

Geology 15th December 2018 FN (9.30-11.30 AM)

1. The Red Sea, Gulf of Aden and African rifts are the examples of radial rift system. In this system:
 - (a) Red Sea and Gulf of Aden are active divergent boundary and African rift is inactive rift
 - (b) Red Sea and African rift are active divergent boundary and Gulf of Aden is inactive rift
 - (c) African rift and Gulf of Aden are active divergent boundary and Red Sea is inactive rift
 - (d) Red Sea, Gulf of Aden and African rift all three represents active rift system

2. In three different seismograph station distance of a quake is 500 km , 1200 km and 2000 km respectively. Location of the earthquake can be estimated by:
 - (a) An average of the time interval between P and S waves from 500 km , 1200 km and 2000 km
 - (b) Drawing circle from each station considering each distance as radius of circle. Intersection of the circles locates earthquake
 - (c) The time interval between arrival of the first P and S waves
 - (d) Drawing a line from each station towards the centre of the earth, intersection of lines locates earthquake

3. The process of mass wasting is controlled by shear force, normal force and shear strength, the land (debris) slide takes place when:
 - (a) Shear force is greater than shear strength
 - (b) Normal force is greater than shear force
 - (c) Shear strength is greater than shear force
 - (d) Normal force is greater than shear force and shear strength

4. If two streams flow downhill in an opposite directions on either side of a range, one stream may capture the other if it:
- (a) Erodes faster than other stream and cuts through most of the mountain by headward erosion
 - (b) Superimposes on the range of gently dipping plain
 - (c) Exists before the origin of other river
 - (d) Flows in peneplain after erosion
5. Natural caves are formed by the chemical weathering of limestone. The chemical equation which shows the development of cave is:
- (a) $H_2O + CO_2 + CaCO_3 \rightarrow Ca^{++} + 2 HCO_3^-$
 - (b) $CaCO_3 + H_2O \rightarrow CO_2 + Ca(OH)_2$
 - (c) $2HCO_3^- + Ca^{++} \rightarrow H_2O + CO_2 + CaCO_3$
 - (d) $2CaCO_3 + 2H_2O \rightarrow Ca(OH)_2 + HCO_3^- + Ca^{++}$
6. The glaciers formed due to coalescence of several mountain or valley glaciers at the foothill zone are called:
- (a) Cirque glaciers
 - (b) Continental glaciers
 - (c) Piedmont glaciers
 - (d) Niche glaciers

7. The correct sequence in descending order for the earthquake zone which follows closely the distribution of volcanoes is:
- (a) Mediterranean-Asian mountain system, Continental and oceanic trenches, Circum-Pacific zone
 - (b) Circum-Pacific zone, Continental and oceanic trenches, Mediterranean-Asian mountain system
 - (c) Mediterranean-Asian mountain system, Circum-Pacific zone, Continental and oceanic trenches
 - (d) Circum-Pacific zone, Mediterranean-Asian mountain system, Continental and oceanic trenches
8. Theory explaining the evolution of mountain chain or geotectonic cycle is:
- (a) Concept of peneplanation
 - (b) Sediments deposited in ocean trenches
 - (c) Concept of geosyncline and orogenic cycle
 - (d) Oceanic basin with renewal sedimentation
9. During middle Paleozoic to early Tertiary, the continent of Laurasia in the northern hemisphere was separated from the continent of Gondwana land in the southern hemisphere by Tethys, from which:
- (a) Appalachian mountain having a series of alternating ridgelines and valleys emerged
 - (b) Ural mountain runs approximately from north to south emerged
 - (c) Alps and Himalayan mountain chains emerged
 - (d) Atlas mountain range that emerged from a huge Geosynclines

