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**SUBJECT CODE NO:- 6531**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**M.Sc. (Sem-II)**  
**Examinations March/April-2022 (To be held in June/July-2022)**  
**Zoology**  
**Cell and Molecular Biology-ZOO-202**

[Time: 3:45 Hours]

[Max. Marks:80]

N.B Please check whether you have got the right question paper.

1. Part A is compulsory
2. Attempt any five question for part B
3. Draw neat labelled diagram whenever necessary.

**Part A**

Q.1 Multiple choice questions.

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1. Catherin's ate the main proteins found in the Adherns junctions, which of the following groups do not have Catherins?
  - i) Plants    ii) Fungus    iii) Animals    iv) Bacteria
  - a) I and II    b) I, II and III    c) I, II and IV    d) All of the above
2. Which of the following proteins molecules are present in the tight junction?
  - i) Occludin    ii) Catenin's    iii) Claudin    iv) Neetins
  - a) I and II    b) I and III    c) II and IV    d) II, III and IV
3. Which of the following properties of genome are similar with the Eukaryotic genome?
  - i) DNA is compact and without repetitive DNA
  - ii) Translation occurs in nucleus and transcription occurs in cytoplasm.
  - iii) Histone proteins are responsible for condensation of chromosomes
  - a) I only    b) I and II    c) III only    d) II and III
4. Which of the following statement is TRUE about sigma factor in prokaryotes transcription?
  - i) Sigma factors helps in total transcription of ns RNA
  - ii) Sigma factors are the proteins which help only in initiation of transcription.
  - iii) Sigma factor is a part of holoenzyme structure of bacterial RNA polymerases.
  - a) I and II    b) II and III    c) I and III    d) All of the above.
5. Intermediate filaments are attached to -----

- a) Tight junctions    b) Adherens Junction    c) Desmosomes    d) Gap Junction
6. The first prokaryotes to appear in fossil record is -----  
 a) Bacillus    b) Streptococcus    c) Stromatolites    d) All of the above
7. Chromatin structures can be modified by -----  
 a) Acetylation    b) Methylation    c) Phosphorylation    d) All of the above.
8. Which of the following statement/statement is/ are TRUE about Genetic code?  
 i) Genetic code is Universal  
 ii) Genetic code is Non-overlapping  
 iii) Genetic code is a sequence on the DNA  
 iv) AVG is a stop codon.  
 a) I and II    b) II and III    c) II and IV    d) I, II and III
9. TIM TOM receptors are involved in targeting of –  
 a) Endoplasmic protein  
 b) Lysosomal protein  
 c) Mitochondrial protein  
 d) Nuclear protein
10. During prokaryotic protein synthesis peptidyl transferase activity is performed by ----  
 a) 5 Sr RNA  
 b) 23 Sr RNA  
 c) 28 Sr RNA  
 d) 5.8 Sr RNA

### Part – B

- Q.2 Describe Biochemical Theory of origin of life. 12
- Q.3 What is intermediate filament? Describe structure and function of intermediate filaments. 12
- Q.4 Describe in detail the process of Mitosis. 12
- Q.5 What is Nucleosome? Describe Nucleosome model of chromosome structure. 12
- Q.6 Describe in detail the proccr of transcription in eukaryotes. 12

Q.7 What is secondary Messenger! Describe role of G protein in cell communication. 12

Q.8 Write short notes on any two of the following. 12

- a) Cytoskeleton
- b) Tight Junctions
- c) Pribnow Box