

P. S. SCIENCE & H. D. PATEL ARTS COLLEGE, KADI

Internal Examination

B. Sc. SEM - I

[Mark : 40

9-10-2015]

Chemistry - 101

[1-30 to 3-00

SECTION - A

Attend all Questions compulsory.

5

- (1) _____ is the state function.
- (a) Heat (b) Distance
(c) Work (d) Pressure
- (2) "It is impossible to construct a device that will work in complete cycle and convert completely heat in to work without making any change in surrounding" is statement of
- (a) Clausius (b) Plank
(c) Thomson (d) Kelvin-Plank
- (3) A nucleophile is
- (a) A Lewis acid (b) electron deficient specie
(c) A positively charged specie (d) an electron rich species
- (4) Which of the following neutral electrophile radical ?
- (a) NO_2 (b) AlCl_3
(c) NH_3 (d) H_2O
- (5) What is the reactivity order in SN_2 reaction ?
- (a) $3^\circ > 2^\circ > 1^\circ$ (b) $1^\circ > 2^\circ > 3^\circ$
(c) $1^\circ > 3^\circ > 2^\circ$ (d) None of these

SECTION - B

Attend all Questions compulsory.

5

- (1) Define system.
- (2) Give the equation of mathematical form of first law of thermodynamics.
- (3) It is easy to define the absolute entropy. (True / False)
- (4) Why H_2SO_4 used in nitration reaction ?
- (5) What is London force ?

(1)

[P.T.O.]

SECTION - C

Attend any 3 Questions out of 4 questions.

6

- (1) Write the uses of first law of thermodynamics.
- (2) Describe the adiabatic expansion of an ideal gas.
- (3) Write a short note on fission of co-valent bond.
- (4) Briefly explain dipole-dipole interaction.

SECTION - D

Attend any 4 Questions out of 6 questions.

12

- (1) Define the following terms.
 - (a) State function
 - (b) Isolated system
 - (c) Iso-thermal process
- (2) Explain all the types of system according to exchange of energy and matter.
- (3) Write the limitations of first law of thermodynamics.
- (4) What is reagent ? Explain its types with suitable example.
- (5) What is addition reaction ? Explain with suitable example.

SECTION - E

Attend all Questions compulsory.

12

- (1) Explain carnot cycle in detail and define the efficiency of carnot cycle.

OR

Define heat capacity. Give the equation of a heat capacity at constant volume and pressure and derive the relationship between C_p & C_v .

- (2) Comparison between E^1 & E^2 reaction.

OR

What is substitution reaction ? Explain SN^1 reaction with suitable mechanism and energy Diagram.