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**6 SEM TDC GEO M 3**

**2 0 1 9**

( May )

**GEOLOGY**

( Major )

Course : 603

**( Geological, Geochemical and  
Geophysical Exploration )**

*Full Marks : 48*

*Pass Marks : 19/14*

*Time : 2 hours*

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

**UNIT—21.1**

**( Geological Exploration )**

( Marks : 16 )

1. Write notes on any *two* of the following :  $4 \times 2 = 8$ 
  - (a) Stages of geological exploration
  - (b) Geological sampling
  - (c) Determination of average grade

2. What is geological prospecting? Describe the methods of geological mapping. 1+5=6

Or

Write an explanatory note on borehole logging and its different types. 6

3. Choose the correct answer : 1×2=2

(a) A natural gamma ray log exhibits a high response from

(i) shale

(ii) coal

(iii) limestone

(iv) sandstone

(b) The most useful type of drilling for penetrating hard rock is

(i) diamond drilling

(ii) rotary drilling

(iii) percussion drilling

UNIT—21.2

( **Geochemical Exploration** )

( Marks : 16 )

4. Write short notes on any *two* of the following : 4×2=8

(a) Geochemical dispersion

- (b) Geochemical cycle
- (c) Mobility of elements

5. Discuss the geochemical sampling techniques. 6

Or

Describe about the methods of geochemical exploration.

6. Choose the correct answer : 1×2=2

(a) Geochemical soil anomalies are mostly due to

(i) hydrothermal accumulation

(ii) heavy mineral accumulation

(iii) residual accumulation

(b) Significant anomalies are characterised by

(i) very high concentration of indicator elements

(ii) very high concentration of path-finder

(iii) very low concentration of path-finder



( 4 )

UNIT—21.3

( **Geophysical Prospecting** )

( Marks : 16 )

7. Write notes on any *two* of the following :  $4 \times 2 = 8$
- (a) Magnetic method of exploration
  - (b) Equipotential method of exploration
  - (c) Wenner method of exploration

8. Write in detail about gravity method of prospecting. 6

Or

Write in detail about seismic method of prospecting.

9. (a) Choose the correct answer : 1

Detailed survey of oil and gas is done by

(i) seismic reflection method

(ii) seismic refraction method

(iii) geomagnetic method

- (b) In which geophysical exploration method, GM counter is used? 1

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