

**P941**

**[3932]-41**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 13: Basin Analysis and Petroliferous Basins**

**(Sem. - IV) (Old Course)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. Out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** What are deltas? How can they be classified? Describe briefly with examples ancient deltaic deposits. **[20]**

OR

State the spectral dip oriented types of the idealised fluvial systems and explain with neat diagram depositional model of "Idealised braided fluvial system" giving it's diagnostic features. **[20]**

**Q2)** What is sedimentary model? How is the concept of sedimentary model derived? State various sedimentary models. **[15]**

**Q3)** What are confined valley field deposits? Give their distinguishing features. **[15]**

**Q4)** Write notes on (any three). **[15]**

- a) Walther's law.
- b) Lobate delta.
- c) Rift basin.
- d) Growth faults and salt diapirism.

**Q5)** Describe briefly how to recognise and discriminate depositional sequence in seismic stratigraphic interpretation. **[15]**

*P.T.O.*

**Q6)** Describe cauvery basin with respect to structural setting, Geology and petroleum prospects. **[15]**

**Q7)** Explain the following (any two) : **[15]**

- a) Geological setting and petroleum prospects of Iaisalmer basin.
- b) Petroleum characteristic of Tertiary deltas with suitable examples.
- c) Different facies assemblages of barrier bar system.



**P942**

**[3932]-42**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 14: Hydrocarbon Resources : Economics and Management  
(Sem. - IV) (Old Course)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** Why is there a need of 'Simulation Model' during the 'Risk Assessment' of an oil field? Describe with the help of an example, the usage of any operational model, starting its merits and demerits. **[20]**

OR

Enumerate the factors that affect the drilling cost in an oil field. Explain different ways in which it can be reduced. **[20]**

**Q2)** What is mean by an 'Environmental Impact Assessment'? Describe the same with regard to upper Assam oil field. **[15]**

**Q3)** What is meant by the 'concept of costs'? Describe various types of costs, utilized in an oil industry. **[15]**

**Q4)** Answer the following (Any Three) : **[15]**

- a) Air pollutants produced by petroleum industry.
- b) Partial equilibrium analysis.
- c) Decision tree analysis.
- d) Oil property evaluation.

**Q5)** What is meant by 'Chance node and Decision node'? Explain their use in oil - well development. **[15]**

*P.T.O.*

**Q6)** State and explain the measures of profitability in the oil field. **[15]**

**Q7)** Describe the following (any three) : **[15]**

- a) EMV calculations.
- b) Pollution due to drilling operations.
- c) Effluent analysis.
- d) PDV and its effects on investment in oil industry.
- e) Rate of return in new income projects of oil industry.



**P943**

**[3932]-43**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 15: Production Operations**

**(Sem. - IV) (Old Course)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** What is acidizing? Describe carbonate acidizing in detail. **[20]**

OR

Describe the formation damage caused by clays.

**Q2)** Explain use and action of different surfactants. How can they be used to help in well stimulation. **[15]**

**Q3)** Describe different methods by which scales can be identified and prevented. **[15]**

**Q4)** Write notes on (Any Three) : **[15]**

- a) Artificial lift.
- b) Deliverability Test.
- c) Casing and Channel leak.
- d) Fracture and joints in reservoir rocks.

**Q5)** What is sand control? Explain gravel packing technique in detail. **[15]**

**Q6)** What is corrosion? Explain sweet and sour corrosion in detail. **[15]**

**Q7)** Explain the following (Any Two) : **[15]**

- a) Propping agents.
- b) Work over Rigs.
- c) Christmas tree.





**P944**

**[3932]-101**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 1: Fundamentals of Petroleum Geology**

**(Sem. - I) (2008 New Course)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** State the various modes of occurrences of petroleum deposits and describe various types of subsurface occurrences of petroleum deposits. **[20]**

**OR**

Give the classification of reservoir rocks and describe carbonate rocks as reservoir rocks. **[20]**

**Q2)** Explain the process of migration of oil from the source rock to reservoir rock. **[15]**

**Q3)** Define porosity and describe different types of porosities possessed by the reservoir rocks. **[15]**

**Q4)** Write notes on (any three) **[15]**

- a) Organic theory of origin of oil.
- b) Gas hydrates.
- c) Formation of kerogen.
- d) Tight gas sands.

