

- Instruction :-**
- * Draw diagrams wherever it is necessary.
 - * All questions are compulsory.
 - * Right hand figures indicates full marks.

Q. 1 A) Answer the following questions : (any 4)

8

- i) What is nuclear pore complex?
- ii) What is chromatin fiber?
- iii) Write down any two functions of nucleoplasm.
- iv) Why 1st meiotic division is called reductional division.
- v) What is G₁ phase.
- vi) What is synaptonemal complex.
- vii) What is microtubules?
- viii) What is nonsister chromatid?

B) Answer the following in short. (any 2)

6

- i) Write short note on nuclear membrane.
- ii) Write down the significances of 's' phase.
- iii) Write difference between euchromatin & heterochromatin.
- iv) Write the significance of meiosis.

C) Answer the following in brief. (any 1)

6

- i) Write a note on nucleoplasm, chromatin fibre and nucleolus.
- ii) Elaborate on different stages of mitosis.

Q. 2 Answer the following questions. (any 4)

8

- i) Define glomerulus.
- ii) What is peptidase, give e.g.
- iii) What is the role of secretin.
- iv) What is the unique nature of glomerular capillary?
- v) What is cortical nephron?
- vi) What do you mean by emulsification?
- vii) What is the role of Bowman's capsule?
- viii) Give example of any 2 glycosidic enzyme.

B) Answer the following questions in short : (any 2)

6

- i) Animal can't digest cellulose - Why?
- ii) Shortly describe about emulsification of fat.
- iii) Write a note on Juxtra medullary nephron.
- iv) Write down the factors affecting NFR.

C) Answer the following in brief. (any 1)

6

- i) Write a short protein digestion.
- ii) Write a note on glomerular ultrafiltration.

Q. 3 A) Answer the following questions : (any 4)

8

- i) Define doubling time.
- ii) Name micro elements needed for microbial growth.
- iii) Define autotrophs.
- iv) Define phototrophs.
- v) Define organotrophs.

- vi) Define dilution rate
- vii) Define Halophiles.
- viii) Define neutrophiles.

B) Answer the following questions in short. (any 2)

- i) Stationary phase.
- ii) Batch culture system.
- iii) Turbidostat.
- iv) How does an open system differ from a closed culture system or broth culture?

C) Answer the following in brief. (any 1)

- i) Describe any three techniques by which microbial population numbers may be determined and give its advantages and disadvantages.
- ii) Describe the nutritional requirements of the major nutritional groups and give some microbial examples 2 each.

Q. 4 1) A) Define the following : (any 1)

- i) Peptidase
- ii) GFR

1) B) Answer the following by choosing the correct option : (any 3)

- i) Zymogen of pepsin is _____ (peptidase / pepsinogen / chymopepsinogen)
- ii) Infant can ingest protein by _____ (pinocytosis / phagocytosis / pinocytosis)
- iii) HCl is synthesized by _____ cell. (chief / parietal / gastric mucosa)
- iv) _____ help in water reabsorption in DCT. (ADH / ATP / NADP)
- v) The ascending Henle's loop is impermeable to _____.
(water / bicarbonate / uric acid)
- vi) Protein is one of the _____ component of urine. (normal / abnormal / essential)

2) A) Define the following : (any 1)

- i) Euchromatin
- ii) Boquet stage

2) B) Answer the following by choosing the correct option : (any 3)

- i) Nucleopore maintain _____ of different macro-molecules in and out of nucleus.
(transportation / secretion / digestion)
- ii) Nucleomembrane remain continuous with _____. (ER / golgicomplex / lysosome)
- iii) _____ cells always remains in Go phase. (nerve / blood / cardiac muscle)
- iv) Aminopeptidase is a _____. (exopeptidase / endopeptidase / peptidase)
- v) Microtubules binds with chromosome of _____ constriction.
(secondary / primary / tertiary)
- vi) Heterchromatin contains _____ gene.
(nonfunctional gene / functional gene / foreign gene)

3) A) Answer the following : (any 1)

- i) Classification of microorganisms on the basis of position of flagella.
- ii) Short note on capsule staining.

3) B) Answer the following by choosing correct option : (any 3)**3**

- i) _____ is the process by which the internal and external structures of cells and microorganisms are preserved and fixed in position.
(Enrichment / Isolation / Fixation)
- ii) Microorganisms require about _____ elements in large quantities for the synthesis of macromolecules. (20 / 10 / 50)
- iii) _____ is the complete sequence of events extending from the formation of a new cell through the next division. (cell cycle / Replication / Transformation)
- iv) Inoculation of a culture into a chemically different medium results in a _____ log phase. (shorter / longer / nochange)
- v) _____ is used to measure cell mass.
(Spectrophotometry / Hemocytometer / membrane filter)
- vi) pH is defined as the negative logarithm of the _____ ion concentration.
(hydrogen / oxygen / sulfur)

— The End —