NBI-1603220001020400 Seat No. _____

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

April / May - 2017

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 figure indicates total marks of the question.

1 Attempt the following : **14**

(a) Answer the following short questions : (All Compulsory) **4**

(1) Most of the enzymes of Kreb s cycle are present in _____ of Mitochondria.

(2) In human body, which cell can change shape ?

(3) Synthesis and production of tannins and poly phenols is done by ?

(4) Cotton is 100% cellulose while linen is 75% cellulose. (True or False)

(b) Answer any **One** of the following short questions : **2**

(1) State cell theory

(2) Explain the organelle involved in the detoxification process.

(c) Answer any **One** of the following short questions : **3**

(1) Explain Lysosomes

(2) Structure and function of cell wall.

(d) Explain any **One** of the following questions in detail : **5**

(1) Explain Ribosomes

(2) Explain the power-house of the cell.

2 Attempt the following : **14**

(a) Answer the following short questions : (All Compulsory) **4**

(1) Homo sapiens has _____ pairs of chromosomes.

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

(3) In Salivary gland of drosophila which type of chromosome found ?

(4) Cyclin _____ is first cyclin produce in the cell cycle.

(b) Answer any **One** of the following short questions **2**

(1) Explain Cell adhesion molecules

(2) Draw the pachytene stage of meiosis I

(c) Answer any **One** of the following short questions : **3**

(1) Explain cell death in detail

(2) Explain the chromosome organisation in prokaryotes.

(d) Explain any **One** of the following questions in detail **5**

(1) Draw the cell cycle and explain detain in cell cycle regulation'.

(2) Describe : Chromosome organisation in eukaryotes.

3 Attempt the following : **14**

(a) Answer the following short questions : (All Compulsory) **4**

(1) In base excision repair, the lesion is removed by _____.

(2) Tm value is used to determine the proportion of _____.

(3) During semiconservative replication, the original double helix remains intact and a new double helix forms. (True or False)

(4) The protein _____, _____ and _____ involved in mismatch repair in EColi.

(b) Answer any **One** of the following short questions : **2**

(1) What are okazaki fragments ?

(2) Explain Denaturation and Re-naturation of DNA.

(c) Answer any **One** of the following short questions : **3**

(1) Which experiment proves semiconservative mode of DNA ?

(2) Explain how DNA damage occurs ?

(d) Explain any **One** of the following questions in detail : **5**

(1) Explain DNA Repair mechanisms.

(2) Explain enzymes of replication.

4 Attempt following : **14**

(a) Answer the following short questions : (All Compulsory) **4**

(1) AUG is almost always the start codon (True or False)

(2) Suppose a certain gene contains the double-stranded sequence :

5' – ATGTTTAGCGCC –3'

3' – TACAAATCGCGG –5'

If the top strand is the Template strand and codes for an mRNA whose sequence begins 'ATG', which would be the sequence of the corresponding segment of RNA ?

(3) The in eukaryotes _____ has-35 sequence.

(4) Which of the RNA serves as adaptor molecule during protein synthesis ?

(b) Answer any **One** of the following short questions : **2**

(1) Explain Wobble base.

(2) Shine-Delgarno sequence.

(c) Answer any **One** of the following short questions **3**

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

(2) Explain different types of RNA.

(d) Explain any **One** of the following questions in detail : **5**

(1) Explain Genetic code in detail.

(2) Explain the process of Transcription in prokaryotes.

5 Attempt the following : **14**

(a) Answer the following short questions : (All Compulsory) **4**

(1) Cancer that begin in the cells of immune system is known as _____.

(2) In the lac operon, under which conditions will the lac genes be transcribed at high levels.

(3) Colonization of distant sites by cancer cells that break free from a tumor is known as _____.

(4) Class _____ transposons first transcribe the DNA into RNA and then use reverse transcriptase to make a DNA copy of the RNA to insert in a new location.

(b) Answer Any **One** of the following short questions **2**

(1) What is Operon ?

(2) What is the regulatory function of an operator gene?

(c) Answer any **One** of the following short questions **3**

(1) Enlist and define control sequences

(2) Explain different types of Transposable elements

(d) Explain any **One** of the following questions in details **5**

(1) Explain the lac operon

(2) What is cancer ? How it occurs ? Write its types with examples.
