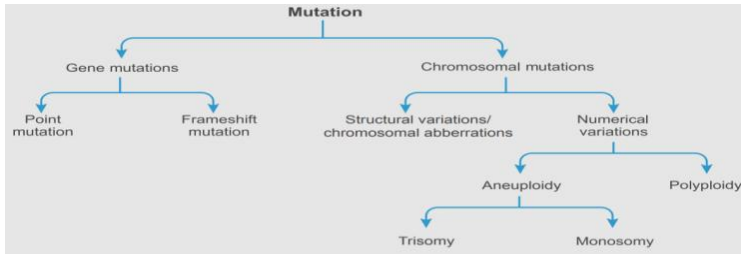
(i) Menstrual phase                      (ii) Follicular phase                      (iii) Luteal phase

- (b) A proper understanding of menstrual cycle can help immensely in family planning. Do you agree with the statement? Provide reasons for your answer.

30. (a) Describe the various steps of Griffith's experiment that led to the conclusion of the 'Transforming Principle'.  
 (b) How did the chemical nature of the 'Transforming Principle' get established?

**SECTION – E**

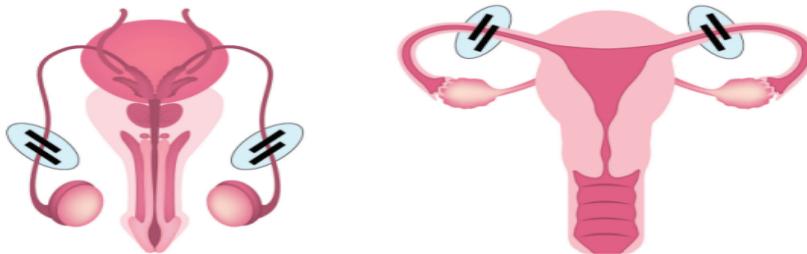
31. Study the flowchart given below and answer the questions that follow.  
 (a) What is a mutagen? Name a physical factor that can be mutagen.  
 (b) What is point mutation? Give one example.  
 (c) Mention two causes of frame-shift mutation.



**OR**

- (a) Describe in sequence the process of microsporogenesis in angiosperms.  
 (b) Draw a labelled diagram of a two celled final structure formed.

32. Study the diagram of the female reproductive system given below. Answer the questions based on the diagram.

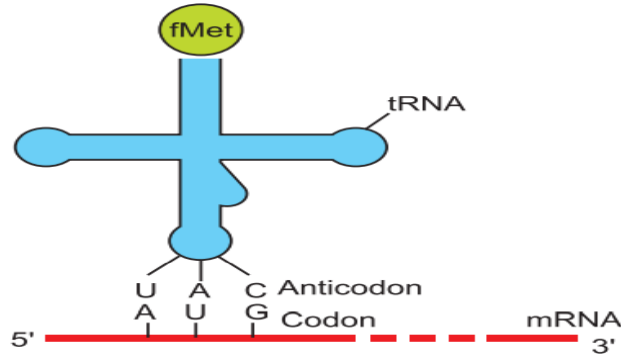


- (a) What does the diagram depict?  
 (b) At what stage zygote can be introduced in the fallopian tube in Zygote Intra Fallopian Transfer (ZIFT)?  
 (c) Mention any two events that are inhibited by the intake of oral contraceptive pills to prevent pregnancy in humans.

**OR**

How do m-RNA, t-RNA and ribosomes help in the process of translation?

33. Given below is the diagram of a tRNA molecule.



Answer the questions based on the above diagram:

- Why is charging of tRNA essential in translation?
- Where does peptide bond formation occur in a bacterial ribosome?

**OR**

- Explain the different ways apomictic seeds can develop. Give an example of each.
- Mention one advantage of apomictic seeds to farmers.
- Draw a labelled mature stage of a dicotyledonous embryo.