Code No: **RT41273** **R13** **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, February/March - 2018

HSE AND FE IN PETROLEUM INDUSTRY

(Petroleum Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) Briefly discuss the petroleum waste treatment methods before the wastes are disposed. [4]
   b) Define the terms: Toxicity, Dose, Concentration and LD_{50}. [4]
   c) What is "blowout preventer"? [3]
   d) What are the technical options for corrosion control and prevention in oil and gas industry? [4]
   e) What are types of work permit systems in oil and gas industry? [3]
   f) Explain different types of explosions. [4]

PART–B *(3x16 = 48 Marks)*

2. a) Discuss the various chemicals used in drilling operations, that impact environment. [8]
   b) How can the site preparation for drilling and production cause local impact on the environment. [8]

3. a) Discuss the impact of hydrocarbons on human health. [8]
   b) How does salt in higher concentrations impact the plants? [8]

4. a) State the duties of safety officer in an oil mine. [8]
   b) Write down a safe procedure to carry out well completion by perforation. [8]

5. a) Classify the coatings for metals and alloys for corrosion control giving examples. [8]
   b) Briefly discuss the components of an effective occupational safety and health management system. [8]

6. a) i. Identify the hazard and operability problems of hydrofracturing operation. [4]
      ii. How do you prepare an HAZOP sheet on hydro-fracturing operation? [4]
   b) Write down the guidelines for internal safety audits. [8]

7. a) i. Discuss the flammability limit dependence on pressure and temperature. [4]
      ii. How do you estimate the flammability limits? [4]
   b) Explain the different charge accumulation processes that are relevant to dangerous electrostatic discharges in a process plant. [8]