10. Late-geosynclinal period follows immediately after orogenic stage and there are narrow troughs, back-deeps and intra-deeps which subside and receive sediments from young mountain ranges which are termed:
- (a) Fly ash in Alpine chains of the Mediterranean and non clastic wedges elsewhere
 - (b) Terrigenous sediments along mid-Atlantic ridge and rift valley
 - (c) Molasse in the Alpine chains of the Mediterranean region and clastic wedges elsewhere
 - (d) They are continental and oceanic deposits and turbidities muds
11. The youngest supercontinent which is formed between 450 and 320 *Ma* and including most of the existing continent is termed as:
- (a) Gondwana
 - (b) Laurentia
 - (c) Pangea
 - (d) Rodina
12. The property of some crystals displaying different colours when rotated in plane-polarized light under a microscope is known as:
- (a) Play of colours
 - (b) Opalescence
 - (c) Iridescence
 - (d) Pleochroism

13. Cast iron when broken, the surface is studded with sharp and a jagged elevation is called:
- (a) Conchoidal fracture
 - (b) Uneven fracture
 - (c) Hackly fracture
 - (d) Earthy fracture
14. In crystallography, the accurate measurement of interfacial angles is done by:
- (a) Stereoscope
 - (b) Refractometer
 - (c) Optical goniometer
 - (d) Optical prism
15. The relief of a mineral directly depends upon the difference between the Refractive Index (RI) of the mineral and RI of the enclosing cement of the thin section, which is always:
- (a) 1.540
 - (b) 1.730
 - (c) 1.820
 - (d) 1.910

16. The mineral serpentine is an example of:
- (a) Nesosilicates group
 - (b) Sorosilicates group
 - (c) Phyllosilicates group
 - (d) Tektosilicates group
17. Cellular deposits of calcium carbonates derived from water charged with calcareous matter in solution is called:
- (a) Satin spar
 - (b) Calc tufa
 - (c) Thinolite
 - (d) Aphrite
18. Magma that generates and segregates at greater depth has a greater possibility to be erupted on the surface because of:
- (a) The driving force of over head pressure
 - (b) Higher concentration of lighter element
 - (c) Presence of volatile content
 - (d) High pressure of rising gases
19. In a binary system, due to the crystallization of magmatic melt at eutectic point, the texture formed is:
- (a) Porphyritic texture
 - (b) Ophitic texture
 - (c) Intergranular texture
 - (d) Graphic texture

20. The magma of considerable viscosity injected into stratified rocks does not spread very far, but tends to heap itself up about the orifice of irruption, which resulted in the formation of:
- (a) Phacolith
 - (b) Laccolith
 - (c) Batholith
 - (d) Dykes
21. A rock composed entirely of crystals is called:
- (a) Holohyaline
 - (b) Holocrystalline
 - (c) Monocrystalline
 - (d) Cryptocrystalline
22. The process of transformation of glass to crystalline matter is known as:
- (a) Devitrification
 - (b) Recrystallization
 - (c) Verification
 - (d) Prettification
23. Which one of the following is the converse of porphyritic texture?
- (a) Panidiomorphic texture
 - (b) Hypidiomorphic texture
 - (c) Poikilitic texture
 - (d) Felsitic texture

24. The subaerial and submerged contiguous sediment mass deposited in the body of water, ocean or lake is termed:
- (a) Delta
 - (b) Lacustrine
 - (c) Alluvial fan
 - (d) Eolian
25. Froude number is used to express behavior of particles when the fluid is moving. It is essentially:
- (a) Measure of flow in open channel
 - (b) Ratio of the force of inertia and acceleration due to gravity
 - (c) Settling time of high density particles
 - (d) Ratio of high density particles and density of water
26. According to the Walther's law of facies (faciesbezirk):
- (a) A conformable vertical sequence of facies was generated by vertical sequence of environment
 - (b) A conformable lateral sequence of facies can correlated with vertical sequence of environment
 - (c) A non-conformable sequence of facies can correlated with small lateral continuity
 - (d) A conformable vertical sequence of facies was generated by a lateral sequence of environments

