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SEAT NO.

152
Eng

No. of printed pages. 03

SARDAR PATEL UNIVERSITY

B.Sc. EXAMINATION -2022 (VIth SEMESTER)

B.Sc. Sem -6 US06CCHE24 (Applied Chemistry)

Date: 7-04-2022, Thursday

Time: 03:00 P.M. To 05:00 P.M.

Total Mark-70

Note: (i) All questions are to be attempted. (ii) Figures to the right indicate marks.

Q=1. Choose the correct option for the following. (10)

1. How many CMR signals would you expect from m-Xylene ?

- (a) 5 (b) 7 (c) 6 (d) 9

2. Which of the following compound have smallest proton chemical shift ?

- (a)
- CH_3Cl
- (b)
- R_2CHCl
- (c)
- $\text{R}_3\text{C-H}$
- (d)
- RCH_3

3. Which of the following is used as reference in the NMR spectra ?

- (a) Tetramethylsilane (b) Tetrahydrofuran (c) Dimethylformamide (d) Benzenehexachloride

4. ----- is used in the treatment of tuberculosis.

- (a) Acedapsone (b) Lidocaine (c) Hetrazan (d) Phenylbutazone

5. ----- is used in the treatment of dental surgery.

- (a) Sulphamethazine (b) Sulphafurazole (c) Lidocaine (d) Chloroquine

6. Cobalt in vitamin B_{12} is found in which oxidation state ?

- (a) +1 (b) +2 (c) +3 (d) +5

7. Which metal is responsible for structural stability of DNA and RNA ?

- (a) Mg (b) Ca (c) Fe (d) Zn

8. Which protein transfers iron from stomach to various parts of the body ?

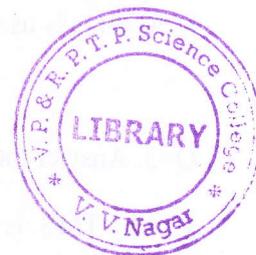
- (a) Transferrin (b) Ferrochrome (c) Ferrioxamines (d) Given all

9. Valuable by-product obtain in ----- process during the production of sodium hydroxide.

- (a) Causticizing (b) Lowing's (c) Electrolyte (d) None of them

10. ----- chemical is called "king of chemicals"

- (a)
- $(\text{NH}_4)_2\text{SO}_4$
- (b)
- NaOH
- (c)
- H_2SO_4
- (d)
- HNO_3



①

C.P.T.O.

Q=2. Fill in the blanks:

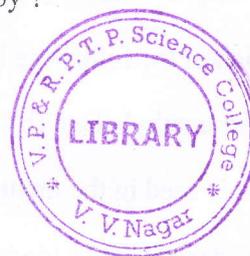
(08)

1. The scale of δ ppm in CMR is ----- (0-50 / 0-beyond 200)
2. TMS is ----- (Volatile / Non-volatile)
3. Nirvanol drug is used as ----- (Anticonvulsant / Antimalarial)
4. Hetrazan drug is used as ----- (Anthelmintics / Antiarrhythmic)
5. ----- is important for bacterial nitrogen fixation (Zn / Mo)
6. Hemoglobin consists of ----- subunits.each containing one heme group (Four / Two)
7. Sodium hydroxide used as ----- (Mercerizing / Purification of gold)
8. Asbestos is used in ----- (Nelson cell / Castner- Kellner cell)

Q=3. Answer the following (Any ten).

(20)

1. Why TMS is used as a reference standard in NMR spectroscopy ?
2. What is chemical shift ?
3. Discuss the shielded proton.
4. What are the requirements of an ideal drug ?
5. Discuss the mode of action of antipyretic drugs.
6. Write the synthesis of drug which is used as an antianginal.
7. Draw the structure of A.T.P.
8. What are macronutrients ?
9. Give the structure of Porphine.
10. Write the uses of HNO_3 .
11. Discuss: Importance of H_2SO_4 in industries.
12. What is causticizing process.



Q=4. Answer the following (Any four)

(32)

1. Discuss : diastereotopic proton and enantiotopic proton.
2. Discuss proton-coupled and proton-decoupled spectrum with suitable example.
3. Write the synthesis and uses of the following drugs.

(a) Sulphafurazole (b) Sulphametazine

4. Define " Drugs". And discuss the mechanism of sulpho drugs.
5. Write notes on vitamin B₁₂.
6. Write notes on Hemerythrin.
7. Write a chemical properties of H₂SO₄.
8. List different methods used for manufacture of nitric acid and discuss Birkland and Eyde process.



— X —
③