

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2018
(First Semester)

Branch - APPLIED MICROBIOLOGY

CELL & MOLECULAR BIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks!)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

Cohesin is a

- (i) protein (ii) lipid
(iii) lipoprotein (iv) glycoprotein

Which one of the following is an example of a signal molecule?

- (i) NO_2 (ii) NO_3
(iii) NO (iv) N_2O

The nitrogen source used in the Meselson Stahl experiment is

- (i) NH_4SO_4 (ii) NH_4Cl
(iii) NH_4OH (iv) NH_3OH

Unwinding and altering topology of DNA replication can be carried out by

- (i) polymerases (ii) gyrases
(iii) helicases (iv) topo isomerases

How many subunits are present in prokaryotic RNA polymerase?

- (i) 4 (ii) 3
(iii) 2 (iv) 5

The function of α sub-unit of RNA polymerase is the binding of

- (i) nucleotide (ii) promoter
(iii) template (iv) initiation

A particular codon always code for the same amino acid wherever it is found, this states that the code is _____.

- (i) universal (ii) non-ambiguous
(iii) commaless (iv) non-overlapping

Deformylase is the enzyme involved in

- (i) initiation (ii) elongation
(iii) termination (iv) post translational processing

Histone deacetylation causes the _____ of gene expressions.

- (i) induction (ii) co-activation
(iii) repression (iv) activation

10 E-Coli trp operon consists of how many genes?

- (i) 5 (ii) 4
(iii) 3 (iv) 9

SECTION - B (25 Marks)**Answer ALL questions****ALL questions carry EQUAL Marks (5 x 5 = 25)****11 a Give a brief note on the various events of cell cycle.****OR****b Outline the general principles of cell communication.****12 a Write in detail about the various types of modifications of histones.****OR****b Briefly illustrate the Meselson and Stahl experiment with the procedure and result.****13 a What is meant by RNA editing? Explain it in detail.****OR****b Write a short notes on the role of promoters and silencers in transcription.****14 a Give a detailed account on Chaperons.****OR****b How will you regulate the process of translation?****15 a Write in brief about the 'ara' operon.****OR****b Give an account on the regulation of gene expression in viruses.****SECTION -C (40 Marks)****Answer ALL questions****ALL questions carry EQUAL Marks (5 x 8 = 40)****16 a Explain in detail about the various phases of Mitosis with suitable diagram.****OR****b Give a detailed account on the signal transduction pathways.****17 a Explain in detail about the various methods of DNA replication with suitable diagram.****OR****b Write an essay on the following :****(i) Enzymes of DNA replication (ii) DNA methylation****18a Write an essay on the transcription process of prokaryotes.****OR****b Write a short notes on :****(i) Antisense RNA (ii) Regulation of transcription****19 a What is meant by genetic code? Explain its various properties in detail.****OR****b Give a detailed account on the protein synthesis of Eukaryotes.****20 a Write an essay about the regulation of Gene expression in prokaryotes by Lac operon.****OR****b Give a detailed account on the trp operon.**