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**RN-8169**

**B. E. - II (Sem. IV) (Chemical) Examination**

**May / June - 2010**

**Physical & Inorganic Chemistry**

*(As per GTU)*

Time : 3 Hours]

[Total Marks : 100

**Instructions :**

(1)

नीचे दृशविवेक निशानीवाणी विगतो उत्तरवडी पर अवश्य वपनी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="B. E. - 2 (Sem. 4) (Chemical)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="Physical &amp; Inorganic Chemistry"/>	<input type="text"/>
Subject Code No. : <input type="text" value="8"/> <input type="text" value="1"/> <input type="text" value="6"/> <input type="text" value="9"/>	<input type="text"/>
Section No. (1, 2,.....) : <input type="text" value="1&amp;2"/>	<input type="text"/>
	Student's Signature

- (2) Give reactions and neat diagrams whenever necessary.
- (3) Use **separate** answer book for each section.
- (4) Question-1 and 4 are **compulsory** and carries **20** mark each.
- (5) Question-2, 3 and 5, 6 are of 15 marks each.
- (6) Attempt all questions.
- (7) Write clearly number of questions and subquestions attempted.
- (8) Figures to the right indicate full marks.

**SECTION - I**

1 (a) Fill in the blanks : 10

- (1) Strength of acids depends on the tendency to release proton when the acid is \_\_\_\_\_ in water.
- (2) For \_\_\_\_\_ component system at the triple point is monovariant.
- (3) More number of H-C bond attached to the unsaturated system more will be the probability of electron released by \_\_\_\_\_.
- (4) 1 calorie = \_\_\_\_\_ Volt – Coulomb.
- (5) The greater the \_\_\_\_\_ of a substance higher the magnitude of intermolecular forces.
- (6) \_\_\_\_\_ = C – P + 2.

- (7) For \_\_\_\_\_ apparatus was devised by Berthlot to measure the heat of combustion of organic compounds.
- (8)  $\text{pH} = \text{_____}$ .
- (9) When the temperature coefficient is negative  $nFE \text{_____} - \Delta H$ .
- (10) As \_\_\_\_\_ increase the dipole moment increases.
- (b) Discuss calorimeter in detail. 5
- (c) What is inductive effect ? 5
- 2** Answer any **three** : **15**
- (i) What is phase rule ? Explained two component system in detail.
- (ii) Discuss one component system in detail.
- (iii) Explain the following term :
- (a) Nature of energy
- (b) Heat of reaction.
- (iv) What is electro chemistry ?
- 3** Answer any **five** : **15**
- (i) What is organic reaction ? Explain displacement effect in detail.
- (ii) Discuss electrochemical cell in detail.
- (iii) What is buffer solution ? Discuss with suitable example.
- (iv) What is EMF ? Derive Nernst equation.
- (v) Give brief information about pH and pOH.
- (vi) What is the industrial application of thermodynamics ?

## SECTION - II

- 1** (a) Fill in the blanks : **10**
- (1) In paper chromatography stationary phase is \_\_\_\_\_ and mobile phase is \_\_\_\_\_.
- (2) Molecule having two polar ends are known as \_\_\_\_\_.

- (3) \_\_\_\_\_ stationary phase is used in Gas-Liquid chromatography.
- (4) \_\_\_\_\_ are f-block elements.
- (5) The wavelength in the ultraviolet region is \_\_\_\_\_ nm.
- (6) The thermal analysis technique is determined \_\_\_\_\_ and/or \_\_\_\_\_.
- (7) \_\_\_\_\_ and \_\_\_\_\_ theories are explain the nature of covalent bond.

(b) Short answer questions : **10**

- (1) Explain non ferrous alloys.
- (2) Differentiate between GSC and GLC.
- (3) Advantages of GC.
- (4) What is primary explosives ?
- (5) Explain phase change.

**5** Attempt any **three** : **15**

- (a) What is non-transitional elements ? Discuss isomerism of any two non-transitional elements.
- (b) Explain the thermogravimetry analysis. Write the factors affecting of thermogravimetric curves.
- (c) Explain Ionic bond with suitable example and discuss their properties.
- (d) Explain write the application of gas chromatography.

**6** Attempt any **three** : **15**

- (a) What do you meant by dipole moment ? Explain with suitable example.
- (b) Write the physical properties of Nickel and Steel metals.
- (c) Define, explain and write the application of conductometric analysis.
- (d) Describe theory, isomerism and application of co-ordination compound.

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