Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Pharm/SEM-7/PT-709C/2009-10

2009
ADVANCED PHARMACEUTICAL BIO-TECHNOLOGY

Time Allotted : 3 Hours Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

   i) What macromolecule do you isolate from a cell in the first step of making a genomic DNA library ?

   a) RNA b) DNA

   c) both of these d) none of these.

   ii) Reverse transcriptase

   a) makes a DNA copy of an RNA molecule

   b) makes an RNA copy of an RNA molecule

   c) makes a RNA copy of a DNA molecule.

   iii) The size of nanoparticle is

   a) 1 – 10 nm b) 10 – 100 nm

   c) 10 – 1000 nm d) none of these.

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iv) *Eco*RI is a

a) blunt and cutter restriction enzyme

b) staggered end cutter restriction enzyme

c) both of these

d) none of these.

v) In PCR temperature for denaturing DNA is

a) 96° C b) 120° C

c) 70° C d) 87° C.

vi) If a crime has been committed by one of the twins, which test will identify the criminal ?

a) DNA fingerprinting b) Blood group testing

c) Fingerprint matching d) Serotyping.

vii) The essential component of Ti-plasmid required for integration into plant genome is

a) origin of replication

b) tumour inducing gene

c) nopaline utilization gene

d) all of these.

viii) A functional unit of gene which specifies one polypeptide is known as

a) Codon b) Muton

c) Cistron d) Recon.

ix) Which of the following equations is correct for DNA ?

a) A + T = G + C b) G/A = C/C

c) A + C = G + T d) A/G = C/T.

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x) Primers are oligonucleotide sequences used by

a) RNA polymerase b) DNA polymerase

c) DNA ligase d) DNase.

xi) PCR involves

a) amplification

b) replication of DNA strand billion fold, outside a cell system

c) both (a) & (b)

d) none of these.

xii) Humulin is

a) bacterial insulin produced by *E.coli*

b) synthetic insulin produced by *r*DNA technology

c) human insulin produced in *E.coli* cells.

GROUP – B
(Short Answer Type Questions)

Write short notes on any *three* of the following. 3 × 5 = 15

2. Characteristics of pBR322.

3. Role of restriction endonucleases (R.E.) in formation of recombinant vector.

4. Application of biotechnology in criminal science.

5. Biodegradable plastic such as PHB produced in plants.

6. Strategy of development of individualized therapy.

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GROUP – C
(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. What is bioinformatics ? Discuss the relationship between bioinformatics and advanced biotechnology in the field of medicine. 15

8. Discuss in brief :

   i) Production of Human factor IX in Chinese Hamster Ovarian cells using *r*DNA technology

   ii) Erythropoietin by *r*DNA technology. $7\frac{1}{2} + 7\frac{1}{2}$

9. What is nanotechnology ? Explain the application of nanotechnology in the field of pharmaceuticals. 15

10. What is PCR ? What are the three major steps involved in PCR process ? Write down short note on RT-PCR (Real Time PCR) with proper diagram. 4 + 6 + 5

11. Discuss with examples about ELSI (ethical, legal and social implication) of biotechnology. 15

12. Discuss the strategies for obtaining therapeutically important proteins from genetically engineered plants. 15

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