



MBG-1603220001040200 Seat No. _____

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

March / April - 2018

BI - 402 : Genetic Engineering

(New Course)

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

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) The right side figures indicate total marks of the question.

- 1 The following questions from Unit-1 : **14**
- (A) Attempt the following objective Questions : **4**
- (1) T7 DNA polymerase has only _____ activity
- (2) G/AATTC is the restriction site of _____
- (3) _____ is an enzyme which catalyse the removal of 5'phosphate group
- (4) Which group of enzymes are popularly called "Molecular stichers"
- (B) Attempt any **one** out of two from the following : **2**
- (1) Star activity of restriction enzyme
- (2) Define genetic engineering
- (C) Attempt any **one** out of two from the following : **3**
- (1) Explain details on what are ligases. What are role does it plays in genetic engineering ?
- (2) Steps of genetic engineering
- (D) Attempt any **one** out of two from the following : **5**
- (1) Agarose gel electrophoresis
- (2) Action mechanisms of Kinases and phosphatases

- 2** The following questions from Unit -2 : **14**
- (A) Attempt the following objective Questions : **4**
- (1) Cosmids lack genes coding for _____ proteins
 - (2) If a plasmid is having two antibiotic resistant genes, say ampicillin resistant and chloramphenicol resistant. If the plasmid grows in ampicillin containing medium but not in chloramphenicol, that may conclude that The insert is present in _____ gene but not in _____ gene
 - (3) Which gene transfer technique involves a tiny needle which is used to inject DNA into a cell lacking that DNA sequence?
 - (4) _____ is responsible for high Concatamerization Cohesive ends.
- (B) Attempt any **one** out of two from the following : **2**
- (1) What is expression vector ?
 - (2) What are microprojectiles?
- (C) Attempt any **one** out of two from the following : **3**
- (1) Describe phagmid as cloning vector.
 - (2) Explain Biological method for gene transfer.
- (D) Attempt any **one** out of two from the following : **5**
- (1) What is cDNA library? Explain in detail
 - (2) What are the general steps of plasmid DNA isolation?
- 3** The following questions from Unit -3 : **14**
- (A) Attempt the following objective Questions : **4**
- (1) Competent cell formation is the step of Conjugation. (True or False)
 - (2) The PCR technique developed by _____.
 - (3) _____ is a chemical nucleotide Sequencing method.
 - (4) The enzyme used in maxam Gilbert method for P32 labelling of DNA at 3' end is _____.

- (B) Attempt any **one** out of two from the following : **2**
- (1) What is PCR and its use?
 - (2) What is ligase chain reaction?
- (C) Attempt any **one** out of two from the following : **3**
- (1) How mutagenesis helps for analysis of recombinant DNA ?
 - (2) Explain chromosome walking.
- (D) Attempt any **one** out of two from the following : **5**
- (1) Explain different types of PCR,
 - (2) Explain Maxim and Gilbert method of DNA sequencing.
- 4 The following questions from Unit -4 : **14**
- (A) Attempt the following objective Questions : **4**
- (1) If the bait and prey proteins _____ they bring the DNA-binding and transactivation domains in such close proximity that they reconstitute the function of the transcription activator, turning _____ the expression of a reporter gene as a result.
 - (2) Yeast two hybrid system involves the use domains of _____
 - (3) The DNA microarrays technology that indicates which genes are transcribed is called
 - (4) A single microarray may have a surface area of less than three square inches, yet may contain unique spots of tens of thousands of gene sequences. (True or False) ?
- (B) Attempt any **one** out of two from the following : **2**
- (1) What is the difference between expression based and interaction based screening ?
 - (2) Application of microarray

- (C) Attempt any **one** out of two from the following : **3**
- (1) What is high throughput screening?
 - (2) What are expression systems ? Give its applications
- (D) Attempt any **one** out of two from the following : **5**
- (1) Write about the usage of yeast as cloning hosts
 - (2) Molecular diagnostics for high throughput screening
- 5** The following questions from Unit -5 : **14**
- (A) Attempt the following objective Questions : **4**
- (1) _____, _____ and _____ parameters are needed to be optimized for successful PCR.
 - (2) The identification of novel genes using DNA database analysis is referred to as
 - (3) Snapgene was developed by
 - (4) dbSNP is developed by
- (B) Attempt any **one** out of two from the following : **2**
- (1) Define synthetic biology
 - (2) Types of SNP
- (C) Attempt any **one** out of two from the following : **3**
- (1) Describe SNP tools and Database
 - (2) Explain molecular cloning experiment using SnapGene
- (D) Attempt any **one** out of two from the following : **5**
- (1) Explain synthetic biology and its application
 - (2) Explain SNP in detail.
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