



**SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR**  
Siddharth Nagar, Narayanavanam Road – 517583

**QUESTION BANK (DESCRIPTIVE)**

**Subject with Code :** ENGINEERING GEOLOGY(16CE121)      **Course & Branch:** B.Tech - CE  
**Year & Sem:** III-B.Tech & I-Sem      **Regulation:** R16

**UNIT –I**

**INTRODUCTION**

- |   |     |
|---|-----|
| 1. Define geology and explain different branches of geology?  | 10M |
| 2. Explain the scope and importance of geology in civil engineering works?  |     |
| 3. Explain the brief study of case histories of failure of some civil engineering constructions due to some geological drawbacks? | 10M |
| 4. What is weathering? Enumerate the various mechanisms of rock weathering. Describe chemical Weathering in detail?               | 10M |
| 5. Distinguish between weathering and erosion. Describe the various process of weathering?  | 10M |
| 6. Write in detail about the structure of the earth and composition with a neat diagram.  | 10M |
| 7. Explain the process associated with river. Write their engineering significance.   | 10M |
| 8. Write a brief account of the geological work done by the glaciers.   | 10M |
| 9. Explain the process associated with winds. Write their engineering significance.   | 10M |
| 10. What are the volcanoes? Enumerate and describe the different phases of volcanicity and with neat sketches.                    | 10M |

Prepared by: **Dr. S.SIDDIRAJU**


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**Year & Sem: III-B.Tech & I-Sem**
**Regulation: R16**

- 1) The thickness of core is about..... [     ]  
 A) 3480Km            B) 2870Km            C) 3550Km            D) 3780Km
- 2) Sea level is raising mainly as a result of an increase in melting of glaciers. The raise of water in sea is approximately.....per century. [     ]  
 A) 3.2feet            B) 5.4feet            C) 2.5feet            D) 1.5feet
- 3) On the surface of the earth, largest ocean is ..... [     ]  
 A) Atlantic            B) pacific            C) Indian            D) Arctic
- 4) Thickness of upper mantle is ..... [     ]  
 A) 370km            B) 350km            C) 390km            D) 970km
- 5) Geology is derived from ..... Word [     ]  
 A) Latin            B) Greek            C) French            D) Korea
- 6) Which of the following agents causes maximum erosion in nature [     ]  
 A) Wind            B) Glacier            C) Stream            D) Gravity
- 7) The depth of which we get witchert Gutenberg discontinuity is ..... [     ]  
 A) 4500km            B) 6371km            C) 2898km            D) 5150km
- 8) One of the following substance response granite to weathering ..... [     ]  
 A) Quartz            B) Mica            C) Clay            D) Iron
- 9) Mechanical wear by rivers, wind etc. are called [     ]  
 A) Degradation            B) Saltation            C) Salifluction            D) Corrosion
- 10) The weathering called exfoliation occurs due to the process of [     ]  
 A) Running water            B) Glaciers            C) Fluctuation in temperature            D) None
- 11) The degradation or erosion by a following river does not depend much upon [     ]  
 A) Volume of water            B) Velocity of water            C) Width of river bed            D) Depth of river bed
- 12) The age of the earth is ..... [     ]  
 A) 4.6 billion years            B) 4.5 billion years            C) 3.8 billion years            D) 4.7 billion years
- 13) Geology is therefore the science of earth” is the prepare sense of word is first used in [     ]  
 A) 1772            B) 1774            C) 1776            D) 1778
- 14) ..... Division tunnel in Himalayas is a failure due to geological reasons [     ]  
 A) Rāmgangā            B) Bassein Greek            C) Umian barapani            D) None
- 15) The combined effect of weathering and erosion is called ..... [     ]  
 A) Exfoliation            B) Disintegration            C) Denudation            D) Spheroidal weathering
- 16) The process of removal of weathered material from the place of its formation is called..... [     ]  
 A) Transportation            B) Denudation            C) Weathering            D) Erosion
- 17) The weathering due to fluctuation in temperature is termed as ..... [     ]  
 A) Exfoliation            B) Thermal weathering            C) Disintegration            D) Frost heaving
- 18) In case of wind erosion, the base level is ..... [     ]  
 A) Mean sea level            B) Water table            C) sea level            D) Perched water table

