**BCHCT-131** 

### ASSIGNMENT BOOKLET

# Bachelor's Degree Programme (BSCG)

ATOMIC STRUCTURE, BONDING, GENERAL ORGANIC CHEMISTRY AND ALIPHATIC HYDROCARBONS

Valid from 1st January, 2023 to 31st December, 2023



School of Sciences
Indira Gandhi National Open University
Maidan Garhi
New Delhi-110068
(2023)

Dear Student,

format:

Please read the section on assignments in the Programme Guide for B. Sc. that we sent you after your enrolment. A weightage of 30 per cent, as you are aware, has been earmarked for continuous evaluation, **which would consist of one tutor-marked assignment** for this course. The assignment is in this booklet, and it consists of two parts, Part A and B. It covers all blocks of the course. The total marks of all the parts are 100, of which 35% are needed to pass it.

### **Instructions for Formatting Your Assignments**

1) On top of the first page of your answer sheet, please write the details exactly in the following

Before attempting the assignment please read the following instructions carefully:

	ROLL NO.:
	NAME:
	ADDRESS:
<b>COURSE TITLE:</b>	
ASSIGNMENT NO	<b></b>
STUDY CENTRE:	DATE:

## PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.

- 2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
- 3) Leave 4 cm margin on the left, top and bottom of your answer sheet.
- 4) Your answers should be precise.
- 5) Solve Part (A) and Part (B) of this assignment, and submit the complete assignment answer sheets within the due date.
- 6) The assignment answer sheets are to be submitted to your Study Centre within the due date.

  Answer sheets received after the due date shall not be accepted.

We strongly suggest that you retain a copy of your answer sheets.

- 7) This assignment is **valid from 1<sup>st</sup> January, 2023 to 31<sup>st</sup> December, 2023**. If you have failed in this assignment or fail to submit it by 31<sup>st</sup> December, 2023, then you need to get the assignment for the year 2024, and submit it as per the instructions given in the Programme Guide.
- 8) You cannot fill the examination form for this course until you have submitted this assignment.

We wish you good luck.

#### ASSIGNMENT

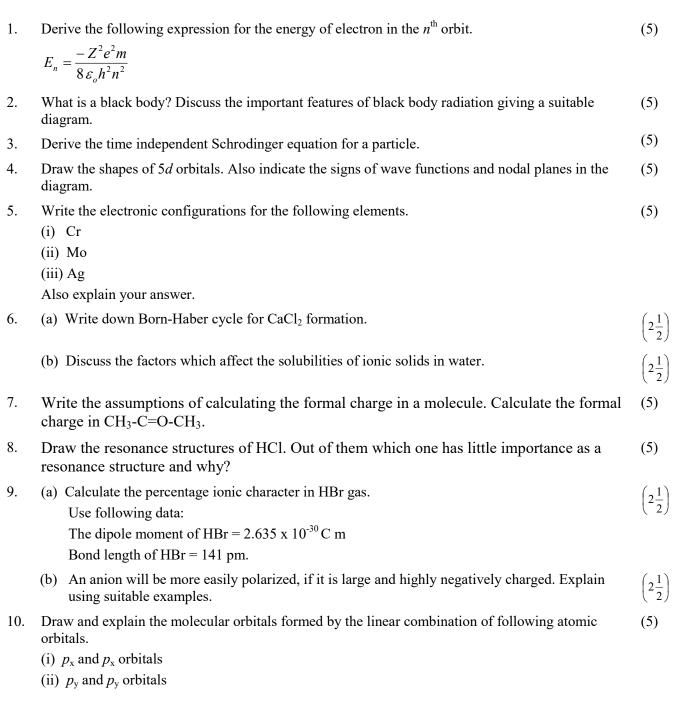
### Atomic Structure, Bonding, General Organic Chemistry and Aliphatic Hydrocarbons Core Course in Chemistry

PART-(A)

Course Code: BCHCT-131 Assignment Code: BCHCT-131/TMA/2023 Maximum Marks: 100

(50)

Note: Attempt all questions. The marks for each question are indicated against it.



PART-(B) (50)

- 11. Explain the following giving suitable examples: (5)
  - (i) Position isomerism
  - (ii) Functional group isomerism
  - (iii) Chiral centre
- 12. (a) Write two more Fischer projection formulas for the following compound: (2)

(b) Write the enantiomer of the following compound and assign their configurations as R or S (3)

- 13. Draw the possible conformations of cyclohexane and explain their relative stability. (5)
- 14. (a) Arrange the following compounds in the increasing order of their acidities and give reason in support of your answer. (3)
  - 3-chlorobutanoic acid, butanoic acid, 4-chlorobutanoic acid and 2-chlorobutanoic.
  - (b) Write acid the resonance structures of propanoate ion. (2)
- 15. What is  $pK_a$ ? How does it help in explaining the basicity of different nucleophiles? Write a nucleophilic reaction indicating the nucleophile and its conjugate acid. (5)
- 16. (a) How would you prepare cyclopentane starting from barium adipate? Write the reactions involved.
  - (b) Explain the term pyrolysis and cracking giving suitable examples. (2)
- 17. (a) Explain Saytzeff rule giving a suitable example. (3)
  - (b) Explain the mechanism of Birch reduction. (2)
- 18. (a) How would you prepare 2-propanol from propene? Write the steps involved in the conversion. (3)
  - (b) Write the products of ozonolysis of 2-methyl-2-butene. (2)
- 19. Give the mechanism of hydration of ethyne and the product form. (5)
- 20. Giving suitable diagrams, explain the structure of benzene. (5)