

DAY — 09

SEAT NUMBER

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2017 III 10

1100

J-573

(E)

BIOLOGY (56)

Time : 3 Hrs.

(7 Pages)

Max. Marks : 70

- Note :**
- (1) All questions are compulsory.
 - (2) Draw neat and labelled diagrams wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Answers to the questions in Section-I and Section-II must be written in two separate answer books.
 - (5) Questions from Section-I attempted in the answer book of Section-II and vice-versa will not be assessed / not be given any credit.
 - (6) Answer to every new question must be started on a new page.

SECTION – I**[BOTANY]**

Q. 1. Select and write the most appropriate answer from the given alternatives (along with its alphabets) for each sub-question :

[7]

- (i) The genotype of human blood group B is _____ .
- (a) $I^A i$
 - (b) $I^B i$
 - (c) $I^A I^A$
 - (d) ii

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- (ii) Breakdown of detritus into smaller particles is called _____.
- (a) fragmentation
 - (b) leaching
 - (c) catabolism
 - (d) humification
- (iii) In *Brassica* (rapeseed, mustard) _____ variety is resistant to Aphids.
- (a) *Pusa A-4*
 - (b) *Pusa Gaurav*
 - (c) *Pusa Sawni*
 - (d) *Pusa Shubra*
- (iv) The antibiotic chloromycetin is obtained from _____
- (a) *Sclerotiana libertine*
 - (b) *Aspergillus niger*
 - (c) *Streptomyces griseus*
 - (d) *Streptomyces venezuelae*
- (v) The _____ enzyme is used to cut DNA at specific point.
- (a) DNA polymerase
 - (b) Alkaline phosphatase
 - (c) restriction endonuclease
 - (d) DNA ligase
- (vi) R. Q. for proteins is about _____ .
- (a) 0.7
 - (b) 0.8
 - (c) 0.9
 - (d) 1.0
- (vii) Ozone depletion is occurring widely in the stratosphere, it leads to ozone hole caused mainly due to _____ .
- (a) ethylene
 - (b) methane
 - (c) CFCs
 - (d) CO₂

Q. 2. (A) Answer each question in 'one' sentence only :

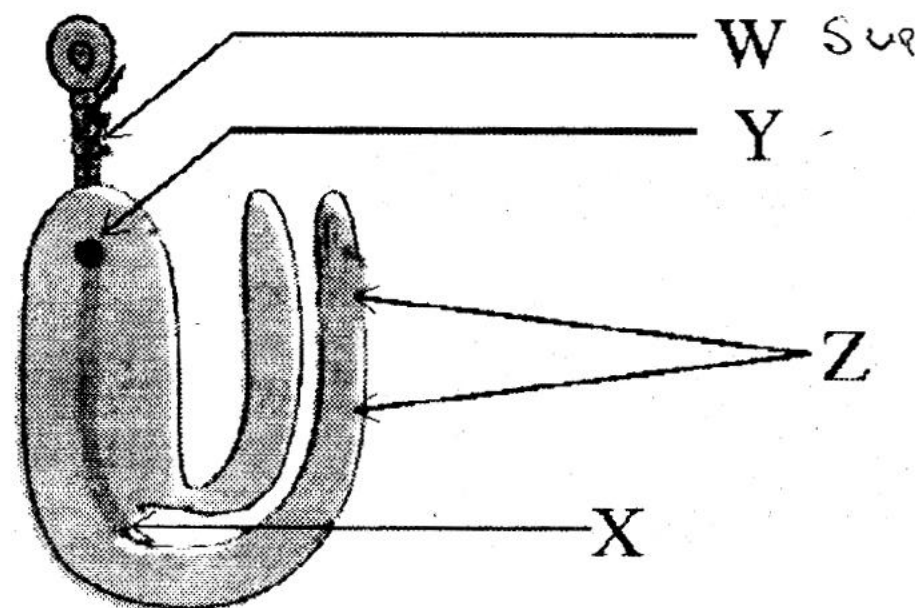
(6) [12]

- (i) Give an example of the source of thermostable enzyme DNA polymerase.
- (ii) Give an example of the non-edible or poisonous mushroom, studied by you.
- (iii) Name the secondary metabolites in *catharanthus roseus*.
- (iv) What is meant by ~~ecological~~ ecological succession?
- (v) Name the organism and enzyme which bring about alcoholic fermentation of sucrose.
- (vi) Enlist any 'two' floral adaptations in *salvia*.