**Q5)** What is a reservoir trap? Describe how stratigraphic traps are developed. **[15]**

**P.T.O.**

**Q6)** What are 'Oil field waters'? Give the classification of oil field waters. [15]

**Q7)** Explain the following (any three) [15]

- a) Relation of Petroleum Geology to other sciences.
- b) Organic Carbon in sediments.
- c) Relative permeability.
- d) Coal Bed Methane.





**P945**

**[3932]-102**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 2: Principles of Sedimentology  
(Sem. - I)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. Out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** What are cross beddings? Describe with neat diagrams the various types of cross bedding based on character of bounding surface and scale of cross bedding. **[20]**

OR

Describe and distinguish with neat diagrams, symmetrical and asymmetrical wave ripples with reference to morphology, internal structure and genesis.

**[20]**

**Q2)** Describe sedimentological criteria to distinguish different sedimentary environments. **[15]**

**Q3)** Define sedimentary facies. Describe in detail the facies model with suitable example. **[15]**

**Q4)** Explain the following : (any two) **[15]**

- a) Carbonate cementation.
- b) Transition flow regime.
- c) Bedforms in relation to stream power, grain size and water depth.
- d) Coarsely Interlayered bedding.

**P.T.O.**

**Q5)** What are current ripples? How are they classified? State and describe with neat figures various types of small current ripples with reference to morphology, internal structure and genesis. **[15]**

**Q6)** Define sedimentary environment. Describe surface environment interpretation with examples. **[15]**

**Q7)** Write notes on : (any three) **[15]**

- a) Lacustrine environment.
- b) Classification of conglomerate.
- c) Graded bedding.
- d) Application of sedimentology in petroleum exploration.



**P946**

**[3932]-103**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 3: Interpretative Micropaleontology & Stratigraphy  
(Sem. - I) (2008 Pattern)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** What is micropaleontology? Enumerate your answer with special reference to well correlation using Biostratigraphy as a tool. **[20]**

OR

Write the significance of microfossils. Mention various types of microfossils. Write in detail on the techniques one should employ to separate the calcareous microfossils with reference to hard lithology, soft sediments and Oceanic cores. Add a note on the precautions to avoid contamination. **[20]**

**Q2)** Explain the term stratigraphy'. Give an account on the stratigraphic procedures with special reference to sub surface (subcrops) procedures. **[15]**

**Q3)** Give the geotectonic classification of petroliferous basin in tabular form with examples and describe characteristics of Hydrocarbon basin associated with tertiary time. **[15]**

**Q4)** Give an account on the micropaleontology (foraminifera) of the gas producing early Eocene subsurface sediments of Tatipaka - Pasaralapudi area of Krishna - Godavari basin. **[15]**

**Q5)** Attempt any two. **[15]**

- a) Magnetostratigraphy.
- b) Marker bed.
- c) Tectonic basins.

*P.T.O.*

**Q6)** Attempt any two. **[15]**

- a) Planktic / Benthic ratio and its significance in paleoecology
- b) Pollen and spores.
- c) Significance of  $O^{16} / O^{18}$  analyses in climate interpretations.

**Q7)** Attempt any two **[15]**

- a) Hinges in Ostracodes.
- b) Criteria used in paleoecology.
- c) Species diversity.



**P947**

**[3932]-104**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 4: Structural Techniques in Petroleum Exploration  
(2008 Pattern) (Sem. - I)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory.*
- 2) *Attempt any four questions from the remaining.*
- 3) *Figures to the right indicate full marks. For the questions.*
- 4) *Neat labelled diagrams must be drawn wherever necessary.*

**Q1)** Explain the following : **[20]**

- a) Closures produced by intersecting faults.
- b) Closure of anticline on upthrown or downthrown sides of faults.

OR

State and explain with neat diagrams mechanical adjustments during folding of beds.

**Q2)** State the characteristics of folds important to petroleum geologist and explain with neat figures cross folding and multiple axes in relation to closure. **[15]**

**Q3)** Explain any two of the following : **[15]**

- a) Strata higher or lower than expected.
- b) Abnormal intervals.
- c) Omission and repetition of strata.

**Q4)** Write notes on any three of the following : **[15]**

- a) Chances of finding oil production on untested traps.
- b) Economic aspect of the structure.
- c) Escape of oil and gas through faults.
- d) Structure contour maps.
- e) pi diagrams.

**P.T.O.**

**Q5)** Explain the following : **[15]**

- a) Dragfolds in relation to major fold.
- b) Competent and incompetent rocks.
- c) Essential elements of trap for oil and gas accumulation.