- 19) Soil is composed of \_\_\_\_\_ [     ]  
 A) Organic matter produced by organisms    B) Fragments of bedrock  
 C) Clay minerals formed by the chemical alteration of bedrock    D) All of these
- 20) Density inside the earth is maximum in [     ]  
 A) Crust                      B) Oceanic ridge                      C) Mantle                      D) Core
- 21) The attitude line between troposphere and hemi sphere is ..... [     ]  
 A) 20km    B) 30km    C) 40km    D) 50km
- 22) Atmosphere has maximum concentration of following gases [     ]  
 A) Co<sub>2</sub>    B) oxygen    C) Nitrogen    D) argon
- 23) The physical and chemical weathering of granite will produce [     ]  
 A) Ions dissolved in rainwater and soil water    B) Mineral fragments and granite fragments  
 C) Clays and iron oxides                      D) All of these
- 24) Rocks that are brought to the surface from deep down are said to undergo [     ]  
 A) Exhilaration    B) Exhumation    C) Extension    D) Existentialism
- 25) Which of the following forms of weathering does NOT involve a mechanical weathering process? [     ]  
 A) Oxidation    B) Frost wedging    C) Thermal effects    D) Unloading
- 26) Which of the following processes is a chemical weathering phenomenon? [     ]  
 A) Frost wedging    B) Hydrolysis    C) Biological activity    D) Spalling
- 27)Hydrolysis reactions are when H<sup>+</sup> cations in water replace mineral cations like K<sup>+</sup>, Na<sup>+</sup> and Mg<sup>2+</sup> in the mineral crystal lattice, forming a new mineral. This is how feldspars commonly break down to form: [     ]  
 A) Soil                      B) Quartz                      C) Olivine                      D) Clay
- 28)What mineral commonly breaks down into clay when it is chemically weathered?  
 A) Feldspar                      B) Muscovite                      C) Quartz                      D) Olivine [     ]
- 29)The distance water travels in a unit time is [     ]  
 A) Speed                      B) Unit speed                      C) Velocity                      D) Acceleration
- 30) What is the term defining the capacity of a river to transport the material? [     ]  
 A) Gradient                      B) Competence                      C) Flow type                      D) Fluvial
- 31) The term which is a function of cross-sectional area of the channel and flow velocity is  
 A) Gradient                      B) Competence                      C) Stream line                      D) Discharge [     ]
- 32) The mechanical loosening and removal of the material from the rocks due to pressure exerted by the running water is called [     ]  
 A) Gradient                      B) Weathering                      C) Hydraulic action    D) Cavitation
- 33) What is the principal method of stream erosion and involves wearing away of the bedrocks?  
 A) Hydraulic action    B) Abrasion                      C) Attrition                      D) Corrosion [     ]
- 34) The term for wear and tear of the load sediments being transported by a moving natural agency through the process of mutual impacts is [     ]  
 A) Hydraulic action                      B) Abrasion                      C) Attrition                      D) Corrosion

- 35) The variously shaped depressions of different dimensions that are developed in the riverbed are called [     ]  
A) Potholes            B) Cavities            C) Dents            D) Craters
- 36) Hotspot volcanoes can be found on the islands like [     ]  
A) Malaysian            B) Hawaiian            C) Indonesian            D) None
- 37) The erupted material of volcano consists of [     ]  
A) Lava texture            B) Lava composition    C) Both A and B            D) None of these
- 38) Smaller glacial valleys which are joined with main deeper valley are the [     ]  
A) u-shaped valley    B) Hanging valley    C) Deep Valley            D) Glacier valley
- 39) Stratigraphy deals with the past history of [     ]  
A) Mars            B) Moon            C) Sun            D) Earth
- 40) Engineering Geology deals with the application of geological knowledge in the field of [     ]  
A) Chemical engg    B) Civil engg            C) Mechanical engg    D) Biotechnology

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**UNIT –II**

**MINERALOGY**

1. Give a detailed account on chemical composition, physical properties, origin, occurrence, engineering behavior and uses of clay minerals. 10M
2. a) Explain why the study of minerals by physical properties in advantage. 10M  
b) Write the physical properties of (i) Garnet. (ii) Hematite.
3. Explain the important physical properties of minerals that are commonly studied for their identification? 10M
4. What are secondary minerals? How are formed? Add a note on their significance in rocks? 10M
5. Describe the following minerals. Mention their chemical composition and add a note on how they are identified in rocks. 10M  
a) Quartz.            b)Orthoclase Feldspar.            c) Garnet.            d) Biotite mica.
6. a) Name atleast four clay minerals and their important engineering properties. 10M  
b) Define Hardness, Fracture and Specific gravity
7. Write short notes on the following 10M  
a) Moh's scale of hardness  
b) Polymorphism  
c) Isomorphism
8. What is a mineral? Describe in detail the physical properties of minerals. Add note on the feldspar group of minerals. 10M
9. What is a rock forming mineral? Discuss process of formation of minerals in nature. 10M
10. Write note on different physical properties of minerals and state how these are useful in the accurate identification of the mineral species. 10M