(B) Give schematic representation of carbon cycle. (2)

(C) Attempt any TWO of the following : (4)

- (i) What is a 'test cross'? Explain significance of a test cross.
- (ii) Explain 'Wobble hypothesis' with the help of a suitable diagram.
- (iii) What is a 'biopatent'? Explain it with a suitable example.
- (iv) Name the parts W, X, Y and Z from the following figure:



Q. 3. (A) Attempt any TWO of the following : (6) [9]

- (i) Explain replication of bacteriophage with the help of a suitable diagram.
- (ii) What are 'biofertilizers'? Explain them with suitable examples.
- (iii) Differentiate between anemophily and entomophily.

(B) Sketch and label V. S. of mature anatropous ovule. (3)

Q. 4. What is 'photophosphorylation'? Describe non-cyclic photophosphorylation with schematic representation. Give its significance. [7]

OR

What is 'RNA'? Explain different types of non-genetic RNA with diagrams and functions.

SECTION – II
[ZOOLOGY]

Q. 5. Select and write the most appropriate answer from the given alternatives (along with its alphabets) for each sub-question : [7]

- (i) Which of the following has normal vision?
 - (a) $X^c X^c$
 - (b) $X^c Y$
 - (c) $X^C X^c$
 - (d) $X^c Y^c$

- (ii) In DNA fingerprinting technique, radioactive DNA probe is obtained from _____ of female banded krait snake.
- (a) X chromosome
 - (b) Y chromosome
 - (c) X and Y chromosomes
 - (d) autosome
- (iii) Abortion in the first trimester of pregnancy may occur due to lack of _____ .
- (a) aldosterone
 - (b) testosterone
 - (c) oestrogen
 - (d) progesterone
- (iv) _____ contribute about 60% of the total volume of the semen.
- (a) Prostate glands
 - (b) Cowper's glands
 - (c) Seminal vesicles
 - (d) Bartholin's glands
- (v) Lowering of blood pressure is related with the production of _____ .
- (a) ADH
 - (b) ANF
 - (c) GH
 - (d) LH
- (vi) Humulin is used to treat _____ .
- (a) Diabetes mellitus
 - (b) Diabetes insipidus
 - (c) Hepatitis
 - (d) Nephritis

- (vii) The modification of original genetic make-up is focussed by _____ .
- (a) PCR
 - (b) DNA fingerprinting
 - (c) Electrophoresis
 - (d) Gene therapy

Q. 6. (A) Answer the following questions only in 'one' sentence each : **[12]**

(6)

- (i) Which material is used for isolation of DNA in fingerprinting technique?
- (ii) Give significance of podocyte.
- (iii) What is 'commensalism'?
- (iv) What is the function of acrosome?
- (v) Distinguish between X and Y chromosomes.
(Mention any 'two' points.)
- (vi) Give any 'two' examples of endangered species.

(B) Sketch and label the 'Structure of HIV'. (2)

(C) Attempt any TWO of the following : (4)

- (i) Write a note on erythrocytes.
- (ii) What are the uses of vaccine?
- (iii) Describe the process of budding in *hydra*.
- (iv) Name the species used in sericulture. Name the stages in the life cycle of a silk moth in cyclic form.

Q. 7. (A) Attempt any TWO of the following : (6) [9]

- (i) Explain ABO blood group system in human being with a suitable chart.
- (ii) Describe diagrammatic representation of age structure showing declining population.

(iii) With the help of a neat and labelled diagram, describe reflex arc.

(B) Sketch and label 'human male reproductive system'. (3)

Q. 8. Enlist human endocrine glands. [7]

Describe the T. S. of thyroid gland and add a note on deficiency of thyroxine.

OR

Define 'evolution'. Give the principles of Darwin's theory of natural selection. Mention any 'one' objection to it.

