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5. (a) State the Mendelian laws of inheritance and explain the experiments that led to the formulation of these laws. (9)
- (b) What are restriction enzymes? Enumerate and differentiate between the different types of restriction enzymes. (9)
6. Write short note on **any four** : (4×4.5=18)
- (i) Structure of DNA
 - (ii) Gene cloning
 - (iii) Germ Theory of Disease
 - (iv) Vaccines
 - (v) Foldscope

(200)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 3501

I

Unique Paper Code : 3184001002

Name of the Paper : Landmark Discoveries in Science

Name of the Course : **B.Sc. (H) Biomedical Science**

Semester : I GE

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all.
3. Question no. 1 is compulsory.
4. Subparts of the questions should be attempted together.

P.T.O.

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1. (a) Define **any five** of the following : (2×5=10)

- (i) Microscope
- (ii) Phenotype
- (iii) Genetic code
- (iv) Nucleotide
- (v) Bacterial cell
- (vi) X-rays

(b) Give the contribution of **any four** scientists in the field of Biology. (2×4=8)

- (i) Edward Jenner
- (ii) Baltimore
- (iii) Chargaff
- (iv) Friedrich Miescher
- (v) Alexander Flemming
- (vi) Stanley Cohen

2. (a) What is a compound microscope? Explain its construction and working. (9)

(b) What is PCR? Elaborate the components used and the steps of PCR? (9)

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3. (a) The radioisotopes ^{32}P and ^{35}S were used to demonstrate that the genetic material was DNA. Elaborate the underlying principles behind the experiments methodically. (9)

(b) What was the contribution of Robert Koch in the field of microbiology? Write down his postulates and his concomitant experimentations to prove them. (9)

4. (a) Discuss the contributions of Aristotle, Lamarck and Darwin towards the theory of evolution. (6)

(b) Explain the role of X-rays in any two fields of medicine/research (6)

(c) Match the following (**any six**): (1×6=6)

- | | |
|--------------------|-----------------------------------|
| (i) John Tyndall | (a) Honeycomb structure |
| (ii) Louis Pasteur | (b) uptake of DNA |
| (iii) Cell | (c) Dust did indeed carry germs |
| (iv) RT-PCR | (d) Vaccine |
| (v) Transformation | (e) Semi-conservative replication |
| (vi) BCG | (f) Swan neck experiment |
| (vii) DNA | (g) RNA to cDNA |

P.T.O.