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B. Pharma (Eighth Semester)
EXAMINATION, May-June, 2022
Cell and Molecular Biology (Theory)
(BP808ET)

Time : Three Hours] *[Maximum Marks:75*

Note: This question paper divided in three parts namely 'A', 'B', 'C', Part 'A' consists of 20 multiple choice questions. All questions are compulsory in part 'A'. Part 'B' consists of 3 long answer type questions. Attempt any 2 out of 3. Part 'C' consists of 9 short type questions. Attempt any 7 questions out of 9.

(Section - A)

(Objective/Multiple Choice Questions)

(1 mark each)

Note: Attempt all questions. Each question carries 1 mark.

Choose the correct option from the given options.

1. DNA synthesis can be measured by estimating the incorporation of radiolabelled:
   (A) Thymine
   (B) Guanine
   (C) Adenine
   (D) Cytosine
2. cDNA is sysnthesised from RNA by the enzyme-
   (A) DNA polymerase
   (B) DNA synthetase
   (C) DNA convertase
   (D) Reverse transcription
3. RNAase is a single polypeptide chain of_____amino acid residues.
   (A) 124
   (B) 2
   (C) 350
   (D) 4
4. Which of the following is non-sense codons?
   (A) AUG
   (B) GUG
   (C) UAA
   (D) UCU

5. In which phase of cell cycle is DNA replicated

   (A) G_1 phase

   (B) S phase

   (C) G_2 phase

   (D) M phase

6. _____phase is also called as S phase of cell cycle where the DNA duplicates.

   (A) Prophase

   (B) Synthesis

   (C) Subdividing

   (D) Anaphase

7. Mycoplasma is also known as

   (A) Archaea

   (B) Flagella

   (C) Cytolysis

   (D) Bacteria

8. Who is known as the father of Molecular biology?

   (A) James Watson

   (B) Linus Carl Pauling

   (C) Francis H. Crick

   (D) Mahlon B. Hoagland

9. Which of the following does not take part in gene expression?

   (A) Transcription

   (B) RNA processing

   (C) Replication

   (D) Translation

10. Name the signaling which requires physical contacts between the cells involved.

    (A) Paracinesignaling

    (B) Intracellular signaling

    (C) Autocrine signaling

    (D) Juxtacrinesignaling

11. Name the largest family of cell surface receptor?

    (A) GPCR

    (B) Ion-channel receptor

    (C) Enzyme - linked receptor

    (D) Nuclear receptor

12. Which of the following is component of mitochondira?

    (A) Ribonuclese

    (B) Lysozyme

    (C) Myoglobin

    (D) Cytochrome c

13. Which of the following bound are not involved in tertiary type of protein structure?
    (A) Disulfide bond
    (B) Hydrogen bonding
    (C) Salt bridges
    (D) Hydrophilic interactions
14. When the daughter cells are produced after mitosis will have_____number of chromosomes as original cell
    (A) 21
    (B) 31
    (C) Same
    (D) Different
15. At which cell cycle checkpoint, cell cycle is halted if cell's DNA is damaged?
    (A) $G_1 - S$
    (B) $S - G_2$
    (C) $G_2 - M$
    (D) $G_0 - G_1$
16. In_____type of division the produced daughter cells will have half of chromosomes as the original cell.
    (A) Mitosis
    (B) Meiosis
    (C) Somatic
    (D) None of above

17. The number of chromosomes present in eukaryotes cell is
    (A) Single chromosome
    (B) Double chromosome
    (C) Triple chromosome
    (D) No chromosome
18. Cyclin dependent kineases which control progression through cell cycle checkpoint are totally activated by which of the following?
    (A) Binding to cyclins
    (B) Phosphorylation by Cdks activating protein kinase
    (C) Both A & B
    (D) Phosphorylation by a tyrosine kinase
19. Which of the following phase is the longest stage of cell; life and it produces all the needed material for growth?
    (A) Interphase
    (B) Telophase
    (C) Metaphase
    (D) Anaphase
20. In the mitotic division phase, anaphase in the third phase and here_____ set of daughter chromosome separates.
    (A) Diploid
    (B) Haploid
    (C) Triploid
    (D) Single cell

Section - B

(Long Answer Type Questions)

(10 marks each)

Note: Attempt any two questions. Each question carries 10 marks.

1. Define cell and molecular biology. Explain in detail applications of molecular biology.
2. Describe Signalling pathway. Explain the receptors for cell signalling.
3. Write about transcription in relation to protein synthesis. Discuss about various types of RNA and their functioning.

Section - C

(Short Answer Type Questions)

(5 marks each)

Note: Attempt any seven questions. Each question carries 5 marks each.

1. Briefly discuss about mitosis and meiosis.
2. Write significance of protein synthesis.
3. What do you understand by genomic analysis?
4. Explain the functioning of protein kinases.
5. Write the differences between Prokaryotics and Eukaryotics

6. Explain cellular activities and its checkpoint.
7. Write a brief note on transcription and translation.
8. Discuss cellular processes.
9. Explain in detail about the properties of cell membrane.