KALYANI MAHAVIDYALAYA
CITY CENTRE COMPLEX, KALYANI, NADIA
TEST EXAMINATION 2015
DEPARTMENT OF MICROBIOLOGY
PAPER I

F.M: 50 **Time: 2 hrs**

(Use separate sheet for each group)

Group: A

I. Answer the following questions briefly. (Any five) (1X5)

a. What is fungi imperfecti?
b. What are coacervates?
c. What is methanogenesis?
d. Name one filamentous prokaryote.
e. Differenciate between virus and virion.
f. Name one halophilic bacterium.
g. Name one methanogenic archaea.
h. Name one nitrogen fixing actinomycetes.
i. What is the type of internal proteins associated with Adeno and Influenza virus?

II. Answer the following questions in short. (Any six) (2X6)

a. Write characteristics of Ascomycetes.
b. Write about the specialty of cell wall of archaea.
c. Write a short note on Koch's postulates.
d. Write a short note on *Giardia*.
e. Why is the primitive earth condition termed as anoxic reductive atmosphere?
f. Write about the economic significance of diatoms.
g. Write a short note on prion along with name of a disease caused by it.
h. Write a short note on RNA world.
i. Write about the structure of TMV.
j. Write about the replication '-'ve stranded RNA virus.

III. Answer the following questions. (Any three) (6X3)

a. Differentiate between lytic and lysogenic life cycle of virus. 3+3
b. What are the salient features of Bacillariophyta? 6
c. Write a short note on chemical evolution. Describe Oparin hypothesis. 2+4
d. Write about the contributions of Alexander Fleming and Louis Pasteur. 3+3

Group: B

I. Answer the following questions briefly. (Any three) (1X3)

a. What is plasmid?
b. Name one endospore producing bacterium.
c. What is the function of magnetosomes?
d. What is transpeptidation reaction?
e. What is the function of carboxysomes?

II. Answer the following questions. (Any three) (2X3)

a. Differentiate between capsule and slime layer.
b. Write a short note on functions of cytoplasmic membrane.
c. How spores help bacteria to survive adverse conditions?
d. Differentiate between endospore and exospore.
e. Give a diagrammatic representation of structure of flagella.

III. Answer the following questions. (Any one) (6X1)

a. Write a note on different storage granules found in bacteria. 6
b. Differentiate between Gram +ve and Gram –ve bacterial cell wall. 6

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PAPER II

F.M: 50 **Time: 2 hrs**

(Use separate sheet for each group)

Group: A

I. Answer the following questions briefly. (Any four) (1X4)

a. What are hopanoids?
b. Name one basic and one acidic amino acid.
c. What is enantiomer?
d. What is the general structural formula of carbohydrate?
e. Name the purine bases found in DNA.
f. What is denaturation of DNA?

II. Answer the following questions. (Any five) (2X5)

a. How many types of weak interactions are found in aqueous solution?
b. How nitrogen acts as a micronutrient?
c. Draw pyranose and furanose structure of glucose.
d. Define isoenzymes.
e. What is Chargoff's rule?
f. Differentiate between α- helix and β- sheet.
g. What do you mean by specific activity of an enzyme?
h. What is the function of oxidoreductase and lyase?
i. What is prosthetic group and co-factor?
j. Write the reaction of amino acid with HCl.

III. Answer the following questions. (Any two) (6X2)

a. Distinguish between nucleoside and nucleotide. Why DNA is more stable than RNA? What is hypertonic effect of DNA? 2+2+2
b. Why amino acids are called ampholytes? Describe Xantho-proteic test. How sodium aminoacetate is formed from glycine? 1+3+2
c. Describe lock and key model of enzyme action. What is feedback inhibition? Name one allosteric enzyme. 3+2+1

Group: B

I. Answer the following questions briefly. (Any four) (1X4)

a. What is sedimentation coefficient?
b. What is half-life of a radioactive material?
c. What is numerical aperture of a lens?
d. What colour does proline develop on reaction with ninhydrin.
e. Define range.
f. What is null hypothesis?

II. Answer the following questions in brief. (Any four) (2X4)

a. State Lambert-Beer's law.
b. Write the principle of affinity chromatography.
c. How anionic exchanger works?
d. Define standard deviation.
e. Name two tracer elements along with their roles.
f. What is the relation between $T_{1/2}$ and λ?
g. What is dark field microscopy?
h. What is SDS-PAGE?

III. Answer the following questions. (Any two) (6X2)

a. Describe the process of paper chromatography with diagram. 6
b. Calculate mean and standard deviation of the following data.
3,6,7,3,11,12,23,25,10,18,25 and 30 3+3
c. Differentiate between SEM and TEM. Write the principle of phase contrast microscopy. 4+2
d. Define median and mode for simple series as well as grouped series along with the formula. 3+3

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