

Printed Pages : 6

F-6328

M.Sc. (IInd Semester) Examination, 2021

CHEMISTRY

(Applied Chemistry)

Time Allowed : Three Hours

Maximum Marks : 70

Minimum Passing Parks : 25

Note : Question paper is divided into four sections. Attempt question of all four sections as per direction. Distribution of marks is given in each section.

SECTION-A

Note : Attempt **any ten** questions. Each question carries **01** marks. (Q.No. 1 to 6 fill in the blanks and 7 to 12 multiple choice type) [1x10=10]

1. Fill in the blanks :

F-6328/10

(1)

[P.T.O.]

- (i) _____ methods for hardness determination is a more accurate, convenient and rapid procedure.
- (ii) Urea is a _____ Fertilizer.
- (iii) The manufacture of Nylon-6 involves condensation of _____ and _____.
- (iv) Zeigler - Natta catalyst is used in making _____.
- (v) _____ is the primary component of crude oil.
- (vi) Water gas is the mixture of _____ and _____.

Multiple Choice type :

- (vii) Hardness of water is conventionally expressed in terms of equivalent amount of :
- (a) H_2CO_3
- (b) MgCO_3
- (c) CaCO_3
- (d) Na_2CO_3

(viii) The first organic pesticide to be used commercially was :

- (a) Bordeaux mixture
- (b) Burgundy mixture
- (c) DDT
- (d) 2 : 4 - D

(ix) Carbamates include :

- (a) Fungicides, herbicides and insecticides
- (b) Insecticides only
- (c) Herbicides, insecticides and nematocides
- (d) Insecticide and rodenticides

(x) Which of the following statement is false ?

- (a) The repeat unit in natural rubber is isoprene
- (b) Both starch and cellulose are polymers of glucose

- (c) Artificial silk is derived from cellulose
- (d) Nylon-66 is an example of elastomer
- (xi) Bakelite is obtained from phenol by reacting with :
- (a) HCHO
- (b) $(\text{CH}_2\text{OH})_2$
- (c) CH_3CHO
- (d) CH_3COCH_3
- (xii) What is boiling temperature of petrol ?
- (a) 40-120°C
- (b) 120-180°C
- (c) 180-250°C
- (d) 250-320°C

SECTION-B

Note: Attempt **any five** questions. Each question carries **02** marks. [2x5=10]

1. What type of dissolved impurities are present in water ?
2. What is NPK value ?
3. What is condensation polymerisation ?
4. Write chemical composition of soap.
5. What is producer gas ?
6. What are knocking compounds ?
7. Write chemical composition of varnishes.

SECTION-C

Note: Answer **any five** questions. Each question carries **04** marks. [4x5=20]

1. Write process of ozonisation.
2. Write legislation and recent amendments with respect to pesticide materials.
3. Write kinetics of polymerisation.
4. Write determination of flash point.
5. Write analysis of natural gases.

6. What are nuclear wastes and their control methods ?
7. Write composition of producer gas and coal gas.

SECTION-D

Note: Answer **any three** questions. Each question carries **10** marks. [3x10=30]

1. Explain biopolymers and their types in detail.
2. Discuss molecular mass, number and mass average molecular mass and mass determination by osmometry.
3. Write analysis of soaps, saponification, unsaponifiable and unsaponified matter in soaps and estimation of free alkali and phenol in soap.
4. Write manufacturing methods of adhesives, types, action and its preparation.

----X----