V.P.& R.P.T.P. SCIENCE COLLEGE.

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INTERNAL EXAMINATION

B.Sc. SEMESTER-II

PHYSICAL CHEMISTRY-US02CCHE02

DATE-15-03-2018 MARKS-25

Time: 1.30 TO 2.30

Q-1 MULTIPLE CHOICE QUESTIONS **03**

(i) Surface tension of liquid is due to _____
(a) Strong intermolecular force of attraction
(b) VanderWaals force of attraction
(c) Hydrogen bonding
(d) Strong intramolecular force of attraction

(ii) Which of the following value of heat of formation indicates the product is least stable?
(a) -94 Kcal (b) 21.4 Kcal (c) -231.6 Kcal (d) 64.8 Kcal

(iii) Which of the following is not the characteristic property of first order reaction?
(a) Plot of lnC $\rightarrow$ t is straight line
(b) The slope of line is -k
(c) The intercept of line is C_0
(d) ln C increase linearly as reaction proceeds.

Q-2 ATTEMPT THE FOLLOWING (ANY TWO) **04**

(i) Calculate the height to which water will rise in a glass capillary if the radius of the tube is 0.02 cm. the surface tension of water is 72.8 dynes/cm.(g= 981 $cmsec^{-2}$)

(ii) Show that $\Delta H = q_P$

(iii) Write mechanism and rate law for the following reaction
$2Br^- + 2H^+ + H_2O_2 \rightarrow Br_2 + 2H_2O$

Q-3 Discuss experimental methods for determination of surface tension of liquid. **06**

OR

Q-3 Explain the term viscosity. Describe the method for the determination of viscosity. Discuss the effect of temperature on viscosity. **06**

Q-4 Show that work is not a state function but internal energy is a state function. **06**

OR

Q-4 Derive Kirchoff's equation. Also show that Cp > Cv **06**

Q-5 State and explain principle of microscopic reversibility for single step and multistep reaction by giving suitable example. **06**

OR

Q-5 **(A)** "The mechanism of reaction may change if the condition under which it runs is altered" Explain. **06**

(B) How many times the rate constant of a reaction is increase if the temperature is raised from 25^0C to 40 ^{0}C if activation energy of reaction is 13020.55 cal. (R= 1.99 cal $deg^{-1}mole^{-1}$)