AU–169

B.Sc. (Part—III) Semester—VI Examination

ZOOLOGY

(Molecular Biology and Biotechnology)

Time : Three Hours] [Maximum Marks : 80

Note :— (1) **All** questions are compulsory.
(2) Question No. **1** carries **8** marks.
(3) Question Nos. **2** to **7** carry **12** marks each.
(4) Illustrate your answers with suitable diagrams wherever necessary.

1. (a) Fill in the blanks :

(i) Synthesis of m-RNA from DNA is known as _____.

(ii) _____ organism is used for Griffith experiment.

(iii) Nitrogenous bases are classified into _____ and pyrimidines.

(iv) Enzyme used to join DNA fragment is _____. 2

(b) Choose the correct alternative from the following :

(v) Nucleotide is composed of :

(a) Deoxyribose sugar, phosphate and nitrogen base

(b) Phosphate and sugar

(c) Nitrogen base and Phosphate

(d) Deoxyribose sugar and nitrogen base

(vi) Antibodies are found in :

(a) Blood cells (b) Serum

(c) Leukocytes (d) None of the above

(vii) In humans trisomy of 21st chromosome causes :

(a) Down's syndrome (b) Patau's syndrome

(c) Turner's syndrome (d) All of the above

(viii) Humoral immunity is controlled by :

(a) A-cells (b) B-cells

(c) C-cells (d) T-cells 2

(c) Answer in **one sentence** each :

(ix) Who has coined the term gene ?

(x) What is trisomy ?

(xi) How many hydrogen bonds are present between Adenine and Thyamine ?

(xii) Define translocation. 4

2. Describe the following :

(a) Nitrogenous bases

(b) m-RNA

(c) Griffith's experiment. 12

OR

(d) Functions of r-RNA

(e) Clover-leaf model of t-RNA

(f) Watson and Crick double helical model of DNA (Diagram only). 12

3. Attempt the following :

(g) Spinocerebellar ataxia

(h) Jumping gene

(i) Cistron. 12

OR

(j) One gene one enzyme hypothesis

(k) Split gene

(l) Enzymes in DNA replication (name and function). 12

4. Describe Lac-operon model of E.coli. 12

OR

Describe mechanism of protein synthesis. 12

5. Explain the following :

(m) Euploidy

(n) Western Blotting technique

(o) Deletion. 12

OR

(p) Polymerase Chain Reaction (PCR)

(q) De Vries mutation theory

(r) Significance of mutation. 12

6. Describe the following :

(s) λ phage vector

(t) Enzymes in recombinant DNA Technology

(u) Hazards of biotechnology. 12

OR

(v) Somatic cell hybridization

(w) Application of biotechnology in health sciences

(x) Monoclonal antibodies. 12

7. Describe types, production and functions of antibodies. 12

OR

Describe cells of immune system. 12

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