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- 1) Colour of pegmatite is ..... [    ]  
 A) White with grey    B) Black with grey    C) Yellow with grey    D) Cream with grey
- 2) Which mineral has a green streak [    ]  
 A) Zincite                  B) Malachite                  C) Serpentine                  D) Plasma
- 3) Which state in India is the largest producer of manganese ores? [    ]  
 A) Jharkhand                  B) Madhya Pradesh    C) Maharashtra                  D) Odisha
- 4) What are the Khetri mines famous for? [    ]  
 A) Coal                  B) Copper                  C) Iron                  D) Gold
- 5) The silica oxygen ratio for the mica is [    ]  
 A) 1:3                  B) 1:2                  C) 2:5                  D) 2:3
- 6) Hardness of corundum [    ]  
 A) 6                  B) 10                  C) 2                  D) 9
- 7) What is a mineral wool? [    ]  
 A) Scapolite                  B) Andalusite                  C) Asbestos                  D) kyanite
- 8) Which of the following is most likely mineral to split into thin sheets? [    ]  
 A) Mica                  B) Halite                  C) Orthoclase                  D) Quartz
- 9) Which of the mineral has the lowest hardness? [    ]  
 A) Fluorite                  B) Quartz                  C) Topaz                  D) Gypsum
- 10) Which of the following is the diagnostic physical property of calcite? [    ]  
 A) Colour                  B) Hardness                  C) Lustre                  D) Specific gravity
- 11) Cat's eye is a gem variety of [    ]  
 A) Garnet                  B) Beryl                  C) Chrysoberyl                  D) Epidote
- 12) The cleavage in diamond is [    ]  
 A) Highly perfect                  B) Imperfect    C) Not perfect                  D) Of two sets
- 13) Melting point of quartz is about [    ]  
 A) 1470 °c                  B) 1728 °c                  C) 870 °c                  D) 167 °c
- 14) Structure of olivine consists of layers, which are parallel to [    ]  
 A) (100)                  B) (001)                  C) (010)                  D) (111)
- 15) Finger nail has hardness [    ]  
 A) Equal to talc                  B) In between talc and gypsum  
 C) In between selenite & calcite                  D) Equal to fluorite
- 16) Which of the following minerals is most stable at the Earth's surface? [    ]  
 A) Hematite                  B) Mica                  C) Olivine                  D) Feldspar
- 17) Plagioclase feldspar are [    ]  
 A) Isomorphous                  B) Polymorphous                  C) Pseudomorphous                  D) Polytypus
- 18) The last mineral (assuming that the composition is appropriate) to crystallize from a magma is: [    ]  
 A) Plagioclase                  B) Olivine                  C) Quartz                  D) Pyroxene texture of sand stone

- 19) During crystallization of a melt plagioclase become richer in \_\_\_\_\_ [    ]  
A) Potassium      B) Sodium      C) Calcium      D) Krypton
- 20) In the Celsius temperature scale, water freezes at \_\_\_\_\_ °C [    ]  
A) 100      B) 32      C) 1.8      D) 0
- 21) Sodium chloride is a compound that we usually refer to as [    ]  
A) Diamond      B) Table salt      C) Sugar      D) Mica
- 22) The type of chemical bonding that forms the strongest bonds (e.g. in diamond) is: [    ]  
A) Ionic      B) Vander waals      C) Hydrogen      D) Covalent
- 23) Hardness of the Quartz mineral is [    ]  
A) 3      B) 7      C) 5      D) 4
- 24) Which of the following is NOT an example of a mineral that forms in covalently bonded sheets held together by weak van der Waal's electrostatic bonds? [    ]  
A) Salt      B) Clay      C) Graphite      D) Muscovite mica
- 25) Which of the following fit the definition of a mineral? [    ]  
A) Naturally occurring      B) Solid  
C) They have a highly ordered atomic arrangement      D) All of the above
- 26) If all minerals must be inorganically formed crystalline solids, which of the following substances cannot possibly be a mineral? [    ]  
A) Salt      B) Chalk      C) Quartz      D) Diamond
- 27) If all minerals MUST be inorganically formed crystalline solids, which of the following substances cannot possibly be a mineral? [    ]  
A) Table salt      B) Ice      C) Mica      D) Coal
- 28) The two most abundant elements, comprising about 84% of all the atoms in the Earth's crust, are: [    ]  
A) Silicon and aluminum      B) Hydrogen and helium      C) Oxygen and silicon      D) Iron and Oxygen
- 29) Which of the following solids would be considered amorphous? [    ]  
A) Diamond      B) Glass      C) Quartz      D) Salt
- 30) Cleavage and fracture are two physical properties of minerals that deal with: [    ]  
A) How minerals break      B) The hardness of minerals  
C) The streak of a mineral      D) None of the above