27. '*Smectite*' is a group of mineral with three-layer lattice structure, the unusual property of these minerals is:
- (a) Chemically very stable
 - (b) Ooze out water in contact with sun light
 - (c) Expanding and contracting to adsorb or lose water
 - (d) Break into cubical form during the process of natural disintegration
28. '*Gossan*' is a term that is used to describe:
- (a) The uppermost weathered layer of sulphide ores composed of residual silica and limonite
 - (b) Reprecipitated ores of copper and lead
 - (c) Roll front deposit of uranium
 - (d) Residual deposits of alumina
29. Rocks with consistent tectonic, metamorphic, magmatic and chronologic features are typical of Proterozoic terrains are referred as:
- (a) Precambrian shield
 - (b) Mobile belts
 - (c) Tectono metamorphic
 - (d) Archean belt

30. How a pyroclastic process involves explosive aerial ejection from a vent?
- (a) Explosions are caused by near surface trapped boiling magma, often groundwater heated by underlying magma body explodes
 - (b) Pyroclastic material called tephra cause explosion
 - (c) Explosive ejection is caused due to forceful injection
 - (d) Juvenile magnetic fragments cause explosion, and in turn caprocks are exploded
31. A large volcanic collapse depression, more or less circular in outline or cirque like in form called:
- (a) Calderas
 - (b) Fluidizing gas in a pyroclastic flow
 - (c) Phreatomagnetic eruptions
 - (d) Caldera collapse and foundation of crater
32. Extrusions of fluid basaltic flows from a central vent complex or from a fissure system can build a subdued volcano and are called:
- (a) Cinder cone
 - (b) Plateau basalt
 - (c) Spatter
 - (d) Shield volcano

33. The incorporation of matter from wall rocks into magma to form a hybrid igneous rock, the processes is called:
- (a) Fractional crystallization
 - (b) Magmatic segregation
 - (c) Assimilation
 - (d) Liquid immiscibility
34. The occurrence of similar mineral assemblage throughout rocks of a similar bulk chemical composition and exposed over a particular area of the metamorphic terrain is called:
- (a) Metamorphic facies
 - (b) Metamorphic zone
 - (c) Metamorphism
 - (d) Retrograde Metamorphism
35. The joints run in a direction that lies between the strike and dip direction of the bed is:
- (a) Strike joints
 - (b) Dip joints
 - (c) Oblique joints
 - (d) Bedding joints

36. The type of folding in which the competent or stronger beds are thrown into folds due to their sliding against each other under the influence of compression are:
- (a) Flowage folding
 - (b) Shear folding
 - (c) Flexural folding
 - (d) Conjugate folding
37. The San Andres Fault of California which is extending to several hundred kilometers is an example of:
- (a) Strike-slip fault
 - (b) Thrust fault
 - (c) Over thrust fault
 - (d) Peripheral fault
38. The most destructive, fearful and rare type of volcanic eruption is:
- (a) Volcanian
 - (b) Strombolian
 - (c) Hawaiian
 - (d) Pelean

39. When the axis plunges directly down the dip of the axial plane; the fold is known as:
- (a) Plunging fold
 - (b) Reclined fold
 - (c) Flexure fold
 - (d) Periclinal fold
40. If the surface of erosion is deposited by younger sediments and residual soil but a sharp contact may be lacking, then it is:
- (a) Blended unconformity
 - (b) Disconformity
 - (c) Local unconformity
 - (d) Angular unconformity
41. How fragmentation and drifting of Gondwanaland left the imprints on the earth surface?
- (a) Formation of rift valleys of East Africa and the connected Red Sea rift, also in the outpouring of the enormous lava flows in India
 - (b) There were no changes in the Fauna and Flora
 - (c) The great reptiles amongst the land animals and the ammonites amongst the marine one appeared
 - (d) There was no outburst of orogenic movements

