

SECTION 1 - SECTION 1

Question No.1

Porphyry-type Cu deposits are associated with:

- Continent-Ocean subduction setting
- Mid-oceanic ridge setting
- Intra-cratonic setting
- Ocean-Ocean subduction setting

Question No.2

In folded rocks the tunnel may be excavated along or across the trend of

- Strike line
- Along dip direction
- Fault line
- Fold axis

Question No.3

The upper stage of Papaghni Group consisting of fine glassy limestone with bands of Chert and Chalcedony is

- Gulcheru
- Vempalle
- Pulivendla
- Cumbum

Question No.4

Which silicate minerals generally melt at the highest temperature?

- Sheet silicates
- Framework silicate
- Double chain silicate
- Isolated tetrahedra

Question No.5

In which of the following deposits does groundwater play a role in ore formation

- Roll-front uranium
- Placer gold

- Olympic Dam
- Kuroko

Question No.6

When sausage shaped bodies of one rock layer are sandwiched between layers of different rock types, the structure is described as

- Boudinage
- Slickenside
- Crenulation
- Mullion

Question No.7

In fluid inclusion research, temperature of eutectic means the temperature

- of melting of a solid phase
- of nucleation on cooling
- of first recognizable formation of liquid on warming a completely crystalline inclusion
- of homogenization of phases

Question No.8

Spinifex texture characterises

- Kimberlite
- Marble
- Basalt
- Komatitie

Question No.9

The Ophitic texture consists of:

- Laths of Plagioclase enclosed in the crystals of augite
- Laths of augite enclosed in the crystals of plagioclase
- Laths of orthoclase enclosed in the crystals of plagioclase
- An intergrowth between plagioclase and Sanidine.

Question No.10

Which mineral will scratch glass, but not pyrite?

- orthoclase
- fluorite

- quartz
- gypsum

Question No.11

In which one of the following configurations the electrodes are uniformly spaced?

- Pole-Pole array
- Dipole-Dipole array
- Wenner array
- Schlumberger array

Question No.12

Oxygen Fugacity of air with a mole fraction of 0.2095 oxygen at sea level (1.013 bar pressure) is

- 1.000 bar
- 4.835 bar
- 0.460 bar
- 0.212 bar

Question No.13

The distance between the highest level of water in the reservoir and top of the dam is called:

- Freeboard
- Galleries
- Crest
- Abutment

Question No.14

Texture characteristic of Lamprophyres is

- Porphyritic Texture
- Panidiomorphic Texture
- Ophitic Texture
- Poikilitic Texture

Question No.15

A natural gamma ray log exhibits a high response from

- Shale

- Dolomite
- Coal
- Limestone

Question No.16

Which one of the following has the least electrical resistivity?

- Anthracite
- Diamond
- Clay
- Sulphur

Question No.17

Phlogopite is also referred as

- Black mica
- White mica
- Lithium mica
- Magnesium mica

Question No.18

Dimension of hydraulic conductivity is :

- LT^2
- LT^{-1}
- ML^{-3}
- L^3T^{-1}

Question No.19

The rock characteristic of contact metamorphism is

- Schist
- Hornfels
- Granulite
- Gneiss

Question No.20

To distinguish between different rock types, a sensor with high _____ resolution is best:

- Spatial and radiometric

- Spatial and temporal
- Spectral and radiometric
- Spectral and temporal

Question No.21

Celestite consists of

- Sulphate of Barium
- Sulphide of Barium
- Sulphide of Strontium
- Sulphate of Strontium

Question No.22

Amongst the garnet minerals, pyrope often occurs as a high-pressure phase in rocks because

- Mg^{2+} cations are smaller than Ca^{2+} cations
- Drop in pressure, leads to an expansion of the M1 and M2 sites
- of the aluminium avoidance rule
- Substitution of Ca^{2+} for cations like Fe^{2+} or Mg^{2+} causes a change in the bond lengths

Question No.23

The least amount of radiogenic lead is in

- Pee Dee Belemnite
- Zawar Pb-Zn mines
- Canyon Diablo meteorite
- Hydrothermal vents

Question No.24

What form of energy is radiated by the earth and trapped by greenhouse gasses to cause global warming?

