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MBI-1603220001020400 Seat No. _____

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

March / April - 2018

BI - 204 : Cell & Molecular Biology

(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) Cells are commonly studied in the lab. If you were examining various unlabelled slides of cells under the microscope, you could tell if the cell was from a plant by the presence of _____

(2) H_2O_2 metabolism is the function of _____ organals

(3) In human body which cell can change shape?

(4) Mitochondrion of Fungi is having which type of ribosomes?

(B) Attempt any **one** out of two from the following : **2**

(1) Draw fluid Mosaic model.

(2) Define Cell

(C) Attempt any **one** out of two from the following : **3**

(1) Chromoplast and leucoplast

(2) Explain Cell Theory with postulates

(D) Attempt any **one** out of two from the following : **5**

(1) Explain Ribosomes

(2) Explain structure and function of nucleus

2 The following questions from Unit -2 : **14**

(A) Attempt the following objective Questions : **4**

(1) What is the name of the protein that helps to regulate multiple checkpoints throughout the cell cycle and is also known as the "guardian of the genome"?

(2) _____ and _____ are special types of chromosomes are available.

(3) Write name of histone protein present Eukaryotic chromosome.

(4) Homo sapiens sapiens has _____ pairs of chromosomes.

(B) Attempt any **one** out of two from the following : **2**

(1) What is Giant size chromosome? Give examples of it.

(2) Explain Solenoid model of DNA.

(C) Attempt any **one** out of two from the following : **3**

(1) Describe how structure of double helix DNA proposed by Watson and crick

(2) Extracellular matrix

(D) Attempt any **one** out of two from the following : **5**

(1) Give details of Chromosome structure and types

(2) Describe cell cycle regulation

3 The following questions from Unit-3 : **14**

(A) Attempt the following objective Questions : **4**

(1) In eukaryotic cells, mature RNA is formed by the Removal of exons The "Central Dogma" of protein synthesis can be occurred
_____ --> transcription --> RNA --> _____

(2) Which DNA polymerase removes RNA primers in DNA synthesis?

(3) The protein _____ and _____involved in mismatch repair in Ecoli.

(4) During which phase of the cell cycle is DNA replicated?

(B) Attempt any **one** out of two from the following : **2**

(1) What are okazaki fragments?

(2) Define bidirectional and unidirectional DNA replication.

(C) Attempt any **one** out of two from the following : **3**

(1) Properties of DNA

(2) Explain the central dogma of life

(D) Attempt any **one** out of two from the following : **5**

(1) Explain the process of Replication in eukaryotes

(2) Explain DNA Repair mechanisms

4 The following questions from Unit-4 : **14**

(A) Attempt the following objective Questions : **4**

(1) Third position in the codon is referred to as the _____ position

(2) Amino acids are attached to the _____ arm of tRNA

(3) 'Eukaryotic mRNA is transcribed by RNA polymerase II. (True or False)

(4) Transcribed regions present in mature mRNA are called _____ while transcribed regions NOT present in mature mRNA are called _____

(B) Attempt any **one** out of two from the following : **2**

(1) What is Genetic Code ?

(2) Enlist types of RNA with function.

(C) Attempt any **one** out of two from the following : **3**

(1) Explain the post-translational modifications of protein.

(2) Explain the post-transcriptional modifications of mRNA.

(D) Attempt any one out of two from the following : **5**

(1) Explain the process of Transcription in eukaryotes by RNA pol I

(2) Explain Genetic code in detail

5 The following questions from Unit -5 : **14**

(A) Attempt the following objective Questions : **4**

(1) _____ is a unit of gene expression and regulation.

(2) The lac operon is under positive control only. (True or False)

(3) Genes that typically contribute to cancer through increased expression are _____

(4) An operon is made up of _____, _____ and _____ genes.

(B) Attempt any **one** out of two from the following : **2**

(1) Components of operon

(2) Process involves for causing of cancer

(C) Attempt any **one** out of two from the following : **3**

(1) Enlist and define control sequences

(2) Explain different types of Transposable elements

(D) Attempt any one out of two from the following : **5**

(1) Describe carcinogen

(2) Explain positive and negative regulation of gene expression by the lac operon.