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Questions from UNIT 4, FUEL

1. Objective questions

(i) Least % of Carbon is present in _____ coal.
(ii) Catalyst used for cracking is _____.
(iii) Cetane number of fuel is the % of _____.
(iv) _____gas is mostly present in the bio gas.
(v) Proximate analysis of coal involves the estimation of _____.
(vi) Ultimate analysis of coal involves the estimation of _____.
(vii) _____ and _____ are main constituents of fuel.
(viii) Petrol or Gasoline is obtained from the crude petroleum by means of _____.
(ix) Main constituent of natural gas is _____
(x) _____ is an example of secondary fuel.
(xi) C.V (kcal/Nm^3) of gaseous fuels _____ with increase in molecular weight.
(xii) Octane number of 2,2,4 – trimethyl pentane is _____.
(xiii) Gobar gas is produced by the _____ of 'Gobar' (cowdung).
(xiv) Gross heating value of coal is _____ the net heating value.
(xv) Bomb calorimeter is used to determine the _____.

2. Answer the following

(i) Briefly explain the principle and reaction (if any), to determine % of C and S in coal.
(ii) Why coal gas is not used for domestic purpose?
(iii) How is (a) water gas (b)producer gas prepared in industry? Write principle and reactions.
(iv) Define cracking with example.
(v) Compare two merits and demerits of solid, liquid and gaseous fuels.
(vi) How is volatile matter in coal estimated?
(vii) How is % of S and N is estimated in coal?
(viii) What is knocking property and anti-knocking compounds?
(ix) Define octane number.
(x) Write composition of coal gas.
(xi) How is moisture content in coal determined?
(xii) A sample contains 90% of C, 5% of H, 1% S, 2% O. Calculate the quantity of air required for burning 100 kg of coal. (Given air contains 21% by weight of oxygen).
(xiii) Mention source, composition and use of (i) Natural gas and (ii) Bio gas
(xiv) Briefly describe, how calorific value of coal is determined by BOMB calorimeter?
(xv) Define octane and cetane number.