**Q6)** What are joints and fractures? How are they related with local and regional structures. **[15]**

**Q7)** Describe any two of the following : **[15]**

- a) Truncation and overlap.
- b) Relation between closure and thickness of producing zone.
- c) Regional alterations in petroleum exploration.
- d) Erosional scarps and Tectonic scarps.



**P948**

**[3932]-201**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 5 : Fundamentals of Petroleum Geochemistry**

**(Sem. - II) (New Course)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. Out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** Explain in detail the non - hydrocarbon compounds of petroleum. **[20]**

OR

Explain the paraffin and cycloparaffin series of hydrocarbons with examples. **[20]**

**Q2)** What is the U.S. Bureau of Mines classification of crude oil? **[15]**

**Q3)** What is the importance of oil field water analysis? **[15]**

**Q4)** Write notes on (any three) **[15]**

- a) Olefin hydrocarbons.
- b) H:C ratio of crude oil.
- c) Sachanen's chemical classification of crude oil.
- d) BTX aromatics.

**Q5)** Explain the process of distillation of crude oil. **[15]**

**Q6)** Explain the molecular behaviour of gases with reference to pressure - Temperature variations. **[15]**

**Q7)** Explain the following (any two) **[15]**

- a) Density and Viscosity of crude oil.
- b) First generation petrochemicals.
- c) Cloud point and pour point of crude oil.



**P949**

**[3932]-202**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 6 : Depositional System Analysis & Petroliferous Basins of India  
(Sem. - II) (New Course) (2008 Pattern)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory.*
- 2) *Attempt any four questions from the remaining.*
- 3) *Figures to the right indicate full marks for the questions.*
- 4) *Neat labelled diagrams must be drawn wherever necessary.*

**Q1)** Define the terms 'Basement', 'Basin', 'Platform / Shelves' and 'Arches'. Explain the concept of sedimentary basins with reference to their mode of occurrence, evolution, geometry, sedimentary fill, tectonic / sedimentary processes and timing of structural growth in connection with generation, migration and accumulation of petroleum. **[20]**

OR

Give the classification of sedimentary basins that is useful in petroleum industry and explain with neat diagrams and example depositional style and hydrocarbon habitat of Foreland basins. **[20]**

**Q2)** State the spectral dip oriented types (facies) of the idealized fluvial system and explain with neat diagrams depositional model of 'Idealized Braided fluvial system', giving its diagnostic characteristics. **[15]**

**Q3)** Define 'Fan delta'. Describe Fan delta model with reference to characteristics, tectonic setting and associated facies. **[15]**

**Q4)** Write notes on any three of the following : **[15]**

- a) Delta distributary channels.
- b) Net sand pattern of lobate, elongate and wave dominated delta.
- c) Barrier bars.
- d) Progradation and Aggradation facies.
- e) Concept of depositional system.

**P.T.O.**





**P950**

**[3932]-203**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 7 : Petroleum Exploration**

**(2008 Pattern)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. Out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** Explain how gravity method is useful in Petroleum Exploration : Support your answer with an example. **[20]**

OR

Describe the field procedures adopted in a magnetic survey of an area, the different corrections applied to the data before preparing an anomaly map.

**[20]**

**Q2)** a) What are the different elastic waves? Draw diagram showing the wave propagation direction and particle motion for body waves.

b) What are the different elastic constants and what do they measure?

**[15]**

**Q3)** a) Describe the stages of geochemical prospecting for hydrocarbons.

b) Write notes on significance of halogens in petroleum exploration.

**[15]**

**Q4)** Write short notes on any three :

**[15]**

a) Gravitational field of the Earth.

b) Proton precession magnetometer.

c) Distinguish between crossover distance and critical distance with a diagram.

d) Isopach maps.

e) Ray and wavefront with a diagram.

**Q5)** Explain the use of remote sensing in Hydrocarbon Exploration.

**[15]**

**P.T.O.**

- Q6)** a) What is Normal Move Out correction in seismic reflection? Explain with a diagram.  
b) What is the importance of stacking in seismic reflection and how is it achieved?

**[15]**

**Q7)** Write notes on any three :

**[15]**

- a) Trend maps.
- b) Calibration of Gravimeter.
- c) Principle of Reciprocity.
- d) Geophone and Hydrophone.
- e) Signal to noise ratio in seismic reflection.



