

22381

12425

03 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answer with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (8) Use of Steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. **Attempt any FIVE of the following:** **10**
 - a) Define Mine Economics.
 - b) Define Reserves.
 - c) List any four mining industries of India.
 - d) Define Borehole sampling.
 - e) Describe Depreciation.
 - f) Define Weighted average grade.
 - g) Describe Agglomeration.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Describe Highlights of National Mineral Policy 2019.
 - b) Explain Reserves classification as per “UNFC”.
 - c) Describe cut-off grade along with factors in which it depends.
 - d) How the tonnage is calculated in different types of deposit. Describe weighted average grade.
- 3. Attempt any THREE of the following:** **12**
- a) Describe various methods of sampling.
 - b) Describe preparation of sample by various methods.
 - c) State various Mine valuation methods. Explain in brief net present value method.
 - d) Explain various methods of calculation of life of a mine.
 - e) A machine costing Rs. 20,000/- was purchased and was installed. The installation charges are Rs. 5,000/-. If scrap value is 5,000/- and useful life is 10 years, calculate the yearly depreciation by straight line method.
- 4. Attempt any THREE of the following:** **12**
- a) What will be the amount of compound interest accrued on Rs. 50/- in 10 years at 10% compound interest?
 - b) Describe flotation cell with well labelled diagram.
 - c) Describe with sketch the construction and working of Jaw crusher.
 - d) State the principles for considering the zone of influence of a sample for Reserve calculation. Explain any one method of Reserve calculation.
- 5. Attempt any TWO of the following:** **12**
- a) Describe how mineral conservation is achieved.
 - b) Describe how the reserve with grade for a stop-block exposed and sampled on all sides by exploratory mining is determined with examples.
 - c) Describe salting explain its types and procedure. Explain the procedure to avoid salting.

6. Attempt any TWO of the following:**12**

- a) Explain the criteria for selecting sampling methods for a deposit.
- b) It is proposed to buy a mine which is expected to yield a 12% dividend on capital invested. If the rate of interest on capital is 7% and contribution to the sinking fund is at the rate of 5% then how many years it will take to repay the investment.
- c) Explain with diagram “Magnetic and Electrostatic separator”.
