

D 93775

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Name.....

Reg. No.....

**FIRST SEMESTER B.A./B.Sc. DEGREE EXAMINATION
NOVEMBER 2020**

(CUCBCSS)

Chemistry

CHE 1B 01—THEORETICAL AND INORGANIC CHEMISTRY—I

Time : Three Hours

Maximum : 80 Marks

Section A (One Word)

Answer all questions.

Each question carries 1 mark.

1. Name a base that can be used as a primary standard.
2. Electronic configuration of Cu^+ is _____.
3. An indicator that can be used in weak acid strong base titrations is _____.
4. Number of orbitals possible for $n = 3$ is _____.
5. Write one example of a radioactive isotope used in agriculture.
6. The disintegration constant of a radioactive element with half-life period 100's is _____.
7. Atoms having different mass number and same atomic numbers are called _____.
8. If 1 mol is present in 1 L, then 0.2 mol is present in _____ ml.
9. The first organic compound synthesized was _____.
10. Equivalent weight of oxalic acid is _____.

(10 × 1 = 10 marks)

Section B (Short Answers)

Answer any ten questions.

Each question carries 2 marks.

11. State group displacement law.
12. What is the principle behind iodometric titration ?
13. What do you mean by radioactive equilibrium ?
14. State Ritz-combination principle.

Turn over

15. Define normality and molarity.
16. Name two interdisciplinary areas of chemistry with physics.
17. Suggest treatment you would adopt for burns due to phenol.
18. State Heisenberg's uncertainty principle.
19. Give an example each for internal and external indicators.
20. Define Hypothesis.
21. What do you mean by black body radiation ?
22. 100 g of a radioactive substance is reduced to 25 g in 24 minutes. What is the half-life of the substance ?

(10 × 2 = 20 marks)

Section C (Paragraph)

Answer any five questions.

Each question carries 6 marks.

23. Explain the separation technique of isotopes by gaseous diffusion method and thermal diffusion method.
24. Distinguish between nuclear fission and nuclear fusion reactions.
25. In which regions of visible spectra do the five lines of hydrogen spectrum appear ? Give Rydberg's equation and explain the terms. An electron in the hydrogen atom undergoes transition from $n = 2$ to $n = 5$ state. Calculate the wavelength of light absorbed during the transition.
26. Write short notes on : (a) R and S phrase ; and (b) MSDS.
27. Differentiate between scientific evidence and scientific proof.
28. Explain the first aid management for accidents arising from electric shock, fire and inhalation of poisonous gases.
29. Explain the principle of permanganometry titrations using an example.
30. What is artificial radioactivity ? Illustrate with suitable examples.

(5 × 6 = 30 marks)