- Radio waves
- Infrared light
- Ultraviolet light
- Gamma rays

Question No.25

The estimated age of the universe is :

- 10.1 Ga
- 13.5 Ga
- 4.56 Ga
- 25.7 Ga

Question No.26

Galena crystallizes in the form of

- Cubes and Dodecahedra
- Cubes and Rhombohedra
- Cubes and Trapezohedra
- Cubes and Octahedra

Question No.27

A fossil with limited stratigraphic range but wide geographical distribution is known as :

- Index fossil
- Leaked fossil
- Transported fossil
- Zone fossil

Question No.28

The monazite sands of Kerala are rich in:

- Coal
- PGE
- Thorium
- Uranium

Question No.29

Which of the following stable isotopic ratios is used for estimation of paleo-temperature of seawater?

- $^{13}\text{C}/^{12}\text{C}$
- $^{18}\text{O}/^{16}\text{O}$
- $^{15}\text{N}/^{14}\text{N}$
- $^{87}\text{Sr}/^{86}\text{Sr}$

Question No.30

The average density of the Earth:

- 10.54g/cm³
- 5.52 g/cm³
- 6.12 g/cm³
- 4.53 g/cm³

Question No.31

The metamorphism involving the combined effect of uniform pressure and heat is described as

- Dynamothermal metamorphism
- Plutonic metamorphism
- Cataclastic metamorphism
- Contact metamorphism

Question No.32

Excavation outside the ore body 'across the dip' is known as

- Shaft
- Level
- Cross cut
- Stope

Question No.33

If any loose material is piled up, it has a natural slope of about

- 15°
- 50°
- 25°
- 35°

Question No.34

Widmanstätten texture could be found in

- Iron meteorites
- Komatiite
- Stony meteorites
- Anorthosite

Question No.35

Sitampundi Complex is famous for

- Granite
- Anorthosites
- Magnesites
- Charnockites

Question No.36

The main boundary fault separates

- Upper Vindhya and Aravallis
- Siwaliks and the Bundelkhand massifs
- Siwaliks and Tertiaries
- Siwaliks and Aravallis

Question No.37

The magma rising from the deep mantle in a manner as flowing in a vertical pipe is known as mantle plume. The surficial trace of hot plume is called:

- Hot Spot
- Benioff zone
- Triple junction
- Azores

Question No.38

Metal content (in metric tonnes) of an ore having specific gravity and assay value of 2.86 and 1.49% respectively in a mining block 40 m long, 30 m wide and with an average thickness of 2.13 m is:

- 208.10 metric tonne
- 130.15 metric tonne
- 150.54 metric tonne
- 108.92 metric tonne

Question No.39

Granodiorite is distinguished mineralogically from granite by a predominance of

- Hornblende
- Alkali feldspar
- Plagioclase
- Quartz

Question No.40

The highest metal/silicate fraction exists on which of these planets

- Mars
- Earth
- Mercury
- Venus

Question No.41

Arkose is derived from the disintegration of:

- Granite
- Marble
- Ultrabasic rocks
- Gabbro

Question No.42

Intermediate rocks with no free Quartz is

- Andesite
- Basalt
- Dunite
- Dacite

Question No.43

The drill holes which are driven vertically and make the sides of the excavation are known as

- Hole directors
- Simpers
- Dressers
- Easers

Question No.44

Ridge like deposits of coarse sand and gravels found along the fringes of flood plains are known as:

- Natural levees/ embankments
- Alluvial cone
- Alluvial fan
- Bajada

Question No.45

Which amongst these is not a sedimentary-basin base-metal deposit

- Kupferschiefer
- SEDEX
- Carlin-type
- MVT

Question No.46

Which of the following lithostratigraphic unit is of Paleoproterozoic age?

- Aravalli Supergroup
- Dharwar Supergroup
- Sukma Group
- Vindhyan Supergroup

Question No.47

A pelitic rock is uplifted after high pressure metamorphism in the earth's crust. The mineral transformation due to uplift will be:

- Kyanite to Sillimanite
- Andalusite to Kyanite
- Andalusite to Sillimanite
- Sillimanite to Kyanite

Question No.48

Which of the following rocks is not expected to occur on the moon:

- Basalt
- Norite
- Sandstone
- Anorthosite

Question No.49

Volcanic associated massive sulphide deposits are common in

- Middle Proterozoic
- Early Proterozoic
- Archean
- Late Proterozoic

Question No.50

The most primitive suture line in the Trilobites is described as

- Hypoparian
- Opisthoparian
- Gonatoparian
- Proparian

Question No.51

Mushroom shaped structures having slender columns and wide tops resulting from the abrasive action of wind, are described as

- Pedestal Rocks
- Driekenters
- Ventifacts
- Barchans

Question No.52

Which is not characteristic of discontinuous reaction

- take place over a range of P and T as a result of solid solution in one or more of the phases involved
- occur along specific pressure temperature curves
- takes place between phases of fixed chemical composition
- occur at the same P-T conditions for the compositions defined

Question No.53

Raniganj coal belongs to

- Lower Permian
- Upper Permian
- Lower Carboniferous
- Upper Carboniferous

Question No.54

Which of the following is isometric and opaque?

