

Note : 1) All questions are compulsory.  
2) Figures to the right indicate marks.  
3) Draw diagrams wherever necessary.

- Q. 1 A) Explain the following (any four)** 8
- i) Pribnow box.
  - ii) pre-mRNA
  - iii) core promoter
  - iv) 'cat' box
  - v) TBP
  - vi) Enhancers
  - vii) polycistronic mRNA
  - viii) Goldberg Hogness box.

- B) Answer the following. (Any two)** 12
- i) Discuss the similarities and differences between the E.coli RNA polymerases and eukaryotic RNA polymerases.
  - ii) In detail explain the Rho independent termination of transcription in prokaryotes.
  - iii) 'Many eukaryotic mRNAs, but not prokaryotic mRNAs contain introns'. Describe how these sequences are removed during the production of mRNA.
  - iv) In detail explain the transcription initiation process in eukaryotes.

- Q. 2 A) Explain the following (Any four)** 8
- i) Translation
  - ii) Polysome
  - iii) Amino acyl (A) site
  - iv) Degeneracy of code
  - v) Aminoacylation
  - vi) Release factors (Rf)
  - vii) Ribosomal binding site.
  - viii) formyl methionine (fMet)

- B) Answer the following. (Any two)** 12
- i) Explain the process of initiation of translation in E.coli.
  - ii) Explain the process of elongation of translation in prokaryotes.
  - iii) Write in brief about the production of aminoacyl - tRNA with diagram.
  - iv) Write down the characteristics of the genetic code.

- Q. 3 A) Fill in the blanks (Any 4)** 4
- i) PAGE is a technique of separation of \_\_\_\_\_ based on their molecular weight and charge density.  
a) Proteins      b) DNA      c) RNA      d) Amino acids
  - ii) The technique which separates charged particles using electric field is \_\_\_\_\_.  
a) hydrolysis      b) electrophoresis  
c) Protein synthesis      d) protein denaturing.
  - iii) DNA possesses \_\_\_\_\_.  
a) no charge      b) a positive charge  
c) a negative charge      d) none of the above.
  - iv) SDS is \_\_\_\_\_ detergent.  
a) anionic      b) cationic      c) positive      d) none of the above.
  - v) In agarose gel electrophoresis, the DNA is moved towards the \_\_\_\_\_.  
a) cathode      b) anode  
c) DNA does'nt move      d) none of the above.
  - vi) The cross-linking agent used for PAGE gel is \_\_\_\_\_.  
a) Acrylamide      b) TEMED      c) APS      d) SDS

