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Code No: **RT41279** **R13** **Set No. 1**

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

COAL BED METHANE ENGINEERING

(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) Give a typical composition of CBM gas. [3]
   b) What is proximate analysis of coal? [4]
   c) Write down a brief description of procedure for experimental determination adsorption data for Langmuir isotherm. [4]
   d) What is the matrix injection test? [3]
   e) How do you perform drainage area calculations. [4]
   f) Compare the gel and water as fracturing fluids. [4]

PART–B *(3x16 = 48 Marks)*

2. a) Explain the drivers to explore CBM reserves in India. [8]
   b) Write down a brief summary of allotted CBM blocks to RIL, ONGC, Essar oil and GEECL. [8]

3. a) What is a modified Van Krevelen diagram? And explain its significance. [8]
   b) Dipict the molecular structure of coal. [8]

4. Determine the maximum monolayer volumetric capacity per unit weight of coal and the Langmuir constant from the coalbed methane adsorption data at isotherm temperature of 30^0C.

Pressure (psi)	122.98	299.51	469.89	622.48	768.16
Adsorbed methane ft^3/ton	48.04	98.24	128.89	153.64	173.03
Pressure (psi)	908.52	1043.42	1175.89	1267.38	
Adsorbed methane ft^3/ton	199.68	190.03	200.58	210.35	

[16]

5. a) How is the absolute permeability of coal reservoir determined by performing slug test? [8]
   b) Discuss the importance of relative permeability in the evaluation of a CBM well. [8]

6. a) Delineate the formation evaluation methods used in CBM wells. [8]
   b) Bring out a comparison between vertical drilling and horizontal drilling of coal bed wells. [8]

7. a) What are the considerations needed for fracturing coal reservoirs? [8]
   b) Describe the different methods for disposal of CBM produced water. [8]

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