31) Which of the following physical characteristics of minerals refers to planes of weakness inside the crystal structure along which a crystal can break? [      ]

- A) Color                      B) Luster                      C) Crystal shape                      D) Cleavage

32) The hardest known mineral is: [      ]

- A) Quartz                      B) Calcite                      C) Diamond                      D) Gypsum

33) The softest mineral on the Mohs Hardness Scale is: [      ]

- A) Quartz                      B) Calcite                      C) Gypsum                      D) Talc

34) The mineral that dissolves and effervesces when dilute hydrochloric acid is dripped on it is: [      ]

- A) Talc                      B) Calcite                      C) Halite                      D) Dolomite

35) Which of the following can be rearranged to spell the name of a mineral which dissolves readily in diluted hydrochloric acid? [      ]

- A) Lite Wood                      B) Feldspar                      C) Ice talc                      D) Olivine

36) Minerals that contain a chemical combination of silicon and oxygen are called: [      ]

- A) Silicates                      B) Non-silicates                      C) Carbonates                      D) Sulphides

37) The type of feldspar that contains either Ca or Na is called: [      ]

- A) Feldspar                      B) Plagioclase                      C) Calcite                      D) Olivine

38) Which of the following silicate minerals has an atomic arrangement in the form of sheets?

- A) Plagioclase                      B) Olivine                      C) Quartz                      D) Mica [      ]

39) Ferromagnesium silicate minerals are usually dark-colored because they contain: [      ]

- A) Si and Al                      B) Si and O                      C) Fe and Mg                      D) Ca and Na

40) Two polymorphs of carbon are: [      ]

- A) Graphite and lead                      B) Graphite and pyrite  
C) Diamond and quartz                      D) Diamond and graphite

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**UNIT –III**

**PETROLOGY**

- |   |     |
|---|-----|
| 1. Define term “rock” Describe the classification of rocks & their characteristics?   | 10M |
| 2. Describe the following rocks?<br>a) Granite b) Pegmatite c) Sand stone d) Marble   | 10M |
| 3. a) What is metamorphism? Discuss the various agents of metamorphism?<br>b) Why heat is considered the most important agent of metamorphism?    | 10M |
| 4. Explain the classification of sedimentary rocks giving suitable example?   | 10M |
| 5. What are extrusive and intrusive igneous rocks? Describe their salient features?   | 10M |
| 6. a) Foremation of sedimentary rocks<br>b) Write about the occurrence of granite?  | 10M |
| 7. Explain the structures and textures of sedimentary rocks?  | 10M |
| 8. Describe the columnar, flow and sheet structures of igneous rocks.   | 10M |
| 9. Write detailed note on<br>a) Rock cycle<br>b) Magma  | 10M |
| 10. In what way the granite, limestone and marble are used on the basis of their civil engineering applications? Add their mechanical properties. | 10M |