42. Large-scale volcanic activity which gives rise to the huge Deccan Trap rocks in India is attributed to:
- (a) Continent – continent collision between Indian and Eurasian plate
 - (b) Subduction of continent plate into mantle
 - (c) Rifting along Narmada and Godavari basin
 - (d) Movement and migration of Indian plate over hot spot in mantle region
43. The corresponding time unit for:
‘Erathem → System → Series → Stage’ is:
- (a) Era → Period → Epoch → Age
 - (b) Era → Age → Period → Epoch
 - (c) Period → Epoch → Age → Era
 - (d) Era → Epoch → Period → Age
44. Which part of the Gondwana rocks are considered as storehouse of coal for India?
- (a) The upper Gondwana Rajmahal series
 - (b) Panchet series of upper Gondwana
 - (c) The lower Gondwanas
 - (d) Gondwana rocks in Auranga and Hutar coal fields

45. Bathyal zone corresponds to the continental slope of the Ocean bottoms. This zone is characterized by:
- (a) High and low tide
 - (b) Complete darkness
 - (c) Plentiful supply of oxygen and sunrays
 - (d) Complete absence of current activity and weak sunlight
46. The maximum coal deposit of India is in Gondwana group of rocks. The formations which are rich in coal measures are:
- (a) Talchir and Lathi formation
 - (b) Panchet and Parihar formation
 - (c) Barakar and Raniganj formation
 - (d) Umia and Kalral formation
47. Which of the following are the distinct body parts of a trilobite?
- (a) Head, Thorax and Telson
 - (b) Head, Thorax and Pygidium
 - (c) Head, Telson and Pygidium
 - (d) Telson, Thorax and Pygidium
48. The anticlockwise coiling pattern in Foraminifera leads to:
- (a) Dextral form
 - (b) Sinistral form
 - (c) Suture form
 - (d) Costate form

49. The Periproct of Echinoderms is encircled by a ring of plates known as oculars and genitals, of which:
- (a) Both the ocular and genital are hexagonal shape
 - (b) Both the ocular and genital are triangular shape
 - (c) The ocular are hexagonal and genital are triangular or pentangular shape
 - (d) The ocular are triangular or pentangular and genital are hexagonal shape
50. When mouth and anus are centrally placed at the opposite poles of the test (i.e. oral-aboral pole), then the forms in Echinoids are known as:
- (a) Irregular Echinoids
 - (b) Peristome Echinoids
 - (c) Regular Echinoids
 - (d) Periproct Echinoids
51. Which of the following statements regarding cephalopods are correct?
- 1. The tabular shell may be spirally coiled, curved or straight
 - 2. In spirally coiled forms, all the whorls lie on one plane
 - 3. The earlier or inner whorls are not covered by the latter or outer whorls
 - 4. In a few forms, the shell is coiled in the form of a helicoid spiral
- (a) 1, 2 and 3 only
 - (b) 1, 3 and 4 only
 - (c) 1, 2 and 4 only
 - (d) 2, 3 and 4 only

52. Remote sensing is the process of:
- (a) Acquiring knowledge of an object physically
 - (b) Acquiring information about any object without physically contacting
 - (c) Conducting survey for a particular region manually
 - (d) Acquiring knowledge of an object through aerial photographs
53. Ozone is mainly confined in atmosphere at:
- (a) Tropospheric height
 - (b) Stratospheric height
 - (c) Ionospheric height
 - (d) Magnetospheric height
54. Which one of the following type of sensors is useful in scientific and socioeconomic activities?
- (a) Air craft
 - (b) Space borne
 - (c) Land mounted
 - (d) Marine craft
55. Which one of the following form is a remote sensing data product?
- (a) Statistical data form
 - (b) Verbal and voice data form
 - (c) Photographic products and digital form as computer compatible tape
 - (d) Statistical and mathematical equations with data

