Code No: **R41279** **R10** **Set No. 1**

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

# COAL BED METHANE ENGINEERING

**(Petroleum Engineering)**

**Time: 3 hours** **Max. Marks: 75**

**Answer any FIVE Questions**
**All Questions carry equal marks**
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|---|---|---|---|
| 1 | a) | Depict an overview of CBM exploration in India. | [8] |
| | b) | Write down the salient features and characteristics of CBM reservoirs. | [7] |
| 2 | a) | What are the carbon percentage, heating value and vitrinite reflectance on the basis of coal rank? | [8] |
| | b) | With a neat diagram, show the cleats in coal and explain their significance in CBM production. | [7] |
| 3 | a) | Explain the effect of pressure on methane storage of a typical coal reservoir using an adsorption isotherm. | [8] |
| | b) | Discuss the effects of ash and moisture on methane adsorption in coal seams. | [7] |
| 4 | a) | How is the permeability of coal formation determined from drillstem test? | [8] |
| | b) | Discuss the gas flow mechanisms in coal formations. | [7] |
| 5 | a) | Explain the factors that should be considered to determine hole-size for drilling CBM wells. | [8] |
| | b) | Detail the wireline log evaluations of CBM wells for the key parameters. | [7] |
| 6 | a) | Describe briefly the cased-hole completion methods that are used in CBM wells. | [8] |
| | b) | Discuss the merits and demerits of the open-hole completion of CBM wells. | [7] |
| 7 | a) | Enunciate the need for hydro-fracturing CBM reservoirs. | [8] |
| | b) | Discuss the problems associated with hydro-fracturing of CBM reservoirs. | [7] |
| 8 | a) | i. What are the toxicity limitations of produced water from coal reservoirs? | [4] |
| | | ii. Summarize the coal bed produced water treatment methods. | [4] |
| | b) | Discuss the criteria for an economical methane project. | [7] |