



DCCH101

Reg. No.

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I Semester B.Sc. Degree Examination, May/June - 2022

CHEMISTRY

(NEP CBCS Scheme 2021-22 Onwards)

Paper - DSC - I



Time : 2½ Hours

Maximum Marks : 60

Instructions to Candidates :

- i) Question paper has **Three** parts, Answer **All** the parts.
- ii) Write chemical equations and diagrams wherever necessary.

PART - A**Answer any Five of the following questions. Each question carries Two Marks.****(5×2=10)**

1. Write de-Broglie equation and mention the terms in it.
2. Mention the number of significant figures in
 - i) 200.01
 - ii) 6.626×10^{-34}
3. What are f-block elements ? Write the general electronic configuration.
4. What is a nucleophile? Give an example.
5. Mention two precautions to be taken while handling toxic chemicals.
6. Write the structure of 2- methyl -3- Pentyne.

PART - B**Answer any Four of the following questions Each question carries Five marks.****(4×5=20)**

7. What is gravimetric analysis? Discuss the general rules for quantitative determination by gravimetric method. **(5)**
8. a) Mention the significance of Principal and magnetic quantum number. **(4+1)**
b) Define Eigen function.

[P.T.O.]



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DCCH101

9. a) Mention the factors affecting ionisation enthalpy of elements.
b) Why is size of a cation less than its parent atom? (3+2)
10. a) Mention the hybridisation and shape of
i) Ethene
ii) Ethyne
b) What is homolytic cleavage? (4+1)
11. a) Draw the titration curve for weak acid versus strong base. Indicate the equivalence point PH.
b) How does the acidic nature of the oxides of P-block elements vary across a period and down a group? (3+2)
12. a) State saytzeff rule Illustrate with an example.
b) Calculate the median of the following titration results (ml)
10.1 , 10.0, 9.9, 10.2 , 10.1 (3+2)

PART - C

Answer any Three of the following. questions Each question carries Ten marks.

(3×10=30)

13. a) What are determinate errors? Discuss different types of determinate errors.
b) Mention the different methods of drying solids. (6+4)
14. a) Derive an expression for energy of a particle in one-dimensional box.
b) Draw the radial probability distribution curve for 25 orbital.
c) Explain shielding effect. (6+2+2)
15. a) Discuss the trends in the hydrides of group 13 and group 16.
b) Between fluorine and chlorine, which has higher gain enthalpy ? Why?
c) Write an equation to determine electronegativity by Pauling scale. (6+2+2)
16. a) Discuss the mechanism of addition of HBr to propene.
b) Explain 1,2 and 1,4 addition of 1,3 butadiene with an example.
c) What is antiaromaticity? Give the examples. (4+4+2)
17. a) Define ionization enthalpy. How does it vary across a period & down a group.
b) Define
i) Precision
ii) Hamiltonian operator.
c) Explain inductive effect with an example. (4+4+2)