56. The three heads of pre-processing in the correction of deficiencies and removal of flaws present in the remotely sensed raw data are:
- (a) Longitudinal, Arithmetical and Geodetic
 - (b) Mathematical, Statistical and Graphical
 - (c) Sensor, Photographic and Cropping
 - (d) Geometric, Radiometric and Atmospheric
57. The principal aim of the *IRS* mission is to use the satellite data for:
- (a) Management of transport services in particular area
 - (b) Conjunction with supplementary / complementary information from other sources for survey and management of natural resources in important areas
 - (c) Measurement and analysis of population of important areas
 - (d) Town planning agencies for internal services
58. The outer rigid layer of the Earth that is produced at mid-oceanic ridges is called:
- (a) Lithosphere
 - (b) Asthenosphere
 - (c) Mantle
 - (d) Transition zone

59. 'Changes in temperature, pressure and chemical-potential must be related to maintain equilibrium for a system whether it consists of single phase or multiple phases' is known as:
- (a) *Gibbs-Dühem* Equation
 - (b) *Gibb's* Rule
 - (c) *Henry's* Law
 - (d) *Debye-Hückel* limiting Law
60. Silicates in which the cation-to-O ratio become 2:7 in isolated double silicon-oxygen tetrahedral groups is called:
- (a) Sorosilicates
 - (b) Phyllosilicates
 - (c) Tektosilicates
 - (d) Nesosilicates
61. Mid-oceanic ridge basalt as a later partial melt from the depleted mantle has somewhat depleted:
- (a) *LREEs*
 - (b) *HREEs*
 - (c) *REEs*
 - (d) *IREEs*

62. The volume as a function of pressure and temperature of a substance in a thermodynamic model is known as:
- (a) Equation of state (*EOS*)
 - (b) Gas Equation
 - (c) Enthalpy
 - (d) Gibbs Free Energy
63. If irregularly shaped ore minerals are peppered throughout the body of the host rock, then they are called as:
- (a) Tubular ore bodies
 - (b) Irregular replacement deposits
 - (c) Concordant ore deposits
 - (d) Disseminated deposits
64. Induced polarization (*IP*) method of exploration is very effective for:
- (a) Oxide ores
 - (b) Sulphide ores
 - (c) Oil and Gas ores
 - (d) Radioactive minerals
65. If the metallic ions are leached at the surface and moved in solution leading to enrichment and deposition is known as:
- (a) Supergene enrichment
 - (b) Epithermal enrichment
 - (c) Hypothermal enrichment
 - (d) Flocculation process

66. In a channel sampling method, samples are cut:
- (a) Along the strike of mineralization
 - (b) Across the strike of mineralization
 - (c) In selective parts of mineralization
 - (d) Randomly along the strike of mineralization
67. Which one of the following prospecting methods will be adopted to recover the deposits in covered area?
- (a) In covered areas geological maps may not be of any help for prospecting of mineral deposits
 - (b) Geochemical prospecting provides the most reliable results in folded, slightly dissected areas covered with glacial, Lacustrine or Eolian sediments
 - (c) In covered areas reliable results are obtained by combining geophysical measurements with drilling, but not by geological methods
 - (d) In covered fold mountain areas geological prospecting method can be used to delineate ore deposits successfully
68. Certain solution forming rocks like limestone gives rise to which type of deposit?
- (a) Breccia filling deposits
 - (b) Solution cavity filling
 - (c) Pore space filling
 - (d) Vesicular filling

69. Gold is found in nature in native state as irregular masses and crystallizes in which of the following system?
- (a) Isometric
 - (b) Tetragonal
 - (c) Orthorhombic
 - (d) Hexagonal
70. Which one of the following manganese mineral exhibits white streak?
- (a) Pyrolusite (MnO_2)
 - (b) Rhodonite ($MnSiO_3$)
 - (c) Hausmanite ($MnO \cdot OH$)
 - (d) Psilomelane (*hydrated oxides of Mn*)
71. Kermesite is the oxysulphide of:
- (a) Nickel mineral
 - (b) Arsenic mineral
 - (c) Antimony mineral
 - (d) Bismuth mineral
72. Dacite is a:
- (a) Calc-alkaline plutonic rock
 - (b) Calc-alkaline volcanic rock
 - (c) Oceanic-alkaline rock
 - (d) Oceanic-tholeiitic basaltic rock

