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18MN823

Eighth Semester B.E. Degree Examination, July/August 2022
Coal Bed Methane

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1   a. Summarise in detail, the principles of adsorption.   **(08 Marks)**
    b. Discuss about Formation and Retention of CH_4 by Coal seams.   **(12 Marks)**

OR

2   a. Explain in detail, how CH4 content is determined in coal seams.   **(10 Marks)**
    b. Discuss about the scope of CBM in India.   **(10 Marks)**

Module-2

3   a. How is the absolute permeability of coal reservoir determined by performing slug test?
                                                                                               (10 Marks)
    b. Discuss the importance of relative permeability in the evaluation of a CBM well.   **(10 Marks)**

OR

4   Discuss in detail the following :
    a. Open hole completions.   **(10 Marks)**
    b. Cased hole completions.   **(10 Marks)**

Module-3

5   a. Mention the factors to be considered for Borehole Environment.   **(10 Marks)**
    b. Differentiate between Cleating and Natural fracturing with neat sketches.   **(10 Marks)**

OR

6   Discuss about the following :
    a. Mechanical rock properties in CBM evaluation.   **(10 Marks)**
    b. Recovery factor.   **(05 Marks)**
    c. Coal permeability.   **(05 Marks)**

Module-4

7   Discuss in detail the following :
    a. Need for fracturing coal seams.   **(10 Marks)**
    b. Unique problems in fracturing coal.   **(10 Marks)**

OR

8   a. Explain in detail the types of fracturing fluids used for fracturing coal seams.   **(14 Marks)**
    b. Summarise briefly, the Visual observation of fractures in coals.   **(06 Marks)**

Module-5

9   a. Describe the different techniques for disposal of water produced during CBM extraction.
                                                                                               (14 Marks)
    b. Discuss about environmental regulations to be considered during CBM extraction.   **(06 Marks)**

OR

10 a. Summarise briefly, the economics of CBM recovery.   **(10 Marks)**
    b. Explain Water production rates from Methane wells.   **(10 Marks)**

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