



ventilation layouts, manpower required and expected output and OMS. Assume missing data, if any.

13. (a) (i) State the procedure to be followed to obtain permission for depillaring indicating the information to be furnished at the time of making the application for permission. **(8 marks)**
- (ii) Explain the preparatory arrangements to be made and other activities to be carried out after obtaining permission and before actually commencing the depillaring operations in a bord and pillar panel. **(8 marks)**

**OR**

- (b) (i) Explain a method of assessing the life of a bord and pillar depillaring district by caving. **(10 Marks)**
- (ii) Define contiguous seams and state the precautions to be taken while extracting them. **(6 marks)**
14. (a) Explain hydraulic mining method to extract coal seams. Also explain the conditions essential for adopting this method.

**OR**

- (b) Explain, in detail, inclined slicing method of mining of a 15 m thick coal seam in descending order.
15. (a) Write short notes on **any TWO** of the following
- (i) Factors influencing the size and shape of pillars in bord and pillar method of mining.
- (ii) Systematic support rules for a bord and pillar depillaring district with caving in a 4.5 m thick seam developed along the floor of the seam.
- (iii) Critical width method of partial extraction of coal.

**OR**

- (b) Write short notes on **any TWO** of the following
- (i) Air blast.
- (ii) Stowing method of extraction.
- (iii) Underground gasification of coal.

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