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Code No.: 20471 E Sub. Code: CMCH 11

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2021.

First Semester

 ${\bf Chemistry-Core}$

INORGANIC CHEMISTRY — I

(For those who joined in July 2021 onwards)

Time: Three hours Maximum: 75 marks

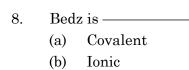
PART A —
$$(10 \times 1 = 10 \text{ marks})$$

Answer ALL questions.

Choose the correct answer.

- 1. First man predict inter relation of matter and energy is
 - (a) Einstein (b) Debroglie
 - (c) Plank (d) Bohr

(a)	zero	(b)	1
` ,			_
(c)	2	(d)	3
	ich of the fo	llowing elen	nent is most electro
(a)	Br	(b)	S
(c)	P	(d)	F
	e electro nega reases in the o	•	e following elements
(a)	C, N, Si, P	(b)	N, Si, C, P
(c)	Si, P, C, N	(d)	P, Si, N, C
	e polarising po charge increas		ation — as
(a)	increases	(b)	decreases
(c)	no change	(d)	none of the above
Wh	ich is the mos	t covalent an	nong the following?
(a)	NaCl	(b)	LiCl
(c)	KCl	(d)	RbCl
The	e oxidation sta	te of alkali n	netals
(a)	+1	(b)	+2
(c)	zero	(d)	none of the above



- (c) Co-ordinate
- (d) None of the above
- 9. AgCl is precipitated in the presence of
 - (a) NaOH
- (b) NH₃
- (c) HCl
- (d) dil.HNO₃
- 10. The reagent employed for detection of aluminum is
 - (a) Nessler's reagent
 - (b) Fenton's reagent
 - (c) Ammonium molybidate
 - (d) Oxine

PART B —
$$(5 \times 5 = 25 \text{ marks})$$

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) State and explain Bohr's model of an atom.

Or

(b) Explain the importance of Schrodinger's wave equation.

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12. (a) What are factors which affecting the ionisation energy?

 O_1

- (b) What is meant by atomic radius? How does it vary when we move
 - (i) down a group and
 - (ii) across the period.
- 13. (a) What is covalent bond? and give the properties of covalent bonded molecule?

Or

- (b) What are the differences between bonding anti bonding molecular orbitals?
- 14. (a) Explain why lithium resemble magnesium more than alkali metals.

Or

- (b) Write a note on chemistry of glass.
- 15. (a) Explain common ion effect and indicate how it is helpful in qualitative analysis.

Or

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[P.T.O.]

- (b) Explain the procedure for the elimination of following interfering acid radical
 - (i) phosphate
 - (ii) fluoride

PART C — $(5 \times 8 = 40 \text{ marks})$

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

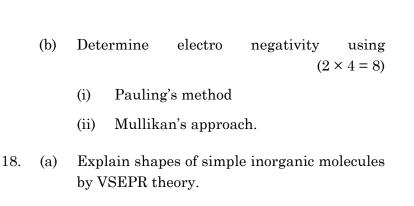
- 16. (a) Explain the following: $(2 \times 4 = 8)$
 - (i) stability of half filled and completely filled orbitals
 - (ii) shapes of s, p, d orbitals

Or

- (b) Write a note on Sommerfeld theory and its limitations.
- 17. (a) Write a note on the following: $(2 \times 4 = 8)$
 - (i) covalent radii
 - (ii) Vander Waal's radii

Or

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Or

- (b) Write a note on the following: $(2 \times 4 = 8)$
 - (i) Inert pair effect
 - (ii) Allotrops of sulphur
- 19. (a) Explain types of hybridisation with examples.

Or

- (b) Explain the structure of silicates.
- 20. (a) Write a note on the following:
 - (i) Sodubility product (2)
 - (ii) Various concentration units. $(3 \times 2 = 6)$

Or

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- (b) Write a note on following in gravimetric analysis $(2 \times 4 = 8)$
 - (i) Washing of precipitate
 - (ii) Drying and ignition of precipitate.

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