

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Fourth Semester)

Branch – BIOCHEMISTRY

RECOMBINANT DNA TECHNOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- 1 Which among the following are the smallest plasmid and an ideal cloning vector?
(i) ColE1 (ii) RP4 (iii) PUC8 (iv) F
- 2 Which of the following is true about restriction endonucleases?
(i) Type I and II requires ATP to move along DNA
(ii) Type I, II and III requires ATP to move along DNA
(iii) Type II requires no ATP and cleaves DNA within recognition sequence
(iv) Type II requires ATP and cleaves DNA within recognition sequence
- 3 The usual source of restriction endonucleases used in gene cloning is
(i) fungi (ii) bacteria (iii) plants (iv) viruses
- 4 Which one among the following is just the cloning plasmid not an expression plasmid?
(i) pBAD-18-cam (ii) pBCSK
(iii) pUC-18 (iv) pET
- 5 What is the approximate size of fragments given off by EcoR1?
(i) 1 kb (ii) 2 kb (iii) 3 kb (iv) 4 kb
- 6 Who first described the use of RFLP in brewing strain differentiation?
(i) Clemons (ii) Schofield (iii) McCullough (iv) Jacob
- 7 What is the molarity of urea used in sequencing gels?
(i) 1 M (ii) 3 M (iii) 5 M (iv) 7 M
- 8 Which of the following is not a thermostable polymerase?
(i) pfu polymerase (ii) Taq polymerase
(iii) Vent polymerase (iv) DNA polymerase III
- 9 Interferons are
(i) Cytokine barriers (ii) Physical barriers
(iii) Cellular barriers (iv) Physiological barriers
- 10 Tissue plasminogen activator (TPA) is a
(i) DNase (ii) Protease
(iii) Lipase (iv) R Nase

Cont...

SECTION - B (35 Marks)Answer **ALL** Questions**ALL** Questions Carry **EQUAL** Marks (5 x 7 = 35)

- 11 a Assess the steps involved in gene cloning with its importance.
(OR)
b Give a short note on DNA ligase.
- 12 a Describe binary and shuttle vectors.
(OR)
b Explain pBR³²² with its features and uses.
- 13 a Elucidate the method and applications of Western blotting.
(OR)
b What are probes? Exemplify with its uses.
- 14 a Demonstrate Oligonucleotide directed mutagenesis.
(OR)
b Discuss Pyro sequencing method.
- 15 a Write the salient features of expression vectors with examples.
(OR)
b Evaluate the method of tissue plasminogen activator production by recombinant technology.

SECTION - C (30 Marks)Answer any **THREE** Questions**ALL** Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Illustrate the types and uses of restriction enzymes.
- 17 Describe the identification of recombinants in genetic engineering.
- 18 Demonstrate the method and applications of genomic DNA library.
- 19 Elaborate on the types and applications of PCR.
- 20 Discuss the hazards and ethical issues in genetic engineering.

Z-Z-Z

END