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- 1) Petrology is a study of [      ]  
 A) Rock                      B) minerals                      C) Petrol                      D) soil
- 2) A coarse grained plutonic igneous rock composed predominantly of Quartz, Microcline & Biotite is  
 A) Gabbro                      B) Syenite                      C) Anorthosite                      D) Granite [      ]
- 3) What is the name of the rock consisting essentially of olivine and Anorthosite [      ]  
 A) Eucrite                      B) Troctolite                      C) Allivalites                      D) Picrite
- 4) Rocks are broadly classified into how many groups [      ]  
 A) 2                      B) 3                      C) 4                      D) 5
- 5) \_\_\_\_\_ rocks are formed by cooling and magnification of magma [      ]  
 A) Igneous rocks                      B) Metamorphic rocks                      C) Sedimentary rocks                      D) None of these
- 6) The pressure and heat that drive metamorphism result from which three forces? [      ]  
 A) The weight of the overlying rocks, solar heating, and nuclear fusion  
 B) The internal heat of the Earth, the weight of overlying rocks, and horizontal pressures developed as rocks become deformed  
 C) Horizontal pressures developed as rocks deform, bonding, heat released during crystallization  
 D) Internal heat of the Earth, nuclear fission, heat released during chemical weathering
- 7) Granite is derived from \_\_\_\_\_ word [      ]  
 A) Latin                      B) Greek                      C) French                      D) Korea
- 8) Rock defined as [      ]  
 A) Aggregation of lava                      B) Aggregation of rocks  
 C) Aggregation of minerals                      D) Aggregation of magma
- 9) The texture of the granite [      ]  
 A) Course-medium grained B) Halo crystalline texture C) Ophitic texture D) Porphyrite texture
- 10) \_\_\_\_\_ % of earth crust is composed of igneous rocks [      ]  
 A) 90%                      B) 80%                      C) 70%                      D) 75%
- 11) Rocks having particles of gravel size is known as \_\_\_\_\_ [      ]  
 A) Arenaceous                      B) Rudaceous                      C) Argillaceous                      D) Calcareous
- 12) Which type of pressure will result in the alignment of metamorphic minerals? [      ]  
 A) Contact pressure                      B) Directed pressure                      C) Confining pressure D) Chemical pressure
- 13) What is the most prominent textural feature of regional metamorphic rocks? [      ]  
 A) Foliation                      B) Bedding                      C) Cataclasis                      D) Ripples
- 14) The temperature (at least a minimum estimate) from which the melt cooled is reflected by the \_\_\_\_\_ of the rock. [      ]  
 A) Colour                      B) Texture                      C) Mineralogy                      D) Density
- 15) Organic sedimentary rock is [      ]  
 A) Lime stone                      B) Mud stone                      C) Sand stone                      D) Shale

- 16) The sedimentary rock without stratification is [ ]  
A) Sand stone      B) Lime stone      C) Shale      D) Tallit
- 17) The purest form of limestone is [ ]  
A) Dolomite      B) Shale      C) Chalk      D) Sand stone
- 18) Which of the following is a concordant intrusive rock? [ ]  
A) Dike      B) Sill      C) Stock      D) Batholith
- 19) Which of the following igneous rocks crystallizes near the Earth's surface? [ ]  
A) Basalt      B) Gabbro      C) Diorite      D) Granite
- 20) Pudding stone is a synonym term for [ ]  
A) Braccia      B) Grit      C) Khondalite      D) Conglomerate
- 21) As a rock starts to melt, the minerals with the lowest melting temperature will start to melt first, forming magma. This melted portion can get squeezed away from the still solid part of the rock through a process called: [ ]  
A) Partial melting      B) Fractionation      C) Volcanic eruption      D) Crystallization
- 22) The type of magma that contains the most silica is: [ ]  
A) Felsic      B) Intermediate      C) Mafic      D) Ultramafic
- 23) Which of the following types of lava has the lowest viscosity and therefore flows the fastest and furthest? [ ]  
A) Felsic      B) Intermediate      C) Mafic      D) Ultra felsic
- 24) Which of the following types of lava has the highest viscosity and therefore has great difficulty flowing? [ ]  
A) Felsic      B) Ultramafic      C) Mafic      D) Intermediate
- 25) Graphite texture shows crystallisation at [ ]  
A) Triple point      B) Eutectic point      C) Incongruent point      D) No fixed point
- 26) The most common type of igneous rock in the solar system forms from mafic lava and is called: [ ]  
A) Basalt      B) Granite      C) Peridotite      D) Limestone
- 27) What do we call mafic lava that is smooth and syrupy? [ ]  
A) Magma      B) Pahoehoe      C) Spatter      D) Cinders
- 28) What controls the size of crystals that form an igneous rock? [ ]  
A) Magma chemistry      B) Types of minerals      C) Rate of cooling      D) Bowen's reaction series
- 29) Sedimentary rocks are the most common type of rock at the Earth's surface, but they actually only comprise about \_\_\_\_\_ of the Earth's crust altogether. [ ]  
A) 5%      B) 10%      C) 25%      D) 50%
- 30) A short break in time during sediment deposition, or a small change in the sedimentary facies, results in the creation of a/an: [ ]  
A) Unconformity      B) Angular unconformity      C) Bedding plane      D) Disconformity
- 31) In sedimentary rock types, the term clastic means the same thing as: [ ]  
A) Chemical      B) Biochemical      C) Detrital      D) Biogenic

