(p) Lac operon model in *E-coli*.

(q) Reverse transcription.

(r) Post translational processing of protein. 12

5. Describe the following :—

(s) Deletion.

(t) Northen blotting.

(u) Types of polyploidy. 12

OR

(v) Polymerase chain reaction.

(w) Frame shift mutation.

(x) Types of duplication. 12

6. Describe physical methods of gene transfer. 12

OR

Describe practical applications and suspected hazards of biotechnology. 12

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

OR

Describe cells of immune system. 12

AP–523

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

6S : ZOOLOGY

(Molecular Biology and Biotechnology)

Time : Three Hours] [Maximum Marks : 80

Note :—(1) All questions are compulsory.

(2) Question No. **1** carries only **8** marks.

(3) Questions **2** to **7** carry **12** marks each.

(4) Illustrate your answers with suitable diagrams wherever necessary.

1. (A) Fill in the blanks :— 2

(i) During DNA replication ..... strand is synthesized continuously.

(ii) Deletion or addition of chromosome results in condition called ..... .

(iii) In B DNA purine and pyrimidine ratio is ..... .

(iv) Bursal cells are also known as ..... .

(B) Choose the correct alternative from the following :—

(v) The technique used for DNA Duplication is : ½

(a) Western blotting

(b) Northern blotting

(c) Southern blotting

(d) PCR

(vi) Which of the following is a genetic vector ? ½

(a) Plasmid

(b) Phage

(c) Cosmid

(d) All the above

(vii) The enzyme required for transcription is : ½

(a) RNA Polymerase

(b) DNA Polymerase

(c) Endonuclease

(d) None of the above

(viii) In human trisomy of 21st chromosome causes : ½

(a) Turner's Syndrome

(b) Pataus Syndrome

(c) Down's Syndrome

(d) All of the above.

(C) Answer in **ONE** sentence :

(ix) What is lagging strand ? 1

(x) Define PCR technique. 1

(xi) How many different combinations are possible in triplet code ? 1

(xii) Which isotopes were used in blender experiment ? 1

2. Describe the following :—

(a) Purine bases

(b) Avery, Macleod and Okcarty experiment

(c) m-RNA. 12

OR

(d) Griffith's experiment.

(e) Chemical composition of RNA

(f) Z DNA. 12

3. Explain the following :—

(g) Semiconservative method of DNA replication.

(h) Concept of gene.

(i) Overlapping genes. 12

OR

(j) Concept and action of cistron.

(k) One gene one polypeptide theory with one example.

(l) Split genes. 12

4. Explain the following :—

(m) Wobble hypothesis.

(n) Britten-Davidson model.

(o) Role of amino acyl t-RNA synthetase. 12

OR