73. Bornite is sulphide ore of:
- (a) Silver
 - (b) Copper
 - (c) Barium
 - (d) Strontium
74. A reservoir of *30 million cubic meters* capacity is having provision of *6 million cubic meters* dead storage. The average volume of sediment deposited is *0.15 million cubic meters* per year. The estimated time at which the reservoir will be completely filled by the sediment is:
- (a) *400 years*
 - (b) *300 years*
 - (c) *200 years*
 - (d) *100 years*
75. Grouting may be described as:
- (a) Injection of suitable material into the rocks to seal the openings
 - (b) A process of determining the coefficient of water saturation of a material
 - (c) A process of lining of tunnels to support the pressure exerted by the material in which the tunnel is excavated
 - (d) It is the process of rock bolting to prevent rock fall

76. The rock which is mainly used for roofing and paving in buildings is:
- (a) Basalts
 - (b) Granites
 - (c) Limestone
 - (d) Slate
77. The method in which the electrical energy produced by the ore body is directly measured and no outside energizing force is required is:
- (a) Equipotential method
 - (b) Gravity method
 - (c) Self potential method
 - (d) Magnetic method
78. The electrical resistivity method in which the spacing between the electrodes are kept equal is:
- (a) Schlumberger method
 - (b) Wenner method
 - (c) Equipotential method
 - (d) Gravity method
79. The horizontal openings which are dug in mountainous terrain to explore ore bodies are called:
- (a) Pits
 - (b) Trenches
 - (c) Adits
 - (d) Channels

80. The water removed from unit volume of aquifer by pumping or drainage and is expressed as percentage volume of aquifer is:
- (a) Porosity
 - (b) Permeability
 - (c) Specific yield
 - (d) Specific retention
81. The major natural source of *Fluoride (F)* in water is:
- (a) Amphiboles
 - (b) Gypsum
 - (c) Limestone
 - (d) Dolomite
82. Defluoridation of waters can be made by using:
- (a) Aluminium phosphate
 - (b) Aluminium chloride
 - (c) Sodium chloride
 - (d) Sodium nitrate
83. Piper's trilinear diagram comprises of two lower triangular fields and a central diamond-shaped field. All the three fields have scales reading in:
- (a) 200 *parts*
 - (b) 150 *parts*
 - (c) 100 *parts*
 - (d) 50 *parts*

84. The commonly used dye to trace the groundwater pollution is:
- (a) Rhodamine
 - (b) Serrtia Marcescens
 - (c) Fluouresine
 - (d) Chlorine
85. Methemoglobinemia is caused due to excess of:
- (a) Fluoride
 - (b) Nitrate
 - (c) Chloride
 - (d) Sulphate
86. Which of the following guidelines are correct to minimize the risk of collapse of a building during an expected shock?
1. Foundations for concrete and masonry buildings should be excavated to the same level throughout the building
 2. Parapets, cantilevers, arches and domes should be avoided as for as possible
 3. Continuity of cross walls should be maintained as for as possible
- (a) 1 and 2 only
 - (b) 1, 2 and 3
 - (c) 1 and 3 only
 - (d) 2 and 3 only

87. A seismic surface wave causing the ground to shake in an elliptical motion with no transverse or perpendicular motion is called:
- (a) P-wave
 - (b) Rayleigh wave
 - (c) S-wave
 - (d) SH-wave
88. Which of the following statements are correct regarding Love waves?
- 1. When the angle of reflection at the base of the soil layer is more than the critical angle, SH waves are trapped in the soil layer
 - 2. The particle motion is in horizontal plane transverse to the direction of the wave propagation
 - 3. Love waves are not dispersive in nature
- (a) 1, 2 and 3
 - (b) 1 and 2 only
 - (c) 1 and 3 only
 - (d) 2 and 3 only
89. Which volcanic eruption was the terrestrial source of great tsunami?
- (a) Cascadia Subduction zone
 - (b) Krakatoa volcano between Java and Sumatra
 - (c) Volcano of Okushiri Island and Hokkaido
 - (d) Eruption of Mount Saint Helens

