



বিদ্যাসাগর বিশ্ববিদ্যালয়

VIDYASAGAR UNIVERSITY

M.Sc. Examinations 2020

Semester IV

Subject: CHEMISTRY

Paper: CEM – 404

(Organic, Inorganic and Physical Special)
(Theory)

Full Marks:40

Time: 2hrs.

Candidates are required to give their answers in their own words as far as practicable.

Paper: CEM 404
(Inorganic and Physical Special)

Answer any one of the following questions:

The questions are of equal value. Candidates are requested to give their answer in their own words (limit: 250 words) as far as practicable.

1. Write short notes on the surface pressure- area isotherm of DPPC.
2. Describe some applications of AFM on soft material.
3. Compare and contrast AFM and TEM
4. How can you use differential scanning calorimetry (DSC) in understanding chain melting of bi-layer?
5. Describe different types of Langmuir-Blodgett deposited multi-layers.
6. Assign the characteristics band present in A, B and Z form of DNA in circular dichroism spectroscopy.
7. Assign the characteristics band presents in CD spectra for Random coil, β -Sheet and α -helix structure of a protein.
8. Write a short note on plane polarized light.



9. Discuss what types of information obtained from the Isothermal titration calorimetry (ITC).
10. Explain what type of interaction can be study by Isothermal titration calorimetry (ITC).
11. Write short notes on the major categories of toxic elements.
12. Write sort notes on cyanide toxicity.

**Paper: CEM 404
(Organic Special)**

Answer any one of the following questions:

The questions are of equal value. Candidates are requested to give their answer in their own words (limit: 250 words) as far as practicable.

1. (a) Write the full form of FSSAI. What is AGMARK? (b) What is the full form of "PUFA"? (c) Name two food sources of "PUFA" (d) Name two food sources of MUFA.
2. (a) What do you mean by LDL AND HDL? (b) What is meant by EFA? Give two examples. (c) What do you mean by 'virgin oil'?
3. (a) Mention the conditions for deodorization. (b) What is saponification value? (c) What is iodine value and write the significance of it?
4. (a) Write the factors which may affect the milk composition. (b) Write the average composition of whole cow milk. (c) Why milk protein is so important? Write one mineral which is not available from milk.
5. (a) What is toned and double toned milk? (b) Write the ingredients used for ice-cream preparation and the function of each of them. (c) Name two microbial strain culture used for yogurt production.
6. (a) Define fruit juice. (b) What are the changes that happen during ripening of fruit? (c) Write the steps in the preparation of fruit juice and pulp processing. (d) Name different types of processes for the production of fruit juice. (e) Name two enzymes used for fruit juice clarification.



7. (a) What is Gerber Test? (b) What do you mean by MBR test? (c) How is it linked to microbiological quality of milk? (d) Name one bleaching agent for milk. (e) Write the different conditions for Pasteurization.
8. (a) Write the definition of the following: Skimmed milk, Toned milk, Recombined milk. (b) Low fat milk is fortified with vitamins-why?
9. Write the objective of homogenization of milk. Write the conditions of different milk pasteurisation methods. Write Short note on : alkaline phosphatase test.
10. Write the merits and demerits of Spray Drying of Milk. What do you mean by sweetened condensed milk? What are the general ingredients used for the preparation of ice-cream?
11. Write the steps of Butter manufacturing? What are the objectives of the following steps: 'churning' in butter making process and 'ripening ' in the cheese making process?
12. Mention some bi products of milling industry. What do you mean by parboiling? Write the difference between 'atta' and 'maida'. What is gluten? Name two cereals and mention two processed food products made out of each of them.