**P951**

**[3932]-204**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 8 : Environmental Management & Economics  
(2008 Pattern)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. Out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** What is meant by 'pit pollution' in oil industry? Explain it with respect to origin, soil & water contamination, toxic material hazard and wildlife and live stock mortality. **[20]**

OR

What is flaring? Where does flaring occur in the petroleum industry? Explain diversity and environmental factors associated with flaring. Describe various environmental problems due to flaring in Nigeria. **[20]**

**Q2)** Define an 'oil spill' in the oil industry. Explain oil spill with respect to its causes, effects and fate. Add a note on major oil spills of globe (any two). **[15]**

**Q3)** What is meant by EIA in the oil industry? Describe the case study of Gandhar oil field in the light of its environmental impact assessment. **[15]**

**Q4)** Write notes on (any three) **[15]**

- a) Sources of soil pollution in the oil industry.
- b) prevention of oil spill.
- c) Energy resources for the future
- d) Environmental management of offshore oil industry.
- e) Air pollution during drilling.

**P.T.O.**

**P952**

**[3932]-301**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 9: Reservoir Dynamics**

**(Sem. - III) (New)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) Question No.1 is compulsory. out of the remaining attempt 4 questions.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) You are advised to attempt not more than 5 questions.*

**Q1)** Explain the factors the effect the temperature conditions of the reservoir. How it is measured also explain the geothermal gradient **[20]**

OR

What are interfacial and adhesion tensions? Describe, in detail, how these affect the wettability of the reservoir fluids and movement of natural gas and oil. **[20]**

**Q2)** What are natural sources of energy for reservoirs? Describe, in detail, water and combination drives with regard to their characteristics and importance. **[15]**

**Q3)** Write notes on : (Any Three) **[15]**

- a) Sp. Gr. of reservoir gases and their use.
- b) Characteristics of gas condensate reservoirs.
- c) Gravity drainage.
- d) Reservoir pressure conditions.
- e) Gravitational seggregation.

**Q4)** Define Darcy's law. How does it affect the flow of different fluids / gases with in the reservoirs? Explain the uses of this law in reservoir studies. **[15]**

**Q5)** What is meant by 'Unit Recovery' and 'Recovery Factor'? Describe how these can be used in estimation of oil reserves in a small location. **[15]**

**P.T.O.**

**Q6)** Describe how unsteady - state radial flow of compressible fluids can be estimated for reservoir fluids. **[15]**

**Q7)** Write notes on (any three) : **[15]**

- a) CHDT
- b) Effects of casing & channel leak on reservoir pressure conditions.
- c) Selection of  $\phi$ VT data for MBE
- d) Formation of emulsions in reservoirs.
- e) NOR and GOR.



**P953**

**[3932]-302**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 10 : Formation Evaluation - I**

**(Sem. - III) (2008 New Syllabus)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. Out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** Describe in brief the physical properties measured by different type of wire line logging methods along with their principal uses. **[20]**

OR

Describe the temperature wire line logging with reference to equipment principles and application. **[20]**

**Q2)** Explain how focusing electrode logs are useful over conventional electrical logs. Describe the principle equipment and applications of (any two) LL3, LL7 and SFL. **[15]**

**Q3)** What do you understand by “Boxhole environment”? Explain the effects of invasion on resistivity measurement. **[15]**

**Q4)** Write short notes on (Any Three) of the following: **[15]**

- a) Purpose of core logging.
- b) What is mud logging and services offered?
- c) Principle of LWD and its application.
- d) Application of caliper logs.
- e) Microspherically focused log.

**P.T.O.**

**Q5)** Describe in details self potential log with reference to principle, shape of SP curves, interpretation and applications. **[15]**

**Q6)** Explain the quantitative use of resistivity log. **[15]**

**Q7)** Write short notes on any two **[15]**

a) Significance of DST information evaluation

b) principle of delaware effect

c) Shale potential.





**P955**

**[3932]-303**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 11 : Drilling and Well Completions  
(Sem. - III) (New Course) (2008 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) Question No.1 is compulsory. Out of the remaining attempt 4 questions.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) You are advised to attempt not more than 5 questions.*

**Q1)** Enumerate the major components of an oil rig and describe in detail the Rotary system. **[20]**

OR

Describe different drilling operations in detail. **[20]**

**Q2)** a) Describe the working of components used in “hoisting system” during drilling operations. **[7]**

b) Describe different “fixed cutter bits”. **[8]**

**Q3)** a) Discuss the functions of drilling muds and add a note on water base muds. **[7]**

b) Explain the rheological properties of mud. **[8]**

**Q4)** Write notes on : (Any Three) **[15]**

- a) Rig personnel.
- b) Directional survey instruments.
- c) Pipe and annular pressure losses.
- d) Well planning objective.
- e) Drill ship.

