

This question paper contains 4 printed pages]

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S. No. of Question Paper : **5295**

Unique Paper Code : **3184001002**

Name of the Paper : **Landmark Discoveries in Science**

Type of the Paper : **GE**

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

Semester : **I**

Duration : **3 Hours**

Maximum Marks : **90**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *five* questions in all.

Question No. 1 is compulsory.

Subparts of the questions should be attempted together.

1. (a) Define any *five* : 5×1=5
- (i) Plasmid
 - (ii) Genotype
 - (iii) Operon
 - (iv) Codon
 - (v) Endospore
 - (vi) Conjugation.

P.T.O.

- (b) Give the contribution of any *five* scientists in the field of Biology : 5×2=10

- (i) Robert Hooke
- (ii) Oswald Avery
- (iii) Rosalind Franklin
- (iv) Paul Ehrlich
- (v) Joshua Lederberg
- (vi) Francis Crick.

- (c) Explain PCR, its key components and the step-by-step process involved. 3

2. (a) Describe the structure and functioning of a compound microscope. 9

- (b) Elaborate contributions of various scientists that Watson and Crick to propose double helical structure of DNA. Draw a well-labelled diagram of DNA. 9

3. (a) The Hershey-Chase experiment confirmed that DNA is the genetic material. Explain the experimental design and findings. 9

- (b) What were the contributions of Louis Pasteur in Microbiology ? Explain his experiments and their significance. 9

4. (a) Discuss the contribution of Lamarck, Wallace and Darwin towards the theory of evolution. 6
- (b) Explain the applications of radioisotopes in medical and biological research. 6
- (c) Match the following (any six) : 6×1=6
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|-----------------------------|-----------------------------------|
| (i) Antonie van Leeuwenhoek | (a) DNA structure |
| (ii) Frederick Griffith | (b) Microorganisms in water |
| (iii) PCR | (c) Transformation experiment |
| (iv) Meselson and Stahl | (d) Amplification of DNA |
| (v) Reverse transcriptase | (e) Semi-conservative replication |
| (vi) Edward Jenner | (f) Smallpox vaccine |
| (vii) Bacteriophage | (g) Virus that infects bacteria |
5. (a) Explain Mendelian inheritance and describe the experiments that led to the formulation of Mendel's laws. 9
- (b) What are plasmids ? Discuss their types and applications in Biology. 9
6. (a) Write short notes on any four : 4×4=16
- (i) Different forms of DNA

(ii) Recombinant DNA technology

(iii) Koch's postulates

(iv) Edward Jenner's contribution to vaccines

(v) Brightfield Microscopy

(b) What is a Foldscope and how does it contribute to scientific research ?

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