

## **English**

1. Which of the following sequence of solar system abundances of elements is correct?

- (A) H > He > Li > C
- (B) H > He > C > Li
- (C) He > H > Li > C
- (D) He > H > C > Li

**Correct Option(s): B**

## **English**

2. Which of the following Rare Earth Elements generally show more than one valence state?

- (A) La and Lu
- (B) Ce and Eu
- (C) Eu and La
- (D) Ce and Lu

**Correct Option(s): C**

## **English**

3. A radioactive isotope has half-life of 6400 years. After how many half-lives 64000 atoms of this isotope will be reduced to 1000 atoms?

- (A) 2
- (B) 4
- (C) 6
- (D) 64

**Correct Option(s): C**

## **English**

4. After crystallization, if a rock/mineral selectively loses the radiogenic daughter element, the obtained radiometric age

- (A) would be higher than actual age
- (B) would be lower than the actual age
- (C) would still be the actual age
- (D) would be higher or lower than the actual age depending on the quantity of loss

**Correct Option(s): B**

## **English**

5. Interference color of mineral depends on

- (A) birefringence of the mineral
- (B) birefringence and thickness of the mineral section
- (C) birefringence, thickness and orientation of the mineral
- (D) thickness and orientation of the mineral

**Correct Option(s): C**

## **English**

6. For octahedral coordination, which of the following is correct?

- (A) A cation is surrounded by 12 anions
- (B) A cation is surrounded by 8 anions
- (C) A cation is surrounded by 6 anions
- (D) A cation is surrounded by 4 anions

**Correct Option(s): C**

## English

7. Which of the following minerals does not incorporate non-radiogenic lead (Pb) during its crystallization?

- (A) Garnet
- (B) Biotite
- (C) Monazite
- (D) Chlorite

**Correct Option(s): C**

## English

8. Which of the following minerals belongs to the cubic system?

- (A) Orthoclase
- (B) Quartz
- (C) Garnet
- (D) Apatite

**Correct Option(s): C**

## English

9. In terms of trace element substitution in feldspar, which of the following statements is correct?

- (A) Rb easily substitutes K
- (B) Sr easily substitutes K
- (C) Rb easily substitutes Ca
- (D) Rb and Sr both easily substitute K

**Correct Option(s): A**

## English

10. Which of the following structures cannot be used to fix the stratigraphic top?

- (A) Vesicles-rich layers in basalt
- (B) Cross bedding
- (C) Convolute lamination
- (D) Parting lineation

**Correct Option(s): D**

## English

11. Mud drapes at regular intervals characterize which of the following depositional environments?

- (A) Fluvial
- (B) Aeolian
- (C) Beach
- (D) Tidal

**Correct Option(s): D**

## English

12. Which of the given sedimentary bedforms requires highest flow velocity for its formation?

- (A) Ripple marks
- (B) Dune
- (C) Plane bed
- (D) Antidune

**Correct Option(s): D**

## English

13. Keeping other parameters fixed, a braided river will start to meander, if

- (A) slope decreases
- (B) slope increases
- (C) discharge decreases
- (D) discharge increases

**Correct Option(s): B**

## English

14. Which of the following statements is correct?

- (A) Well sorted sand population is usually well rounded
- (B) Well rounded sand population is usually well sorted
- (C) Roundness is a function of depositional rate
- (D) Removal of clay matrix follows rounding

**Correct Option(s): B**

## English

15. Dripstone that rises up from the floor of a limestone cave is known as

- (A) stalactite
- (B) stalacmite
- (C) uvala
- (D) poljes

**Correct Option(s): B**

## English

16. Evidence of Late Paleozoic glaciation is recorded in

- (A) Panchet Formation
- (B) Talchir Formation
- (C) Motur Formation
- (D) Barakar Formation

**Correct Option(s): B**

## English

17. Graphic texture is indicative of

- (A) eutectic crystallization
- (B) crystal settling
- (C) fractional crystallization
- (D) magma mixing

**Correct Option(s): A**

## English

18. Ophitic texture is commonly interpreted as

- (A) simultaneous intergrowth of plagioclase and clinopyroxene with different nucleation/growth ratio
- (B) successive growth of plagioclase followed by clinopyroxene
- (C) intrusion of plagioclase after the growth of clinopyroxene
- (D) clinopyroxene develops on plagioclase due to mineral reaction

