First Mid Term (Even Sem.)Theory Examination-2016-17
Sub: - EngineeringChemistry Paper Code:-AHC1101
Time: - 90 Min. Max. Marks:-20

Section- A

Note: Attempt All Five Questions. 1×5 = 5 marks

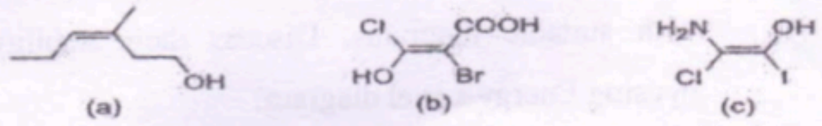
(I) How does bond order relate dissociation energy?

(II) Name the highest ranking coal. Give its approximate calorific value.

(III) Lubricants are essential in automobile industries, Justify.

(IV) Name the ceramic material used in manufacturing of bullet proof vest.

(V) Assign E-Z nomenclature to the following compounds. (Any two)



(a) (b) (c)

Section- B

Note: Attempt Any Three Questions. 2 × 3 = 6 marks

(I) What is hydrogen bond? Explain different types of hydrogen bonds with suitable examples

(II) Discuss the industrial significance of any one pair of the following.

(a) Flash point and fire point

(b) Cloud and Pour point

(P.T.O.)

(III) 0.98 gram of a liquid fuel containin .1% C, 8% H have the following result in bomb calorimeter experiment

Amount of water taken in calorimeter = 1450 gram
Water equivalent of calorimeter = 450 gram
Rise in Temp. = 1.8^0C

If latent heat of steam is 587cal/gram, calculate gross and net calorific value of fuel.

(IV) What is ceramic? Discuss the applications of ceramics in the field of engineering and technology.

Section- C

Note: Attempt Any Three Questions. 3 × 3 = 9 marks

(I) What are conformers? Explain conformationin n- butane with suitable diagrams. Discuss their stability order byusing Energy Level diagram.

(II) With the help of Molecular Orbital Theory, draw the MO diagrams of NO and also calculate their bond order & assign their magnetic behavior.

(III) Calculate the weight and volume of air needed for complete combustion of 3 Kg. coal having following composition C=70%, H=20%, O=5% and N=5%. (Molar mass of air = 28.94gm/mol).

(IV) Explain Bergius method for manufacturing of synthetic petrol with diagram.

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