

KENDRIYA VIDYALAYA SANGATHAN , ERNAKULAM REGION

FIRST PRE BOARD EXAMINATION

SESSION 2018-2019

CLASS: XII

MAX MARKS: 70

SUB: BIOLOGY

TIME: 3hours

General Instructions:

- (i) *There are a total of 27 questions and five sections in the question paper. All questions are compulsory.*
 - (ii) *Section A contains question number 1 to 5, Very Short Answer type questions of **one** mark each.*
 - (iii) *Section B contains question number 6 to 12, Short Answer type I questions of **two** marks each.*
 - (iv) *Section C contains question number 13 to 24, Short Answer type II questions of **three** marks each.*
 - (v) *Section D contains question number 25 to 27, Long Answer type questions of **five** marks each.*
 - (vi) *There is no overall choice in the question paper, however, an internal choice is - provided in **one** question of **two** marks, **one** question of **three** marks and all **three** questions of **five** marks. An examinee is to attempt any **one** of the questions out of the **two** given in the question paper with the same question number.*
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SECTION- A

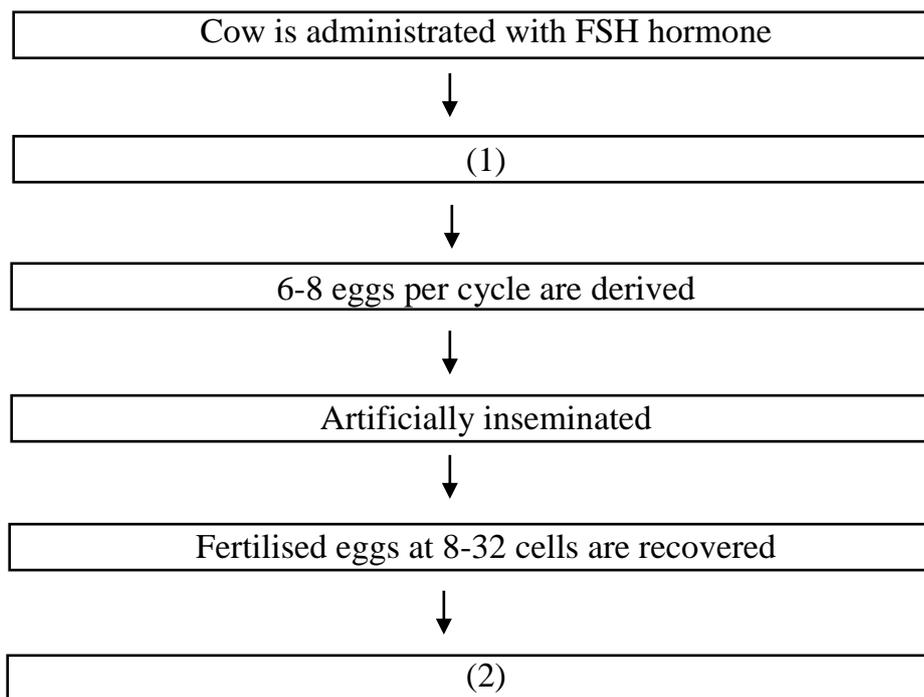
- 1. Name the respective asexual reproductive structure of Yeast and Sponge? 1
- 2. What is a Cistron ? 1
- 3. What does Hardy-Weinberg equation $p^2 + 2pq + q^2 = 1$ convey? 1
- 4. Virus infected cells provide immunity to the other cells. Explain how? 1
- 5. List two advantages of use of unleaded petrol in automobiles as fuel ? 1

SECTION- B

- 6. A woman with 42 years delivered an abnormal child with flattened nasal bridge and mouth partially open with a large protruding tongue. Name the genetic abnormality and its karyotype .What causes this condition? 2

7. Study the flowchart given below:

2



- (i) Identify the events that take place at stages (1) and (2) respectively.
- (ii) State the importance of the technology explained above.

8. Explain how do the following act as contraceptives:

2

- (a) CuT
- (b) 'saheli'

9. Name the blank spaces a, b, c and d from the table given below:

2

Type of microbe	Scientific name	Product	Medical Application
(i) Fungus	<i>a</i>	Cyclosporin	<i>b</i>
(ii) <i>c</i>	<i>Monascus Purpureus</i>	Statin	<i>d</i>

10. (a) What are "molecular scissors"? Give one example.

