



Acc No.

9756

MCC/18/M.Sc./Sem.-II/ZOO/1

**Second Semester Examination-2018**

**M.Sc. ZOOLOGY**

Paper Code: ZOO-203

Full Marks : 40

Time: 2 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answer in their own words as far as practicable.

Illustrate the answers whenever necessary.

**Use separate Answer Scripts for Group-A & Group-B**

**Group A**

**(Molecular Biology)**

1. **Answer any two questions from the following.** **2×2=4**
  - a) State the sequence of human telomere.
  - b) What do you mean by polymerase switching?
  - c) Which transcription factor is responsible for release of RNA polymerase II from eukaryotic promoter to start elongation?
  - d) What is Kazak's Sequence?
  
2. **Answer any two questions from the following.** **2×4=8**
  - a) What is 'Charging of tRNA'?
  - b) How does sliding DNA clamp works in E-coli DNA replication fork?
  - c) A mutation occurs in the 5' UTR (upstream sequence) of the trp operon that reduces the ability of region 2 to pair with region 3. What will be the effect of this mutation when the tryptophan level is high and low?
  - d) Mention the function of 'Rho' Protein and Nus - A protein in transcription.
  
3. **Answer any one question from the following.** **1×8=8**
  - a) Describe briefly the effects of methylation acetylation and phosphorylation on chromatin remodeling and transcription initiation in Eukaryotes.
  - b) The Monomeric operon which has sequences A,B,C, and D encodes enzyme 1 and 2. Mutations in sequences A,B,C and D have the following effects where + indicates enzyme is synthesized and - indicates the enzyme is not synthesized.

*(Turn Over)*

<u>Mentation in sepnance</u>	<u>Mmm absent</u>		<u>Mmm present</u>	
	Enz 1	Enz 2	Enz 1	Enz 2
No mentation	+	+	-	-
A	-	+	-	-
B	+	+	+	+
C	+	-	-	-
D	-	-	-	-

- i) Is the Mmm operon inducible or repressible?  
 ii) Indicate which sequence (A,B,C, or D) is part of the following components of the operon: Regulator -, Enzyme 1 -  
 Promoter -, Enzyme 2 -

**Group-B**  
**(Histochemistry)**

4. **Answer any two questions from the followings.** 2× 2=4
- What is meant by mordanting?
  - By which method you can detect Iron in the tissue by histochemistry?
  - What is Von Kossa techniques?
  - What is osmium tetroxide?
5. **Answer any two questions from the followings.** 2× 4=8
- What do you mean by a 'Complete dye'? Explain 'bathochromy'.
  - Briefly discuss about the chemical classification of Dyes along with examples.
  - What is the procedure by which you can detect Nucleic acid in the cell by histochemical method?
  - What is the way in histology to detect proteins & enzyme in the cell?
6. **Answer any one question from the followings.** 1× 8=8
- Briefly describe the ABC method for immunohistochemical detection of an antigen. 3
  - Name one stain which identifies only RNA in the Cell. 1
  - Discuss briefly about iron staining. 4
- Describe the steps of immunohistochemistry protocol for tissue immunostaining. 3
  - What are fixatives? Name one fixative for tissue histology? 2
  - How can you detect the acid & alkaline phosphatase activity in the tissue by histology? 3