



NBI-003-006404 Seat No. _____

B. Sc. (Bioinformatics) (Sem. IV) (CBCS) Examination

April / May - 2017

BT - 404 : Genetic Engineering

Faculty Code : 003

Subject Code : 006404

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

1 Answer all of the questions : 20

- (1) λ DNA is obtained from a _____.
- (2) _____ is Di-deoxy sequencing.
- (3) T7 DNA polymerase has only _____ activity.
- (4) Concatamers are formed by _____.
- (5) Which group of enzymes are popularly called "Molecular stichers" ?
- (6) A technique called southern blotting is used for _____ analysis.
- (7) Write full name of RFLP.
- (8) The first isolation of DNA was done in _____ by _____.
- (9) DNA is insoluble in these alcohols - ethanol or isopropanol. (True or False)
- (10) _____ is a method for scientific experimentation especially used in drug discovery and relevant to the fields of biology and chemistry.
- (11) _____ °C should be the temperature during Denaturation in PCR?
- (12) Taq polymerase is isolated from the _____.

- (13) *HaeIII* has _____ base pair recognition sequence.
- (14) GAA/TTC is example of blunt end cleaving by RE.
(True or False)
- (15) G/AATTC is the restriction site of _____.
- (16) Yeast two hybrid system is useful for _____ studies.
- (17) Sequence have an axis of rotational symmetry known as _____.
- (18) RE that possess identical recognition site and cleavage site is known as _____.
- (19) _____ is an enzyme which catalyze the removal of 5'phosphate group.
- (20) The PCR technique was developed by _____.

2 (A) Write any three : **2×3=6**

- (1) What is a shuttle vector ?
- (2) Enlist all gene transfer techniques.
- (3) Define cDNA library.
- (4) Define RFLP.
- (5) Define genetic engineering.
- (6) What is a phage ? Write its types.

(B) Write any three : **3×3=9**

- (1) What are expression systems give its applications.
- (2) Write short notes on ligase 'chain reaction.
- (3) Write short notes on microinjection.
- (4) Write about the different types of endonucleases.
- (5) Describe phagmid as cloning vector.
- (6) How probes are constructed?

(C) Write any two : **5×2=10**

- (1) Explain Maxim and Gilbert method of DNA sequencing.
- (2) What is BAC? Give details of it.
- (3) Write a note on DNA isolation.
- (4) Give an account on steps of genetic engineering.
- (5) Selection and screening of recombinants.

- 3** (A) Write any **three** : **2×3=6**
- (1) Define sequencing.
 - (2) What are DNA arrays?
 - (3) Write 4 examples of heat stable polymerases.
 - (4) Define mutagenesis.
 - (5) Write 2 examples of RE with restriction sites.
 - (6) What is a probe ?
- (B) Write any **three** : **3×3=9**
- (1) Enlist all types of polymerases and write its function.
 - (2) What are the general steps of genomic DNA isolation ?
 - (3) What is high throughput screening?
 - (4) Write short notes on western blotting?
 - (5) How mutagenesis helps for analysis of recombinant DNA ?
 - (6) Write a note on phosphatase ?
- (C) Write any **two** : **2×5=10**
- (1) What is sequencing? Explain any one technique in detail.
 - (2) Give details of PCR.
 - (3) Yeast two hybrid system.
 - (4) Molecular diagnostics for high throughput screening.
 - (5) Write details of site directed mutagenesis.
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