

(3 Hours)

[Total Marks : 100

28/04/12

Section I

All questions are compulsory

(40 marks)

Select (V) the correct answer

- 1 Which of the following determines the coarser and finer admixture occur in same proportion in the sediments
 - a) measurement of Kurtosis
 - b) measurement of skewness
 - c) measurement of dispersion
 - d) measurement of central tendency

- 2 Ozokerite is an example of
 - a) Oil shale
 - b) Tar sand
 - c) Mineral wax
 - d) Coal

- 3 Glauconite is a
 - a) Potassium- Iron Silicate
 - b) Sodium- Iron Silicate
 - c) Potassium – Iron Carbonate
 - d) Sodium – Iron Carbonate

- 4 The lava flows of peridotitic composition give rise to
 - a) Jacupirangite
 - b) Komatiite
 - c) Fulgurite
 - d) Burgerite

- 5 Zircon type may be designated as having:
 - a) Three plane, five axes and centre
 - b) Five plane, five axes and centre
 - c) Five plane, three axes and no centre
 - d) Five plane, five axes and no centre

- 6 Which of the following is an Orthorhombic amphibole
 - a) Cummingtonite
 - b) Tremolite
 - c) Anthophyllite
 - d) Grunerite

7 The weathered feldspar in Barakar sandstone are indicating of a

- a) Cold climate
- b) Tropical humid climate
- c) Warm climate
- d) High water cover

8 The optic axial plane in biaxial minerals is

- a) X-Z
- b) Y-Z
- c) X-Y
- d) Circular

9 The interfacial angles depend upon:

- a) Size of the crystal faces
- b) Shape of the crystal faces
- c) Form of the crystals
- d) None of the above

10 The axial plane is horizontal in

- a) Symmetrical fold
- b) Asymmetrical fold
- c) Recumbent fold
- d) Overturned fold

11 Spotted or Knitted structures particularly developed in contact metamorphism is known as

- a) Maculose
- b) Mylonite
- c) Placer
- d) Mortar

12 Maximum number of space lattices is found in:

- a) Orthorhombic system
- b) Tetragonal System
- c) Cubic system
- d) Hexagonal system

13 Sinistral coiling is found in

- a) Pupilla
- b) Natica
- c) Physa
- d) Trochus

14 Ripple marks are not observed in

- a) Lime stones
- b) Shales
- c) Conglomerates
- d) Sandstone

- 15 When the piezometric surface at the well site is above the ground level, the resulting well is :
 a) Artesian well
 b) Flowing well
 c) Unconfined well
 d) None of this
- 16 Gossan is a
 a) Spout of a melting glacier
 b) Ore mineral of iron
 c) Siliceous residue
 d) Ferruginous residue
- 17 Khondalite is the typical rock of ----- facies
 a) Green Schist
 b) Granulite
 c) Eclogite
 d) Sanidanite
- 18 Manganese nodules found blanketing sections of the abyssal plains are an example of
 a) Silicious Ooze
 b) Autheginic deposit
 c) Calcareous Oozes
 d) Terrigenous deposit
- 19 The part where the dam comes in the contact with the ground on the down stream side is called
 a) Abutment
 b) Toe
 c) Heel
 d) Spill way
- 20 MSS is
 a) A multi satellite system
 b) Multi spectral satellite
 c) Multi satellite scanner
 d) Multi spectral scanner
- 21 Organic matter load in water is determined by
 a) BOD values
 b) COD values
 c) pH values
 d) Colour
- 22 The Kyanite deposit of Lapsa Buru in Singhbhum district of Bihar is a
 a) Bedded
 b) Vein
 c) Boulder
 d) Massive

- 23 Which of the following is silica unsaturated mineral:
- Tourmaline
 - Hypersthene
 - Sphene
 - Corundum
- 24 When X- vibration direction of a mineral is the acute bisectrix, the mineral is:
- Uniaxial positive
 - Isotropically negative
 - Biaxial positive
 - Biaxial negative
- 25 Study of Spores and Pollens is
- Palaeoecology
 - Palaeobotany
 - Paleontology
 - Palynology
- 26 Brachiopod shell which cannot be used for production of lime
- Lingula
 - Productus
 - Sprifer
 - Athyris
- 27 The eutectic intergrowth of orthoclase and quartz produces the well known rock
- Myrmekite granite
 - Graphic granite
 - Rapakivi granite
 - Trondhjemite
- 28 The reservoir rocks of Bombay High are predominately
- Biomicrites
 - Biosparites
 - Oosparities
 - Oomicrites
- 29 Ortho-quartzite are indicative of
- Stable environment
 - Unstable environment
 - Transitional environment
 - All of the above
- 30 Which of the following element is used as the pathfinder for Gold
- Mercury
 - Platinum
 - Arsenic
 - Cobalt

- 31 Which of the following rock does not contain olivine:
- a) Hazburgite
 - b) Dunite
 - c) Tephrite
 - d) Picrite
- 32 The synonymous term for Window is
- a) Nappe
 - b) Clippe
 - c) Thrust
 - d) Fenester
- 33 Which of this is a calcium carbonate
- a) Halite
 - b) Feldspar
 - c) Iceland spar
 - d) Satin spar
- 34 Dedolomitization requires solution with
- a) Low Ca- Mg ratio
 - b) Low Ca-Mg-Fe ratio
 - c) High Ca-Mg ratio
 - d) High Ca-Mg-Al ratio
- 35 Which of the following is an example of bedding plane markings or irregularities found on the base of the bed?
- a) Load casts
 - b) Ripple marks
 - c) Rain prints
 - d) Ball and pillow structure
- 36 Ratio of FeO : Cr₂O₃ in Chromium is
- a) 84: 16
 - b) 65:35
 - c) 80:20
 - d) 68:32
- 37 The smallest megascopic layer in a sedimentary sequence is a
- a) Bed
 - b) Stratum
 - c) Lamina
 - d) All of the above
- 38 Throw and vertical separation in an inclined fault will be
- a) Same
 - b) Different
 - c) Equal
 - d) None of the above

- 39 Spodumene is a
- a) Rubidium bearing mineral
 - b) Sodium bearing mineral
 - c) Lithium bearing mineral
 - d) Calcium bearing minerals
- 40 Out of the 32 crystal classes, how many classes do not have a centre of symmetry
- a) 21
 - b) 22
 - c) 24
 - d) 20

Section II

(30 marks)

Attempt any three questions out of five

- Qu. 1) What are the various causes of vertical movements in continents?
- Qu. 2) What is meant by the term stress? Explain how stress is applied in two and three dimensions.
- Qu. 3) Write an account of the major oil fields in the North Eastern part of India.
- Qu. 4) Write short notes on Rialo Series and Kurnool System.
- Qu. 5) Explain the various factors that determine the mechanisms of deformation.

Section III

Attempt any two questions out of four

(30 marks)

- Qu. 1) As one moves from shoreline to the deep ocean floor, what changes in the physical environment are experienced.
- Qu. 2) Discuss how the chemical composition of Earth interior differs from its physical properties. Include specific examples.
- Qu. 3) Explain various geological structures that are conducive to the accumulation of petroleum.
- Qu. 4) Give an account of the cooling behavior of magmas. Describe the role of fractional crystallization in magmatic differentiation.