90. Which of the following statements are correct?
1. In strike-slip faulting, the directivity pulse occurs on the strike-normal component and fling step occurs on the strike-parallel component
 2. In dip-slip faulting the fling step and directivity pulse occur on the strike-normal component
 3. In dip-slip faulting the fling step and directivity pulse occur on the strike-parallel component
- (a) 1, 2 and 3
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1 and 2 only
91. The midoceanic ridges are:
- (a) Elongated hill that is no higher than 1,000 meters
(b) Reminent of extinct volcano in the mid of the ocean
(c) Colossal mountain range which occupies almost one-third of the ocean floor
(d) Large mountain range that run parallel to the ocean basin
92. Sound is directed sideways as well as downward such that echoes reveal the bathymetry to either side of a surveying ship and water depth. This technique is known as sidescanning and the equipment used is:
- (a) Echo sounder
(b) Reflectometer
(c) Echo sonar
(d) Sidescan sonar

93. Seismicity and volcanism are not randomly distributed over the earth's surface; rather, they are confined to the edges of the plates. There are three fundamental types of plate boundaries. Which one of the following is *not* correct?
- (a) Midoceanic ridges are boundaries where two plates under tension move apart from one another
 - (b) Compression is dominant at the boundaries of midoceanic ridges
 - (c) Subduction zones are plate boundaries where compression is dominant
 - (d) Ocean floor is neither created nor destroyed at the boundaries of Transform faults
94. Marine sediment is classified based on the size of the particles and origin of sediment. The two most important factors that determine the nature of a sediment deposit are:
- (a) Particle-size distribution and energy conditions at the site of deposition
 - (b) Particle-shape and gradient on the ocean floor
 - (c) Particle density and nature of ocean currents
 - (d) Origin of sediment and geological agent involved in transportation of sediment

95. Salinity determinations from the world's oceans have revealed an important, unexpected finding regarding the relationship between salinity and the relative proportions of the major chemical constituents. Which one of the following statement is correct?
- (a) As salinity varies, the relative proportions of the major chemical constituents also vary
 - (b) As salinity increases, the relative proportions of the major chemical constituents decreases
 - (c) Salinity and relative proportions of the major chemical constituents vary from ocean to ocean
 - (d) Although salinity varies quite a bit because of difference in the total amount of dissolved salts, the relative proportions of the major chemical constituents are constant
96. The key activities associated with Geographical Information System are:
- (a) Consumption, Analysis and Production
 - (b) Power generation, Consumption and Transportation
 - (c) Measurement, Mapping, Monitoring and Modelling
 - (d) Data capturing, Analysis and Production
97. Which one of the following are the functional elements of Geographical Information System?
- (a) Database, process-oriented, application oriented and tool box approach
 - (b) Land oriented, surveying, digitization and storing approach
 - (c) Computer hardware, conceptual modelling and cartography
 - (d) Physiographic, geological, software and scanner approach

98. Which of the following required by a variety of user types possessing a range of skills and experiences as well as variable needs in terms of frequency and flexibility of access?
- (a) Data capturing
 - (b) Data analysis
 - (c) Data base administration
 - (d) Data manipulation
99. Which one of the following are the data quality components?
- (a) Location, weather conditions mapping and tool conditions
 - (b) Accuracy, precision, resolution, consistency and completeness
 - (c) Coverage, accuracy, location and human efforts
 - (d) Qualities of hardware, technique, modelling and databank
100. Budget cost, type of application, timeliness required in data production, level of understanding, training of staff and the appropriateness, accessibility and availability of the input data decides the application of:
- (a) Temporal and spatial coverage
 - (b) Employment of human efforts
 - (c) Employment of hardware and software
 - (d) Data, tables, digitations and cartography