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PAR-003-1015019

Seat No. _____

B. Sc. (Sem. V) Examination

October / November - 2018

Zoology : Z-503

(Biochem., Cytology, Genetics Instru. Bio, Funda. Pro.)

(New Course)

Faculty Code : 003

Subject Code : 1015019

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) Illustrate your answer with neat and labelled diagram.

(2) Figure to the right side indicates full marks for the questions.

1 (a) Give the answers to the following questions : **4**

(1) What is Catabolism?

(2) Which mineral element is a structural element of cysteine and methionine ?

(3) Define isomerase enzyme.

(4) Give alternate names of Vitamin-E and Vitamin-C.

(b) Write any **one** out of two : **2**

(1) Describe the functions of Carbohydrates.

(2) Write a note on Beta pleated sheet.

(c) Write any **one** out of two : **3**

(1) Explain briefly Vitamin- B_{12} and Vitamin-C.

(2) Write a note on biochemical functions of Phosphorus.

(d) Write any **one** out of two : **5**

(1) Explain the Urea Cycle.

(2) Write a note on factors affecting enzyme activity.

2 (a) Give the answers to the following questions : **4**

(1) What is Synapsis?

(2) Give only the names of stages of meiotic Prophase-1.

(3) Define Anaplasia.

(4) Write a brief note on functions of Microfilaments.

(b) Write any **one** out of two : **2**

(1) Write a note on the significance of meiosis.

(2) Describe the hormonal theory of Carcinogenesis.

(c) Write any **one** out of two : **3**

(1) What are Intermediate Filaments ? Describe types of Intermediate Filaments.

(2) Describe the structure and functions of microtubules.

(d) Write any **one** out of two : **5**

(1) Describe the Cell Cycle.

(2) Explain in detail characteristics of cancer cells. .

3 (a) Give the answers to the following questions : **4**

(1) Write a brief note on Paper Electrophoresis.

(2) Write the formula for Rfvalue.

(3) Give a brief introduction of BAC.

(4) Write the role of DNA Ligase in recombinant technology.

(b) Write any **one** out of two : **2**

(1) Write a note on Cosmid vector.

(2) Explain Partition column chromatography and Ion Exchange Chromatography.

(c) Write any **one** out of two : **3**

(1) Describe the basic principles of recombinant DNA technology.

(2) Write a note on Agarose gel electrophoresis.

(d) Write any one out of two : **5**

(1) Write a note on methods for Gene transfer.

(2) Explain descending paper chromatography.

4 (a) Give the answers to the following questions : **4**

(1) What is the recon?

(2) Define induced mutations and mutagens.

(3) Describe disorders that occur due to terminal deletion.

(4) Give names of chemical mutagens.

(b) 'Write any one out of two : **2**

(1) Write a note on Y-linked inheritance.

(2) Explain Duplication.

(c) Write any **one** out of two : **3**

(1) Write a short note on Amniocentesis.

(2) Describe types of inversion.

(d) Write any **one** out of two : **5**

(1) Write a note on Colour blindness and Haemophilia.

(2) Explain the molecular structure of the gene.

5 (a) Give the answers to the following questions. **4**

(1) What is Genetic code?

(2) Describe the role of DNA helicase in DNA replication.

(3) Define Okazaki fragments.

(4) What is the Shine-Dalgarno sequence?

(b) Write any **one** out of two : **2**

(1) Describe briefly proof reading function of DNA polymerase III.

(2) What is the replication fork ?

(c) Write any **one** out of two : **3**

(1) Write a note on termination of transcription in Prokaryotes.

(2) Write a note on the Genetic code.

(d) Write any **one** out of two : **5**

(1) Write a note on initiation of translation.

(2) Explain post-transcriptional modification in Eukaryotes.
