

2017

GEOLOGY

( Major )

Paper : 1.1

( General Geology, Geomorphology and Basic  
Principles of Remote Sensing )

*Full Marks : 60*

*Time : 3 hours*

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

1. Answer the following as directed :  $1 \times 7 = 7$

(a) The Milky Way galaxy is a \_\_\_\_ disk  
measuring about \_\_\_\_ light-years in  
diameter.

(Fill in the blanks)

(b) Conrad discontinuity lies below  
Mohorovicic discontinuity.

(Write True or False)

- (c) While Richter magnitude is related to measurement of \_\_\_\_\_ of shaking, \_\_\_\_\_ magnitude is related to how far the fault slipped during an earthquake.

(Fill in the blanks)

- (d) 'S-P' time is directly related to \_\_\_\_\_ from seismometer to hypocentre.

(Fill in the blank)

- (e) Disintegration increases surface area.

(Write True or False)

- (f) \_\_\_\_\_ reflectors are rough surfaces that reflect EMR uniformly in all directions.

(Fill in the blank)

- (g) The dominant wavelength at which a blackbody radiation curve reaches a maximum is related to its temperature. This relationship is expressed by

- (i) Kirchhoff's law
- (ii) Stefan-Boltzmann law
- (iii) Kelvin's law
- (iv) Wien's displacement law

(Choose the correct option)

( 3 )

2. Write very short answers of the following questions : 2×4=8

- (a) With regard to sediment transportation, how is saltation different from suspension?
- (b) How do the concepts of hyperbolic and pulsating universe model differ from each other?
- (c) How do Lone and Raleigh waves differ from each other?
- (d) How do blackbody radiations differ from natural body radiation?

3. Write short notes on any *three* of the following : 5×3=15

- (a) Types of mass movement
- (b) Cosmology
- (c) Wind as an erosional agent
- (d) Body and surface waves due to earthquake
- (e) Multispectral scanning
- (f) Atmospheric scattering

4. Earthquake prediction has been an obsession amongst seismologists globally. State the different ways by which earthquakes can be predicted. Add a note on human engineered earthquake.  $7+3=10$

*Or*

Describe the different pyroclastic materials. Add a note on the different kinds of volcanoes. What is andesitic line?  $5+4+1=10$

5. Topographic features formed by glaciers may be erosional and depositional. Describe them. What are the causes of glaciation?  $4+4+2=10$

*Or*

Describe the ways by which physical and chemical weathering take place. What are the factors that influence rates of weathering?  $4+4+2=10$

6. Describe the elements of photointerpretation. Add a note on the types of aerial photograph.  $7+3=10$

*Or*

Briefly state the fundamental principles of remote sensing. Describe and discriminate among spatial, temporal and radiometric resolutions.  $4+6=10$

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