

[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 1721

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Roll No.....

Unique Paper Code : 219607

Name of the Course : B.Sc. (Hons.) Geology

Name of the Paper : Introduction to Petroleum Geology (ET-5)

Semester : VI

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Answer any **five** questions.
3. **All** questions carry equal marks.

1. Describe the role of N-S-O compound in petroleum properties. What do you understand by 'sour crude' and 'sweet crude'? What is deep-seated and extraterrestrial hypothesis for origin of petroleum ?
2. Describe with suitable diagrams the classification scheme for petroleum fluids followed by the Engineers and geologists. What is the need for different classifications schemes of petroleum ?
3. How geothermal gradient plays role in the formation of petroleum ? "Petroleum is biogenic in origin" justify this comment with arguments. What is the difference between source rock and Kerogen ?
4. Write short notes on :
 - (a) Fischer - Tropsch hypothesis
 - (b) Vitrinite reflectance and the maturity of organic matter
 - (c) Combination trap

P.T.O.

5. Describe the different types of kerogen with respect to their chemical composition. Write notes on diagenesis, catagenesis and metagenesis. Why gas is produced in all the windows ?
6. Differentiate between primary and secondary porosity. Define absolute, effective and relative permeability in the context of Darcy's law. Illustrate different types of secondary porosities found in carbonate rocks.
7. Discuss with suitable figures different types of structural traps. What is the difference between 'Net pay' and 'Gross pay' ? Discuss any petroleum reserve of India where tectonic structure has played a major role in trapping hydrocarbon fluid.
8. What do you understand by 'migration of petroleum fluid' ? Discuss different theories proposed for primary and secondary migration of petroleum fluids.