**Correct Option(s): A**

## English

19. Adamelite is a rock containing

- (A) equal proportion of olivine and plagioclase
- (B) equal proportion of plagioclase and orthoclase feldspar
- (C) equal proportion of orthopyroxene and clinopyroxene
- (D) equal proportion of plagioclase and nepheline

**Correct Option(s): B**

## English

20. Trace of Hadean crust has been reported from

- (A) the felsic rocks of the Singhbhum Craton
- (B) the felsic rocks of the Aravalli Craton
- (C) the BIF of Dharwar Craton
- (D) the felsic rocks of the Bastar Craton

**Correct Option(s): A**

## English

21. Which of the following rocks does not have a volcanic equivalent?

- (A) Granite
- (B) Syenite
- (C) Anorthosite
- (D) Gabbro

**Correct Option(s): C**

## English

22. Most melting reaction (other than ice) on the pressure – temperature space, would have

- (A) positive slope
- (B) negative slope
- (C) parallel to temperature axis
- (D) parallel to pressure axis

**Correct Option(s): A**

## English

23.

During prograde metamorphism of pelitic rocks, which of the following isograds form sequentially?

- (A) Chlorite -> staurolite -> biotite -> kyanite -> sillimanite
- (B) Chlorite -> andalusite -> cordierite -> sillimanite
- (C) Chlorite -> biotite -> garnet -> staurolite -> kyanite -> sillimanite
- (D) Sillimanite -> kyanite -> staurolite -> garnet -> biotite -> chlorite

**Correct Option(s): C**

## English

24. Ultra-high pressure metamorphism is marked by

- (A) appearance of glaucophane
- (B) appearance of coesite
- (C) appearance of jadeite
- (D) presence of omphacite

**Correct Option(s): B**

## English

25. Paired metamorphic belts are characteristics of

- (A) mid-oceanic ridges
- (B) transform faults
- (C) subduction zones
- (D) orogenic belts

**Correct Option(s): C**

## English

26. Which of the following elements are known as High Field Strength Elements (HFSE)?

- (A) Zr-Hf
- (B) Rb-Sr
- (C) Cu-Zn
- (D) K-Cs

**Correct Option(s): A**

## English

27. According to Darcy's Law which of the following is correct?

- (A) The discharge is directly proportional to head loss
- (B) The discharge is inversely proportional to head loss and directly proportional to the length of flow
- (C) The discharge is directly proportional to the head loss and area of flow and inversely proportional to the length of the flow
- (D) The discharge is inversely proportional to head loss and inversely proportional to the area of flow and to the length of the flow path

**Correct Option(s): C**

## English

28. Specific yield is the measure of

- (A) porosity of the aquifer
- (B) effective porosity of the aquifer
- (C) permeability of the aquifer
- (D) void ratio of the aquifer

**Correct Option(s): B**

## English

29. Fold-and-thrust structures in back-arc are formed when

- (A) the subduction angle is high
- (B) the subduction angle is low
- (C) the subduction angle is extremely high
- (D) obduction occurs

**Correct Option(s): B**

## English

30. Which of the following methods are used to decipher the crystal structure of a mineral?

- (A) Electron Probe Micro Analysis (EPMA)
- (B) Secondary Ion Mass Spectrometer (SIMS)
- (C) Laser Ablation Inductively Coupled Plasma Mass Spectrometer (LA-ICPMS)
- (D) X-Ray Diffraction (XRD)

**Correct Option(s): D**

## English

31. Which of the followings is a non-destructive method of analyzing mineral compositions

- (A) X-Ray Diffraction
- (B) Electron Probe Micro Analysis
- (C) Inductively Coupled Mass Spectrometry
- (D) Thermal Ionization Mass Spectrometry

**Correct Option(s): B**

## English

32. Which of the following chemical reagents are used for heavy mineral separation?

- (A) Isopropyl alcohol
- (B) Chloroform
- (C) Bromoform
- (D) Methanol

**Correct Option(s): C**

## English

33. Which of the following instruments are used for dating rocks and minerals?

- (A) Thermal Ionization Mass Spectrometer (TIMS)
- (B) Transmission Electron Microscope (TEM)
- (C) X-Ray Diffractometer (XRD)
- (D) X-Ray Fluorescence Spectrometer (XRF)

