WEST BENGAL STATE UNIVERSITY

B.Sc. General PART-II Examinations, 2017

MICROBIOLOGY-GENERAL

PAPER-MCBG-II

Time Allotted: 3 Hours | Full Marks: 100

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.

Group-A

(Marks: 70)

Answer Question No. 1 which is compulsory and attempt any *six* Questions from the rest

1. Answer any ***five*** questions from the following: 2×5 = 10

   (a) What is C.O.D.?

   (b) What are aerosols?

   (c) Name two air-borne pathogens.

   (d) Differentiate potable water and polluted water.

   (e) Define fecal and non-fecal coliforms with suitable example.

   (f) Why does food spoil despite refrigeration?

   (g) What do you mean by “false presumptive test”?

   (h) Name two normal microflora present in milk.

2. (a) How the uv rays act as a disinfectant in water purifiers? 2

   (b) Briefly describe a method for determination of coliform organism in a water sample. 4

(c) Write a short note on ‘symbiosis’ and ‘antagonism’. 2+2

3. (a) Mention the causative organism and symptoms of 3+3
(i) Cholera and (ii) Typhoid.
(b) What is ‘mineralization’ and ‘humification’? 2+2

4. (a) Why soil is considered to be a “store house of nature”? 2
(b) Mention a concise account of nitrogen cycle in nature. 4
(c) Write a note on “parasitism” and “mutualism”. 2+2

5. (a) What is “Colititre” or “Coli index”? 2
(b) What is “Bio deterioration”? 2
(c) Describe the process of “municipal water purification”. 4
(d) Mention the disadvantages of chlorination of drinking water. 2

6. (a) Describe various methods employed for air-borne microbial control in indoor environment. 4
(b) Mention the reaction mechanism involved in Indole test and Methyl red test for identification of fecal and non fecal coliforms. 4
(c) What do you mean by “xenobiotics”? 2

7. (a) Name different types of microbial food spoilage and organisms responsible for each type. 4
(b) What is “Cheese”? Describe main steps involved in cheese production. 2
(c) Briefly describe the various processes used for the pasteurization of milk. 4

8. (a) What is “MBRT” test of milk? 4
(b) What are slurry-phase bioreactors? Describe any two most commonly used slurry-phase bioreactors. 4
(c) What are “photobionts”? 2

9. (a) Write short note on: 2+2

(i) Oxidation ponds

(ii) Activated sludge

(b) What is "single cell protein"? 2

(c) What are the importances of 'dehydration' and 'radiation' during food preservation? 2+2

Group-B

(Marks: 30)

Answer Question No. 10 which is compulsory and attempt any *two* Questions from the rest

10. Answer any ***five*** questions from the following: 2×5 = 10

(a) What is an impellar?

(b) What do you understand by the term 'Selectable marker'?

(c) What is a Shuttle vector?

(d) Define gene cloning.

(e) Explain what do you understand by high copy number of cloning vector.

(f) Mention the name of two industrially important bioreactors.

(g) Define malting in bur production process.

11. Write short notes on: 2.5×4 = 10

(a) Blue white screening

(b) PCR

(c) Transformation

(d) Ti plasmid.

12.(a)	Name the organism used for industrial vinegar production.	1
(b)	Write the process of streptomycin production with the help of a flow sheet.	4
(c)	Define narrow spectrum antibiotic with example.	1+1
(d)	Discuss in brief the production of an enzyme in industry.	3
13.(a)	Write the method of Calcium Chloride mediated transformation.	3
(b)	What is Polyclonal Site (PCS)?	2
(c)	What do you mean by ‘insertional inactivation’?	2
(d)	What are the advantages of PUC series vector as cloning vectors?	3
14.(a)	Why does vinegar production require two fermentations?	2
(b)	Name two substrates used for industrial ethanol production.	2
(c)	With the help of flow chart discuss the production of citric acid.	4
(d)	Define Scale up.	2
15.(a)	State the differences between PUC 18 and pBR322 vectors.	2
(b)	Define Gene Gun method mentioning two applications of it.	1+2
(c)	What are the uses of penicillin?	2
(d)	What is Turbidostat?	2
(e)	Give one example of natural antibiotic.	1