- Chalcopyrite
- Graphite
- Pyrite
- Ilmenite

Question No.55

Crystal faces poorly formed or irregular

- Anhedral
- Acicular
- Subhedral
- Prismatic

Question No.56

The Tummalapalli uranium mineralization in Cuddapah basin occurs in

- Shales
- Quartzites
- Sandstones
- Dolostones

Question No.57

Which of the following are artiodactyls?

- Chalicotheres
- Rhinos
- Hippos
- Titanotheres.

Question No.58

Barite powder is used in

- Refractories
- Fertilisers
- Abrasives
- Drilling

Question No.59

In pyroxenes the M2 polyhedra is six-coordinated when occupied by

- Ca
- Mg
- Na
- Si

Question No.60

Which one of the following engineering properties required for rocks, and used as site of construction for foundation purposes, is tested in the field

Modulus of elasticity

-
- Tensile strength
- Jack test
- Compressive strength

Question No.61

According to the Wentworth's scale, particles having a diameter between 64mm-4mm are described as:

- Cobble
- Coarse sand
- Pebble
- Granules

Question No.62

A fold generated by a straight line moving parallel to itself in space

- non-cylindrical fold
- symmetric fold
- asymmetric fold
- cylindrical fold

Question No.63

As per the mining terminology, the exploitation or winning is known as

- The detailed mapping of the ore body
- The process of ventilation
- The process of extracting the ore or economic mineral from the earth
- The process of blasting

Question No.64

Thixotropism is an engineering property shown by:

- Sedimentary rocks
- Crystalline rock
- Weathered laterite
- Clay deposits

Question No.65

Magnetism of the earth surface can be determined by:

Astatic deflection magnetometer

-
- Magnetometer
- Sensitive galvanometer
- Earth inductor

Question No.66

Rn ²²²(Radon) and He (Helium) result from the radioactive disintegration of

- Argon
- None of these
- Thorium
- Uranium

Question No.67

The host rock of chromite deposits of Sitampundi complex is:

- Quartz vein
- Anorthosites
- Peridotite
- Kimberlite

Question No.68

The Precambrian rocks of India can be best correlated on the basis of their

- Palaeogeographical studies
- Mineral deposits
- Isotopic ages
- Lithostratigraphy

Question No.69

Singhbhum and Bhundelkhand granites are examples of

- Laccolith
- Lopolith
- Phacolith
- Batholith

Question No.70

Mineral in the Mohr's scale of hardness are:

- Silicates, Carbonates, Phosphates, Sulfides

- Silicate, Phosphates, Carbonates, Oxides
- Silicates, Phosphates, Oxides, Chlorides
- Silicates, Carbonates, Chlorides, Sulfides

Question No.71

Thread like prolongations of Graptolites are called

- Stipe
- Polypary
- Virgula
- Sricula

Question No.72

Trilobites disappeared at the end of

- Pliocene
- Precambrian
- Cretaceous
- Permian

Question No.73

A chondrite normalized REE pattern of gneissic rock that shows a sharp positive Eu anomaly is attributed to the presence of:

- Sillimanite in the sample
- Plagioclase in the sample
- Clinopyroxene in the sample
- Quartz in the sample

Question No.74

The science, art and technology of obtaining reliable measurement, maps, digital elevation models, and other derived products from aerial photography is called:

- Photogrammetry
- Stereoscapy
- Remote sensing
- DIP

Question No.75

Signor-Lipps effect in palaeontology deals with

- Sampling error resulting in sudden and gradual extinction patterns both looking gradual
- Out-of-Africa hypothesis
- Unknown organisms being represented more in fossil collections
- Theories of mass extinction

Question No.76

What is the order of index mineral appearance from low grade to high grade metamorphism?