2

(b) Explain their role in recombinant DNA technology.

11. Name the insect pest that is killed by the products of cryIAC gene. Explain how the gene makes the plant resistant to the insect pest?

2

12. (a) Name the pioneer and the climax species in a water body.

(b) Mention the changes observed in the biomass and the biodiversity of the successive seral communities developing in the water body?

2

Or

Differentiate between a detritivore and a decomposer giving an example of each.

SECTION-C

13. Draw a labelled diagram. Name the embryonic stage that gets implanted in the human uterus – State the two functions of the two labelled. 3
14. During an excavation assignment scientists collected pollen grains of a plant preserved in deeper layers of soil. Analyse the properties of pollen grains which helps in fossilization?. Draw the two celled male gametophyte. 3
15. A cross was carried out between a pea plant heterozygous for round and yellow seeds with a pea plant having wrinkled and green seeds.
(a) Show the cross in a Punnett square.
(b) Write the phenotype of the progeny of this cross.
(c) What is this cross known as? State the purpose of conducting such a cross. 3
16. Answer the following questions based on Meselson and Stahl's experiment: 3
a) Write the name of the chemical substance used as a source of nitrogen in the experiment by them.
b) Why did the scientists synthesise the light and the heavy DNA molecules in the organism used in the experiment?
c) How did the scientists make it possible to distinguish the heavy DNA molecule from the light DNA molecule? Explain.
d) Write the conclusion the scientists arrived at after completing the experiment.
17. What is disturbance in Hardy-Weinberg genetic equilibrium indicative of. Explain how it is caused? 3
18. (a) Name the respective forms in which the malarial parasite gains entry into (i) Human body and (ii) Body of female Anopheles.
(b) Name the hosts where the sexual and the asexual reproductions of malarial parasites occur respectively.
(c) Name the toxin responsible for the appearance of symptoms of malaria in humans. Why do these symptoms occur periodically? 3
19. (a) Explain how to overcome inbreeding depression in cattle.
(b) List three advantages of inbreeding in cattle.
(c) Name an improved breed of cattle. 3
- Or
- (a) What is micro propagation?
(b) Why are the plants produced by micropropagation called somaclones?
(c) Name the technique by which healthy plants can be recovered from the diseased plants?
20. (a) Name the genus to which baculoviruses belong. Describe their role in the integrated pest management programmes?
(b) Suggest three features of plants that will prevent insect and pest infestation.
(c) Name two free living nitrogen fixing microbes? 3
21. Draw a schematic sketch of pBR322 plasmid and label the following in it

- (a) Any two restriction sites
 (b) Ori and rop genes
 (c) An antibiotic resistant gene 3
22. Explain the steps involved in the production of genetically engineered insulin? 3
23. (a) How do kangaroo, rats and desert plants adapt themselves to survive in their extreme habitat? Explain?
 (b) Name the interaction between
 (i) Sea anemone & Hermit crab
 (ii) Glomus with higher plant. 3
24. Explain, giving three reasons, why tropics show greatest levels of species diversity? 3

SECTION -D

25. (a) State the effect of UV-B on human eye.
 (b) How do algal blooms affect the life in water bodies?
 (c) List two advantages of the use of unleaded petrol recommended for motor vehicles equipped with catalytic convertors?
 (d) Name the green house gases that caused global warming?
 (e) Why are lichens regarded as pollution indicators? 5

Or

- (a) What depletes ozone in the stratosphere?
 (b) How does this affect human life?
 (c) Explain biomagnification of DDT in an aquatic food chain.
 (d) How does it affect the bird population?
26. Draw a labelled schematic structure of a transcription unit. Explain the function of each component in the unit in the process of transcription? 5

Or

How are the DNA fragments separated and isolated for DNA fingerprinting? Explain.

27. (i) Draw a diagrammatic labelled sectional view of a seminiferous tubule of a human.
 (ii) Describe in sequence the process of spermatogenesis in humans with the help of schematic diagram. 5

Or

Draw a diagrammatic sectional view of the female reproductive system of human and label the parts:

- a) Where the secondary oocytes develop
 b) Which helps in collection of ovum after ovulation
 c) Where fertilisation occurs
 d) Where implantation of embryo occurs