

B.Sc. Part-I Semester-I Examination
IS : PETROCHEMICAL SCIENCE

Time : Three Hours]

[Maximum Marks : 80

N.B. :- (1) Question No. 1 is compulsory and carries 8 marks.

(2) Remaining six questions carry 12 marks each.

(3) Give chemical equation and draw diagram wherever necessary.

(4) Use of calculators is permitted.

1. (A) (i) _____ are unsaturated and contain two hydrogen atoms less than paraffin. 2
 (ii) _____ are oxides or hydroxides of active elements.
 (iii) The liquid petroleum is also called as _____.
 (iv) The first smallest aromatic is _____.
- (B) Choose correct alternative : 2
 (i) The solution is made by dissolving some salt in a beaker of water. The salt is referred as the _____
 (a) Solute (b) Solvent
 (c) Solution (d) Residue
 (ii) Natural gas essentially consists of _____
 (a) Ethane (b) Pentane
 (c) Ethylene (d) Methane
 (iii) The cosmic hypothesis of _____ depicts that hydrocarbon vapours are already in cosmic clouds.
 (a) Mendeleef (b) Berthdot
 (c) Cornot (d) V.D. Sokolov
 (iv) The name paraffin indicates that these hydrocarbons in general have _____
 (a) high reactivity (b) low reactivity
 (c) little reactivity (d) no reactivity
- (C) Answer the following question in one sentence. 4
 (i) Which two processes are used for crude oil distillation ?
 (ii) What is the main drawback of cable tool drilling ?
 (iii) What is the range of acidic pH ?
 (iv) What is Peat ?

2. (A) Define the following with their formula and related examples :
 (i) Normality 3
 (ii) Molarity 3
 (iii) Molality 3
 (iv) molecular weight. 3
- OR**
3. (P) What is calorific value ? Describe the terms NCV and GCV. 6
 (Q) Define and Describe Potential hydrogene 6
4. (A) Describe importance of petroleum as a source of petrochemical. 6
 (B) Which are the non-conventional resources ? Explain with example. 6
- OR**
5. (P) Discuss Primary solid fuel in detail with their example. 6
 (Q) What is Petroleum ? Why is petroleum getting importance ? Discuss with example. 6
6. (A) Describe Seismic method for exploration of crude oil. 6
 (B) Discuss cable tool drilling in detail. 6
- OR**
7. (P) Which observation was proposed by J.D. Haun for accepting the organic theories for formation of petroleum ? 6
 (Q) Why drilling fluids are used ? Discuss in detail. 6
8. (A) What are Olephobic impurities ? Explain with example. 6
 (B) Which hydrocarbon present in crude oil. Discuss in detail. 6
- OR**
9. (P) Describe the following non-hydrocarbon impurities :
 (i) Sulphur compound. 3
 (ii) Nitrogen compound. 3
 (Q) Describe API gravity method for classification of petroleum in detail. 6
10. (A) What is distillation ? Discuss with example. 6
 (B) Describe vacuum distillation in detail with their operating data. 6
- OR**
11. (P) Describe electrical desalter with well labelled diagram. 6
 (Q) What is reflux ? Draw well labelled diagram of top tray reflux, explain in detail. 6
12. (A) Describe API gravity term in detail. 6
 (B) What is viscosity ? Discuss viscosity property in terms of petroleum. 6
- OR**
13. (P) Define and explain the following petroleum test properties :
 (i) Fire Point. 3
 (ii) Smoke point. 3
 (iii) Four point 3
 (iv) Vapour pressure. 3