- Chlorite, biotite, muscovite, garnet, staurolite, sillimanite.
- Chlorite, muscovite, biotite, garnet, staurolite, sillimanite.
- Chlorite, muscovite, biotite, garnet, sillimanite, staurolite.
- Muscovite, biotite, garnet, staurolite, sillimanite, chlorite

Question No.77

Which of the following lithostratigraphic units hosts lignite at Nayveli?

- Cuddalore Formation
- Pali Beds
- Kamthi Beds
- Ariyalur Formation

Question No.78

In sedimentary rocks, undulations produced on the surface of loose sediments due to action of wind or waves in shallow water body, are known as

- Mud cracks
- Tracks and Trails
- Rain prints
- Ripple Marks

Question No.79

Taxodont dentition is observed in

- Pecten
- Unio
- Arca
- Mytilus

Question No.80

Which of the following equation is represents the Bragg's law:

- $\theta = \sin \lambda n$
- $\lambda d = dn \sin \theta$
- $n\lambda = 4d \sin^2 \theta$
- $n\lambda = 2d \sin \theta$

Question No.81

The Brazilian test is used to determine:

- Compressive strength
- Tensile strength
- Modulus of elasticity
- Shear strength

Question No.82

What information *can not* be obtained from paleomagnetic measurements?

- Longitude
- Latitude
- Magnetic intensity
- Direction of north

Question No.83

The Middle Gondwanas were formed under

- Warm and dry climate
- Cold and humid climate
- Cold and dry climate
- Warm and humid climate

Question No.84

Migmatite with small-scale alternating layers of neosome and mesosome

- Diktyonite
- Nebulite
- Stromatite
- Agmatite

Question No.85

Poisson's ratio is given by:

- Lateral / Longitudinal strain
- Stress / Strain
- Stress / Area
- Longitudinal strain / Lateral strain

Question No.86

Olivine crystallizes in the crystal system of

- Triclinic
- Orthorhombic
- Monoclinic
- Cubic

Question No.87

A garnet with the composition $(Ca_{0.5}Mg_{0.5})_3Al_2Si_3O_{12}$ has _____ ideal configurational entropy in the binary system grossular-pyrope.

- Exponentially increasing
- Decreasing
- Maximum
- Minimum

Question No.88

The reservoir rock of Bombay High Oilfield is

- Shale
- Silt
- Sandstone
- Limestone

Question No.89

Which of the following is not a benthic Foraminifera

- Orbulina
- Nummulites
- Ammonia
- Elphidium

Question No.90

Three of the characters match mammals, rather than reptiles. Which is the odd one out?

- Enlarged braincase
- Single middle ear bone
- Complex heterodont teeth
- Bones of pelvis fused

Question No.91

X-ray reflection are allowed for face-centred cubic lattices

- when $(h + k + l)$ is even
- for all possible h, k and l values
- when $(h + k + l)$ is odd
- when h, k and l are either all even or all odd

Question No.92

Greyish white alteration product of ilmenite

- Ochre
- Leucoxene
- Perovskite
- Martite

Question No.93

Which of these does not belong to the rhombohedral class of carbonate minerals?

- Siderite
- Kutnohorite
- Strontianite
- Calcite

Question No.94

A confined sandy aquifer has a thickness of 10 m and transmissivity of 0.75 m^2/day . Its hydraulic conductivity is in m/day :

- 0.075 m/day
- 75 m^2/day
- 0.0075 m/day
- 0.75 m/day

Question No.95

The best coking coal is mostly obtained from

- Raniganj
- Jharia
- Neyveli
- Singareni

Question No.96

A climate pattern that describes the cooling of surface ocean water along the tropical west coast of South America

- La Niña
- El Nino
- Doldrums
- Monsoon

Question No.97

In metapelitic rocks the presence of quartz, muscovite and H₂O in excess reduces the _____ system to the effectively ternary system

- KFMASH, AFM
- NCFMASH, ACF
- CASH, ACF
- KFMASH, AKF

Question No.98

A negative feedback mechanism resulted in interglacial periods. Which of these apply?

- Change in albedo
- Dust plume from meteorite impact
- Plate tectonics and glacial movement
- Cold high pressure centers formed over glaciers

Question No.99

Mantle xenoliths are observed in :

- Granite
- Pegmatites
- Granulite
- Kimberlite

Question No.100



Geotectonic setting of the oceanic lithosphere preserved in Semail ophiolite of Oman

- cordilleran arc
- fast-spreading mid-ocean ridge
- supra-subduction zone
- island arc – spreading ridge intersection