- 32) Which type of sediment consists of broken down particles of rocks produced by weathering and erosion? [     ]  
A) Clastic                      B) Detrital                      C) Lithic fragments     D) All of the above
- 33) Match the sedimentary rock type shale with the corresponding grain size below:[     ]  
A) Clay                      B) Silt                      C) Sand                      D) Pebble
- 34) Which of the following metamorphic terms does not belong with the others? [     ]  
A) Foliation                      B) Schistosity                      C) Gneissic texture     D) Hornfels
- 35) Which of the following metamorphic rocks does not belong in the same list as the others?  
A) Quartzite                      B) Green schist                      C) Phyllite                      D) Gneiss     [     ]
- 36) Metamorphism of limestone produces: [     ]  
A) Granulite                      B) Quartzite                      C) Slate                      D) Marble
- 37) On a map of metamorphic rock distributions, the lines on the map that separate regions having different index minerals are called: [     ]  
A) Isotherms                      B) Isograds                      C) Isobars                      D) Isopleths
- 38) Which of the following is NOT a type of metamorphic facies ? [     ]  
A) Zeolite                      B) Blue schist                      C) Phyllite                      D) Eclogite
- 39) Which type of metamorphism is associated with fault motion or shear zones, often forming the rock mylonite? [     ]  
A) Dynamic                      B) Contact                      C) Regional                      D) Impact
- 40) The lighter and heavier minerals are separated by [     ]  
A) Bromoform                      B) Carbon tetrafluoride     C) Crude oil                      D) Petrol

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**UNIT –IV**

**STRUCTURAL GEOLOGY &**

**GROUND WATER, EARTH QUAKE AND LAND SLIDES**

1. Classify and describe the different types of faults. Give the various minor structures found in the fault Zones. Discuss the effects of faulting on various engineering projects. 10M
2. a) What is an anticline? How do you differentiate asymmetrical anticline from symmetrical Anticlines?  
b) What is a monocline? How is an isoclinal fold different from a monocline? 10M
3. What is an unconformity? Describe different types of unconformity. Add a note on the Importance of Unconformity? 10M
4. Explain the common types of soils their origin and occurrence in India?
5. What is a water table? What are types of ground water? Which occur in the zone of aeration and saturation? 10M
6. a) Explain various investigation uses in ground water exploration 10M  
b) Explain the engineering significance of ground water.
7. Write short notes on: 10M
  - a) Earth quake waves
  - b) Intensity of earth quakes
  - c) Magnitude of earth quakes
  - d) Safety factors in building construction in seismic areas
  - e) Terminology of earth quake.
8. a) Describe the various effects of an earthquake? How do we locate the epicenter of an earth quake?  
b) What are surface waves? Explain Rayleigh and love waves? 10M
9. Enumerate the various types of landslides and explain the causes of landslides and preventive Measures to be taken to prevent the landslides? 10M
10. a) What are landslides? Describe the causes and methods to prevent them? 10M  
b) How are landslides measured?

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**QUESTION BANK (OBJECTIVE)**
**Subject with Code : ENGINEERING GEOLOGY(16CE121) Course & Branch: B.Tech - CE**
**Year & Sem: III-B.Tech & I-Sem**
**Regulation: R16**