**P.T.O.**

**P956**

**[3932]-401**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 13: Reservoir Performance**

**(2008 Pattern)**

*Time : 3 Hours]*

*Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. Out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** What is meant by Rational development system? Describe in detail, the geological data necessary for planning of a new oil field. **[20]**

OR

What is a Gas Condensate Reservoir? How does it differ from that of an oil reservoir? Describe in detail, various stages involved in exploitation of a Gas - Condensate reservoir.

**Q2)** What is meant by the term 'Pressure Maintenance' in a producing reservoir. Describe the maintenance of a reservoir pressure by injection of water. **[15]**

**Q3)** What are Reservoir Limit Tests? Explain the use of permeability curves in studying the reservoir performance. **[15]**

**Q4)** Write notes on (any three) : **[15]**

- a) Importance of pressure analysis methods.
- b) Role of reservoir engineers in reservoir studies.
- c) Multiple rate flow test analysis.
- d) Productivity tests.
- e) Physical principles of reservoir engineering.

**Q5)** Explain how diffusivity equation and its solution is useful in reservoir performance studies. Also explain its applicability. **[15]**

**P.T.O.**

**Q6)** Why is reservoir simulation essential? Describe, in detail, designing of a 2D aerial and cross sectional models and their uses. **[15]**

**Q7)** Write notes on (any three) : **[15]**

- a) Water flooding in EOR.
- b) History matching in reservoir simulation.
- c) Techno - economic trends in oil field management.
- d) Selection of data in reservoir simulation.
- e) Oil recovery by nuclear explosion



**P957**

**[3932]-402**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 14 : Formation Evaluation - II**

**(Sem. - IV)**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *Question No.1 is compulsory. Out of the remaining attempt 4 questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *You are advised to attempt not more than 5 questions.*

**Q1)** Describe Density OR Litho - density Log, with reference to Principles, Tools, log representation, units of measurement, environmental effects and applications. **[20]**

**Q2)** Describe Schlumberga Neutron Tools and add a note on their depth of investigation and vertical resolution. **[15]**

**Q3)** What is sonic log? Explain the working of BHC sonic tool and add a note on application of sonic logs. **[15]**

**Q4)** Write notes on : (Any Three) **[15]**

- a) Depth of investigation & vertical resolution of density log.
- b) Applications of neutron logs.
- c) Elastic properties determined from sonic logs.
- d) VDL
- e) Difference between Neutron and TDT log.

**Q5)** Explain how geological parameters affect the measurement of EPT log. Add a note on its applications. **[15]**

**P.T.O.**

**Q6)** Describe the NML Tool and add a note on method of measurement. **[15]**

**Q7)** Write notes on : **[15]**

- a) Applications of EPT log.
- b) Quantitative interpretation of electrical images.
- c) Gas detection from overlays.
- d) Uses of cross - plots.
- e) Saturation determination from geophysical logs.



**P958**

**[3932]-403**

**M.Sc. (Applied)**

**PETROLEUM TECHNOLOGY**

**PT - 15 : Production Operations**

**(Semester - IV) (New Course) (2008 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) Question No.1 is compulsory. Out of the remaining attempt 4 questions.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) You are advised to attempt not more than 5 questions.*

**Q1)** What are propping agents? Why are they used in fracturing? Describe the different types and characteristics of propping agents. **[20]**

OR

What is corrosion? Explain corrosion with the help of electrolytic cell. Describe the different types of corrosion processes. **[20]**

**Q2)** What is formation damage? How damage can be classified? Describe the formation damage caused by clays. **[15]**

**Q3)** What are scales? Describe different methods by which scales can be identified and prevented. **[15]**

**Q4)** Write notes on : (Any Three) **[15]**

- a) Gravel packing.
- b) Deliverability test.
- c) Work over for sand control.
- d) Types of perforators.

**Q5)** What are surfactants? How can surfactants cause formation damage? **[15]**

**Q6)** Discuss the reservoir considerations in production operations. **[15]**

**Q7)** Explain the following. (Any Two) **[15]**

- a) Primary cementing practices.
- b) Water base and oil base muds.
- c) Types of acidizing techniques used in oil wells.



