

GOVERNMENT ZIRTIRI RESIDENTIAL SCIENCE COLLEGE

DYNAMICS OF THE EARTH AND STRUCTURAL GEOLOGY

CORE COURSE: XXI

6th SEMESTER

A. Multiple choice questions:

(1X25=25)

UNIT 1

1. The average density of the earth is

- i) 6.5 gm/cc
- ii) 5.0 gm/cc
- iii) 5.5 gm/cc
- iv) 5.9 gm/cc

2. The earth is nearest to the sun at

- (i) Aphelion
- (ii) Equinox
- (iii) Solstice
- (iv) Perihelion

3. The most abundant element in the mantle is

- (i) Silicon
- (ii) Magnesium
- (iii) Oxygen
- (iv) Iron

4. The earth's magnetic field reverses at an interval of

- i) 2 million years
- ii) 1 million years
- iii) 60000 years
- iv) Not periodic

5. The half-life of Uranium 238 is

- (i) 10 million years
- (ii) 713 million years
- (iii) 4500 million years
- (iv) 100 million years

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UNIT 2

1. The Himalayan orogeny started at about

- (i) 100 Ma
- (ii) 200 Ma
- (iii) 40 Ma
- (iv) 150 Ma

2. Which one of the following Island is not associated with plate margin processes

- (i) Iceland
- (ii) Japan
- (iii) Hawaii
- (iv) Fiji

3. The mountain range that was formed during the formation of Pangea is

- (i) Himalayas
- (ii) Appalachians
- (iii) Cascades
- (iv) Rocky Mountains

4. If a deep sea trench is close to the coastline the resulting landform will be

- (i) Continental arc volcanoes
- (ii) Mid oceanic ridge
- (iii) Shield volcanoes
- (iv) Volcanic islands

5. The rapid northward movement of the Indian landmass started at about

- (i) 100 m.a
- (ii) 120 m.a
- (iii) 80 m.a
- (iv) 200 m.a

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UNIT 3

1. Clay minerals are a product of

- (i) Mechanical weathering
- (ii) Chemical weathering
- (iii) Biological weathering
- (iv) All of the above

2. Bowl shaped depressions that occur of the head of mountain glaciers is called

- (i) Arete
- (ii) Col
- (iii) Horn
- (iv) Cirque

3. In fluvial system larger sediments/blocks are transported by

- (i) Solution
- (ii) Suspension
- (iii) Substitution
- (iv) Saltation

4. Deflation of loose sand, silt and clay particles leads to the formation of

- (i) Yardangs
- (ii) Pedestal rock
- (iii) Desert pavement
- (iv) Dunes

5. Isostasy is the state of gravitational equilibrium between Earth's crust and

- (i) Mantle
- (ii) Outer core
- (iii) Inner core
- (iv) Sima

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UNIT 4

1. Body waves consist of
 - i) P waves
 - ii) P and S waves
 - iii) S waves
 - iv) Surface waves

2. With increasing travel time the difference in arrival times between P & S waves
 - i) Decreases
 - ii) Stay the same
 - iii) Increases
 - iv) Increases and then decreases with time.

3. Intensity of an earthquake is the measure of its
 - (i) Magnitude
 - (ii) Destruction
 - (iii) Energy
 - (iv) Ground motion

4. P waves shadow zone lies between
 - i) 105° and 145°
 - ii) 10° and 140°
 - iii) 90° and 140°
 - iv) 108° and 145°

5. The most common type of earthquakes are
 - (i) Shallow focus
 - (ii) Deep focus
 - (iii) Intermediate focus
 - (iv) Very deep focus

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UNIT 5

1. In Pi diagrams geological data is represented in the form of
 - i) Small circles
 - ii) Plane
 - iii) Dash line
 - iv) Poles

2. Parallel arrangement of platy or flaky minerals result in
 - i) Fracture cleavage
 - ii) Shear cleavage
 - iii) Slaty cleavage
 - iv) Recrystallization and reorientation

3. Schistose structure is a result of
 - (i) Recrystallization
 - (ii) Melting
 - (iii) Reorientation
 - (iv) Recrystallization and reorientation

4. The outermost circle in a Stereonet is called the
 - (i) Small circle
 - (ii) Large circle
 - (iii) Primitive circle
 - (iv) Full circle

5. Deformation where energy is consumed and the object deforms permanently is called
 - (i) Plastic deformation
 - (ii) Brittle deformation
 - (iii) Elastic deformation
 - (iv) Isostatic deformation

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B. Fill in the blanks:

UNIT 1

1. Due to the rotation of earth on its axis the polar radius is _____ than the equatorial radius.
2. Potassium has three isotopes, K^{39} , K^{40} and K^{41} where only _____ is radioactive.
3. In reversed polarity the North magnetic pole coincides with geographic _____ pole.

UNIT 2

1. According to Alfred Wegner the supercontinent 'Pangea' started breaking up at about _____ million years.
2. Island arc and continental arc volcanoes are associated with _____ plate boundary.
3. Mantle convection which bring about the movement of plates is possible due to the presence of _____ in the upper part of the mantle.

UNIT 3

1. _____ is a type of mechanical weathering where increase in volume of water due to freezing exerts pressure on rock thereby breaking them into several pieces.
2. In Airy's theory of Isostasy crustal blocks are of equal _____ and unequal thickness.
3. Accumulation of sand shaped by wind in the form of a round hillock or a ridge with crest is called _____.

UNIT-4

1. In an earthquake _____ wave will be the first wave to reach seismic recording station.
2. In the seismic hazard zonation map of India, the North eastern part of India lies in Zone _____.
3. _____ shock are a series of earthquakes which occurs before the main shock.

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UNIT 5

1. _____ is the property of rocks whereby they break along parallel surfaces.
2. In stereographic projection for structural analysis the _____ hemisphere of the sphere is used for plotting.
3. Deformation occurs in a direction _____ to the principal stress axis.

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Answer Key:

A.

Unit 1

1)- iii

2)- iv

3)- iii

4)- iv

5)- iii

Unit 2

1)- iii

2)- iii

3)- ii

4)- i

5)- iii

Unit 3

1)- ii

2)- iv

3)- iv

4)- iii

5)- i

Unit 4

1)- ii

2)- iii

3)-ii

4)- i

5)- i

UNIT 5

1)- iv

2)- iii

3)- iii

4)- iii

5)- i

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B.

Unit 1

1. Smaller/shorter/less.
2. K^{40}
3. South

Unit 2

1. 200
2. Convergent
3. Asthenosphere

Unit 3

1. Frost wedging
2. Density
3. Dunes

UNIT 4

1. P/Primary
2. V/5
3. fore

UNIT 5

1. Cleavage
2. Lower
3. Perpendicular

C.LALREMRUATFELA

DEPT. OF GEOLOGY

GZRSC