- 1) Structural geology is concerned with [ ]  
 A) Only solids      B) Only liquids      C) Only gases      D) All solids, liquids & gases
- 2) Which of the following is a concordant intrusive rock? [ ]  
 A) Dike      B) Sill      C) Stock      D) Batholith
- 3) Dip is defined as [ ]  
 A) Maximum angle of slope of a bed      B) Only with thick layers  
 C) Covered by thin or thick layers      D) Bed of direction of intersection of the bedding plane
- 4) The direction of intersection of the bedding plane with an horizontal planes [ ]  
 A) Outcrop      B) bedding      C) dip      D) strike
- 5) Parallel folding is also termed as [ ]  
 A) Similar      B) Flexural      C) Concentric      D) Flexural flow
- 6 Loose sand and gravel seismic velocity is [ ]  
 A) 0.2-0.6 m/s      B) 0.1-0.5 m/s      C) 0.1-0.4 m/s      D) 0.1-0.9 m/s
- 7) A limited area of older rocks surrounded by younger rocks is called [ ]  
 A) Outlier      B) overlaps      C) Inlier      D) off flap
- 8) Symmetrical fold is also known as [ ]  
 A) Upright fold      B) Asymmetrical fold      C) Recommended fold      D) Monocline
- 9) The curved part of the fold between the normal and in vertical limb is known as [ ]  
 A) Axial bend      B) curved bend      C) Normal bend      D) Arch bend
- 10) The minimum number of seismic stations needed to locate an earthquake is: [ ]  
 A) 8      B) 2      C) 3      D) 1
- 11) Where the internal limb angle is  $>70^\circ$  is \_\_\_\_\_ fold [ ]  
 A) Gentle fold or open fold      B) mid fold      C) cylindrical fold      D) type fold
- 12) Shear fold is also known as [ ]  
 A) Over fold      B) slip fold      C) Drag fold      D) Open fold
- 13) Chevron fold is also known as [ ]  
 A) Isoclinal fold      B) similar fold      C) zig-zag fold      D) parallel fold
- 14) Faults are classified into [ ]  
 A) 2      B) 3      C) 4      D) 5
- 15) An example of fold mountain range in Southern America is [ ]  
 A) Andes      B) Alps      C) Rock Mountains      D) Himalayas
- 16) When rock layers bend downwards, they form a [ ]  
 A) Limbs      B) Syncline      C) Anticline      D) Cliff
- 17) Rift valleys and block mountains are landforms that are formed by [ ]  
 A) Folding      B) Displacement      C) Faulting      D) Collision
- 18) Faulting takes place when rocks within Earth's crust form [ ]  
 A) Water Spaces      B) Mountains      C) Asymmetrical Mountains      D) Cracks
- 19 The unit of gravity is [ ]  
 A) Gal      B) Amp      C) Ohm      D) Ohm-m

- 20) Tight fold has inter limb angle [     ]  
 A) Between 70-120°C                      B) Between 30-70°C  
 A) Between 30-10°C                      A) Less than 10°C
- 21) Which of the following reservoirs contains the most water? [     ]  
 A) Atmosphere      B) Biosphere    C) Ground water      D) Rivers and lakes
- 22) How much of the Earth's water is stored in underground aquifers? [     ]  
 A) Less than 10%      B) About 5%    C) About 10%              D) About 20%
- 23) What is the process by which water enters the small pore spaces between particles in soil or rocks  
 A) Transpiration      B) infiltration    C) precipitation              D) sublimation [     ]
- 24) Which of the following terms is a measure of the amount of water vapor in the air as a proportion of the maximum amount the air could hold at the same temperature? [     ]  
 A) Dew point              B) Sublimation point    C) Evaporation rate    D) Relative humidity
- 25) The best groundwater reservoirs have \_\_\_\_\_ [     ]  
 A) Low permeability and low porosity      B) High permeability and high porosity  
 C) High permeability and low porosity      D) Low permeability and high porosity
- 26) The lowering effect on the water table about the base of the well stem is called [     ]  
 A) Aquiclude              B) Artesian surface    C) Cone of depression      D) Speleothem
- 27) The boundary between the saturated zone and the unsaturated zone is called the [     ]  
 A) Water table              B) Aquifer      C) Aquiclude              D) Porosity
- 28) Groundwater represents how much of the world's fresh water supply? [     ]  
 A) About 1%              B) About 5%    C) About 20%              D) About 50%
- 29) What is the term for a relatively impermeable geologic unit? [     ]  
 A) An artesian              B) An aquiclude      C) An aquifer    D) None of these
- 30) Hard water contains large amounts of \_\_\_\_\_ [     ]  
 A) Lead      B) Sodium    C) Calcium    D) Silicon
- 31) Where do most earthquakes occur? [     ]  
 A) Along dikes              B) Along faults              C) Along folds              D) Along joints
- 32) Water that is good enough to drink is called \_\_\_\_\_ [     ]  
 A) Potable water              B) Groundwater              C) Surface water              D) Artesian water
- 33) The amount of ground displacement in a earthquake is called the \_\_\_\_\_ [     ]  
 A) Epicenter    B) Dip              C) Slip              D) Focus
- 34) The point where movement occurred which triggered the earthquake is the \_\_\_ [     ]  
 A) Dip              B) Epicenter    C) Strike              D) Focus
- 35) Which of the following sequences correctly lists the different arrivals [     ]  
 from first to last?  
 A) P waves ... S waves.... Surface waves      B) Surface waves ... P waves.... S waves  
 C) P waves ... Surface waves ... S waves      D) S waves ... P waves.... Surface waves
- 36) What is the standardized distance from an earthquake epicenter for measuring Richter magnitudes?  
 A) 0 km      B) 100 km      C) 10 km      D) 500 km [     ]
- 37) The recording instrument of earthquake is [     ]  
 A) Seismology              B) Seismograms              C) Seismometer              D) Seismographs
- 38) The enormous energy released form focus in time of earthquake by waves [     ]  
 A) Elastic waves              B) R- waves              C) Radio waves              D) Seismic waves
- 39) Land slide involving a continuous and gentle downward creep of soil, sand, gravel etc is known as  
 A) Rock slip              B) Soil slip              C) Collapsing              D) Over break [     ]
- 40) Land slide occurs when the angle of slope is greater than the angle of [     ]  
 A) Rest              B) Dip and strike              C) Fault plane              D) Fold axis