**Correct Option(s): A**

## English

34. For hand specimen of galena and sphalerite, which of the following statements is correct?

- (A) Sphalerite is heavier and softer (in Moh's scale of hardness) than galena
- (B) Sphalerite is heavier and harder (in Moh's scale of hardness) than galena
- (C) Galena is heavier and softer (in Moh's scale of hardness) than sphalerite
- (D) Galena is heavier and harder (in Mohs' scale of hardness) than sphalerite

**Correct Option(s): C**

## English

35. Which of the following ore deposits essentially form from magmatic-hydrothermal fluids?

- (A) Porphyry Cu deposit (PCD)
- (B) Sedimentary exhalative deposit (SEDEX)
- (C) Volcanogenic massive sulphide deposit (VMS)
- (D) Banded Iron Formation (BIF)

**Correct Option(s): A**

## English

36. Sulphur solubility in silicate melts decreases with

- (A) increasing activity of FeO
- (B) increasing temperature
- (C) decreasing activity of FeO
- (D) decreasing activity of SiO<sub>2</sub>

**Correct Option(s): C**

## English

37. Hydrothermal deposits, which are formed at great depths, near the intrusive and within the temperature range of 300°C to 500°C are called

- (A) hypothermal deposit
- (B) mesothermal deposit
- (C) epithermal deposit
- (D) xenothermal deposit

**Correct Option(s): A**

## English

38. Quartz Pebble Conglomerate type uranium deposits are

- (A) restricted in Late Archaean and Early Proterozoic
- (B) present only in Late Proterozoic
- (C) present only in Phanerozoic
- (D) evenly distributed throughout geological time

**Correct Option(s): A**

## English

39. Sukinda in Odisha is well-known for deposit of

- (A) chromite
- (B) magnetite
- (C) cassiterite
- (D) chalcopyrite

**Correct Option(s): A**

## English

40. The first major mass extinction of species occurred during

- (A) Late Devonian
- (B) Ordovician-Silurian
- (C) Late Permian
- (D) Early Cambrian

**Correct Option(s): B**

## English

41. Fossils of burrows and footprints are known as:

- (A) pseudofossils
- (B) coprolites
- (C) body fossils
- (D) trace fossils

**Correct Option(s): D**

## English

42. Which vertebrate is known as jawless fish?

- (A) Synapsida
- (B) Agnatha
- (C) Lobe-finned fish
- (D) Acanthodian

**Correct Option(s): B**

## English

43. What is the maximum depth of occurrence of earthquake so far reported?

- (A) 100 km
- (B) 400 km
- (C) 700 km
- (D) 1000 km

**Correct Option(s): C**

## English

44. Which of the following sentences is correct related to geoid?

- (A) Along geoid both gravitational potential (U) and gravity (g) are constant
- (B) Along geoid gravitational potential (U) is constant but gravity (g) may vary
- (C) Along geoid gravity (g) is constant but gravitational potential (U) may vary
- (D) Along geoid both gravitational potential (U) and gravity (g) may vary

**Correct Option(s): B**

## English

45. Which geophysical survey can map the boundaries of the saline ground water table?

- (A) Gravity survey
- (B) Electrical survey
- (C) Reflection survey
- (D) Magnetic survey

**Correct Option(s): B**

## English

46.

In engineering geology, the term RQD refers to

- (A) Rock Quantity Designation
- (B) Rock Quality Designation
- (C) Rock Quality Deformation
- (D) Rock Quality Distribution

**Correct Option(s): B**

## English

47. R-R-R Triple junction is

- (A) always unstable
- (B) always stable
- (C) occasionally stable
- (D) partially unstable

**Correct Option(s): B**

## English

48. The Low velocity zone (LVZ) lies

- (A) beneath the crust
- (B) beneath the mantle
- (C) beneath the lithosphere
- (D) beneath the mesosphere

**Correct Option(s): C**

## English

49. The amplitude of seismic waves in an earthquake of magnitude 2 on the Richter scale is larger than that of an earthquake of magnitude 1 by

- (A) 100 times
- (B) 10 times
- (C) 2 times
- (D) 1000 times

**Correct Option(s): B**

## English

50. The oldest rocks in the present ocean floor have age in the range of

- (A) 4.0-4.6 billion years
- (B) 2.0-2.5 billion years
- (C) 185-200 million years
- (D) 60-65 million years

**Correct Option(s): C**