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**6 SEM TDC GEO M 1**

**2 0 1 7**

( May )

**GEOLOGY**

( Major )

Course : 601

**( Mining and Engineering Geology )**

Full Marks : 48

Pass Marks : 19/14

Time : 2 hours

*The figures in the margin indicate full marks  
for the questions*

UNIT—19.1

**( Mining Geology )**

( Marks : 24 )

1. Mention different methods of underground mining. Describe any *one* of the following underground mining methods with emphasis on advantages and limitations of the method : 2+6=8
- (a) Shrinkage stopes
  - (b) Sub-level caving method
  - (c) Open stopes

Or

Discuss about the different methods of surface mining. Give reasons where surface mining methods can be adopted.

2. Give a short account of the graphical method of estimation of ore reserves. What method would you suggest for estimating the ore reserves of tabular iron ore deposits? Give reasons.  $5+3=8$
3. Write explanatory notes on any *two* of the following :  $3 \times 2 = 6$
- (a) Inclined and vertical shafts
  - (b) Tenor and grade of ores
  - (c) Calculation of average grade and tonnage of ore deposit
  - (d) Channel sampling
4. Choose the correct answer of the following :  $1+1=2$
- (a) The tolerance limit of all constituents present in the ore is termed as Tolerance/Grade/Specification/All of the above.
  - (b) The portion of economic resource which is not commercially available solely because of legal or political circumstances is known as Paramarginal/Submarginal/Hypothetical/Speculative.

UNIT—19.2

( Engineering Geology )

( Marks : 24 )

5. Discuss about the geological considerations to be made for construction of a dam in the Himalayan region. Illustrate your answer with neat sketches. 8

Or

Describe the geological aspects to be considered in the site selection for construction of a bridge. Give suitable sketches. 8

6. Write a short account on the engineering properties of rock mass and their evaluation. 5+3=8

Or

Discuss the role of a geologist in site investigation. How are regional geological studies conducted during site investigation for Engineering projects? 3+5=8

7. Write explanatory notes on any *two* of the following : 3×2=6

(a) Atterberg limits of soils

(b) Concrete aggregates

- (c) Mohr circle of stress
- (d) Cohesive and non-cohesive soils

8. Choose the correct answer of the following : 1+1=2

- (a) An element of hill slope is Free space/  
Nickpoint/Knoll/Reentrant.
- (b) Maithan and Panchet dams are Earth  
dams/Coffer dams/Gravity dams/Arch  
dams.

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