AU–164

B.Sc. (Part—III) Semester—VI Examination

6S : PETROCHEMICAL SCIENCE

Time : Three Hours] [Maximum Marks : 80

N.B. :— (1) Question No. **1** is compulsory.

(2) Remaining **six** questions carry **12** marks each.

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

1. (A) Fill in the blanks with appropriate words : ½×4=2

(i) The distance travelled by wave per second is called as _____ .

(ii) The _____ itself a non-catalytic contituent.

(iii) LNG stands for _____ .

(iv) The study of spectroscopy deals with _____ as well as absorption of spectra.

(B) Choose correct alternative : ½×4=2

(i) Wave length is denoted by the sign _____ .

(a) ν (b) λ

(c) ψ (d) δ

(ii) _____ have a larger wave length and are used in telephone transmission.

(a) Microwaves (b) UV-rays

(c) X-Rays (d) Cosmic waves

(iii) The yield of olefins from given feed by catalytic cracking process depends upon the compostion of feed and _____ used for cracking.

(a) Catalyst (b) Promotor

(c) Initiator (d) None of these

(iv) Beer's law is applied only for _____ .

(a) Solid (b) Gases

(c) Solution (d) Solids and Gases

(C) Answer the following questions in **one** sentence : 1×4=4

(i) What is frequency ?

(ii) What is the role of Promotor ?

(iii) Why coal is ignored as a fuel ?

(iv) What is I.N.G. ?

2. (A) Describe special characteristics of electromagnetic spectrum. 6

(B) Which is the application of Ultra-violet spectroscopy ? 6

OR

3. (P) Which is main principle involved in IR spectroscopy ? 6

(Q) Describe principle and theory proposed for UV-Spectrophotometer. 6

4. (A) What are the applications of mass spectroscopy in different fields ? 6

(B) Describe principle governing N.M.R. spectroscopy. 6

OR

5. (P) What is mass spectrum ? Discuss in detail. 6

(Q) Describe theory and principle involved in N.M.R. spectroscopy. 6

6. (A) What is chromatography ? Classify with diagram. 6

(B) Describe theory of gas chromatography in detail. 6

OR

7. (P) Describe theory and working involved in H.P.L.C. 6

(Q) How we will compare HPLC and GLC ? 6

8. (A) Which catalyst is used in different units for production of synthesis gas ? 6

(B) Which are cracking catalyst ? Describe them with examples. 6

OR

9. (P) Describe importance of catalyst morphology in detail. 6

(Q) What is catalyst ? Describe homogeneous and heterogeneous catalyst in detail. 6

10. (A) Nowadays why petroleum and petrochemical complexes are integrated ? Explain with their advantages. 8

(B) What is the impact of energy crisis on petrochemical industry ? Describe with example. 4

OR

11. (P) Why coal is considered as a future alternative to crude oil ? Explain with example. 8

(Q) Describe advantages of hydrogen as a fuel in detail. 4

12. (A) What is pollution ? Describe their types in detail. 8

(B) Define and explain Biological Oxygen demand (B.O.D.). 4

OR

13. (P) What is soil (Land) pollution ? Describe in detail. 8

(Q) What are green house gases ? 4

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