

Time: 2 Hour

Total Marks: 80

Class : XII

Subject : Biology

FILL IN THE BLANKS

1. Male and female gametes are _____ (diploid / haploid)
2. Ovulation is induced by a hormone called _____
3. Fertilization is _____ in humans (external / internal)
4. Cleanliness observed by man adversely affects the habitats of _____
5. Humans are _____ (oviparous, viviparous, ovoviviparous)

VERY SHORT DESC

1. In a monohybrid cross of plants with red and white flowered plants, Mendel got only red flowered plants. On self-pollinating these F₁ plants got both red and white flowered plants in 3:1 ratio. Explain the basis of using RR and rr symbols to represent the geno-type of plants of parental generation.
2. What is the cause of discontinuous synthesis of DNA on one of the parental strands of DNA? What happens to these short stretches of synthesized DNA?
3. Lianas are vascular plants rooted in the ground and maintain erectness of their stem by making use of other trees for support. They do not maintain direct relation with those trees. Discuss the type of association the lianas have with the trees.
4. A, B, D are three independently assorting genes with their recessive alleles a, b, d, respectively. A cross was made between individuals of Aa bb DD genotype with aa bb dd. Find out the type of genotypes of the off spring produced.
5. Give one example for each of the following types.
(a) Migratory animal (b) Camouflaged animal
(c) Predator animal (d) Biological control agent
(e) Phytophagous animal (f) Chemical defense agent

SHORT DESC - 25 WORDS

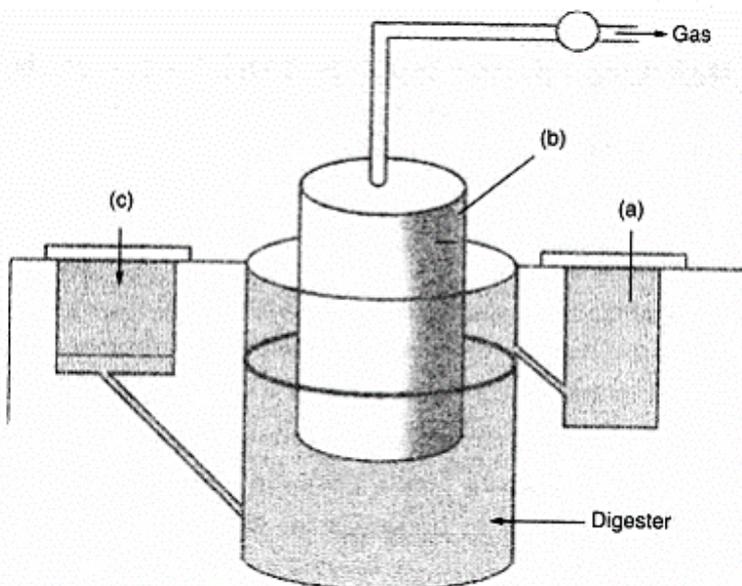
1. Lymph nodes are secondary lymphoid organs. Explain the role of lymph nodes in our immune response.
2. What are structural genes? Name the three structural genes present in the lac operon of Escherichia coli?
3. List two essential roles for ribosome during translation.
4. In the medium where E.coli was growing, lactose was ladded, which induced the lac operon. Then why does lac operon shut down after sometime after addition of lactose in the medium?
5. Name a man-made cereal. Trace how it was developed and where it is used?

All The Best!!!

- Sometimes cattle or even human beings give birth to their young ones that are having extremely different sets of organs like limbs/position of eye(s) etc. Comment.
- Explain the relationship between B-lymphocytes and T-lymphocytes developing an immune response.

MED DESC - 50 WORDS

- Why is fertilization in an angiosperm referred to as double fertilization? Mention the ploidy of the cells involved.
- When a red flowered Antirrhinum plant was crossed with a white flowered Antirrhinum plant, the F_1 offspring had pink flowers. Mention (a) the genotype of F_1 plant, and (b) the reason why it did not bear the parental red or white flower colours?
- What is endosperm and how is it formed? Describe the various types of endosperm found in angiosperms.
- Write pairs of contrasting characters of :
(i) Position of flowers (ii) Colours of pod (iii) Shape of pod (iv) Colour of seed, that were selected in pea plant by Mendel.
- Name the special type of tissue enabling plants like lotus and water hyacinth to survive in aquatic environment. Mention any two specific functions of this tissue?
- The diagram below is that of a typical biogas plant. Explain the sequence of events occurring in a biogas plant. Identify a, b and c.



LONG DESC - 100 WORDS

- (a) As a senior biology student you have been asked to demonstrate to the student of secondary level in your school, the procedure that shall ensure cross pollination in a hermaphrodite flower. List the different steps that you would suggest and provide reason for each of them.
(b) Draw a diagram of a section of a megasporangium of an angiosperm and label funiculus, micropyle, embryo sac and nucellus.

MATCH THE PAIRS

1. Match the following list of bio active substances and their roles:

Bioactive substance	Role
(i) Statin	(A) Removal of oil stains
(ii) Cyclosporin A	(B) Removal of clots from blood vessels
(iii) Streptokinase	(C) Lowering of blood cholesterol
(iv) Lipase	(D) Immuno-suppressive agent

Choose the correct match:

- (a) i—B, ii—C, iii—A, iv—D (b) i—D, ii—B, iii—A, iv—C
 (c) i—D, ii—A, iii—B, iv—C (d) i—C, ii—D, iii—B, iv—A

2. Match the pair:

	Definition	Term
(1)	Site of sperm maturation and storage	a Seminiferous tubules
(2)	Structure through which sperm move out of the testis	b Urethra
(3)	Structure through which sperm are ejaculated	c Seminal vesicles
(4)	A single gland surrounding the urethra	d Epididymis
(5)	Paired glands that produce nutritive substances	e Vas deferens
(6)	Coiled tube in which sperm initiate development	f Spermatogonia
(7)	Progenitor cells from which primary spermatocytes arise	g Prostate gland

- (a) 1-b, 2-e, 3-d, 4-g, 5-c, 6-a, 7-f (b) 1-f, 2-d, 3-b, 4-g, 5-c, 6-a, 7-e
 (c) 1-d, 2-e, 3-b, 4-g, 5-c, 6-a, 7-f (d) None of these