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**QUESTION BANK (DESCRIPTIVE)**

**Subject with Code :** ENGINEERING GEOLOGY((16CE121)

**Course & Branch:** B.Tech - CE

**Year & Sem:** III-B.Tech & I-Sem

**Regulation:** R16

**UNIT –V**

**GEOLOGY OF DAMS, RESERVIORS AND TUNNELS**

- 1) What are dams and reservoirs? Explain the purpose of construction of major dams and reservoirs in India. 10M
- 2) Explain about: 10M
  - a) Lining of tunnels.
  - b) Economical aspects of tunneling.
  - c) Purposes of tunneling.
- 3) a) Explain the geological structural controls on selection of dam site. 10M  
b) Explain the methods to control reservoir silting.
- 4) a) Explain the geological structural controls in tunneling. 10M  
b) Nagajunasagar dam as a case history, explain the geological analysis.
- 5) Explain the geological factors influencing water tightness and life of reservoirs? 10M
- 6) What is a geological structure? How the geological structures are responsible for the failure of any tunnel alignment? Explain. 10M
- 7) a) What are the geological considerations necessary in the selection of dam site? 10M  
b) Explain the geological causes of failure with a few cases of histories?
- 8) What is a tunnel? Explain the terms that are used in tunnels with neat sketches? Explain the purpose of tunneling? 10M
- 9) What are the various geological factors to be considered for the construction of tunnels? Explain in detail with examples? 10M
- 10) a) Explain the relationship between valley topography and types of dams.  
b) List out the factors contributing to the success of a reservoir?

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**Course & Branch:** B.Tech - CE

**Year & Sem:** III-B.Tech & I-Sem

**Regulation:** R16

- 1) Generally the weir is aligned at right angles to the direction of the main river current because
  - A) It ensures less length of the weir
  - B) It gives better discharging capacity
  - C) It is economical
  - D) All of the above
- 2) A straight glacis type fall with a baffle platform and a baffle wall is called
  - A) Vertical drop-fall
  - B) Glacis fall
  - C) Montague type fall
  - D) Inglis fall
- 3) The width of gravity dam at its base is how many times to that of its height
  - A) 0.2-0.4
  - B) 0.4-0.6
  - C) 0.6-0.8
  - D) 0.8-1.0
- 4) The principal uses of dams are
  - A) To provide stream regulation
  - B) To Generate power
  - C) Both A&B
  - D) None
- 5) The compressive stress at the foundation of even a large dam will rarely exceeds
  - A) 60 kg/cm<sup>2</sup>
  - B) 50 kg/cm<sup>2</sup>
  - C) 40 kg/cm<sup>2</sup>
  - D) 30 kg/cm<sup>2</sup>
- 6) Tunnel constructed for the purpose of water supply is known as
  - A) Aquiclude
  - B) Aqueducts
  - C) Aquifer
  - D) None of the above
- 7) Over break is greater in the tunnels running along
  - A) The direction of dip of bed
  - B) The direction of strike
  - C) Along the fault plane
  - D) Dip and strike both of the bed
- 8) Tunnel through which water is allowed to flow under a pressure head is the
  - A) Sub way tunnel
  - B) Pedestrian tunnel
  - C) Navigation tunnel
  - D) Pressure tunnel
- 9) The excess of quality of rock broke in and removed from the proposed tunnel is known as
  - A) Caving
  - B) Over break
  - C) Excavation
  - D) Caving and excavation both
- 10) The largest tunnel in the world provides a short route connecting
  - A) Italy and France
  - B) U.S.S.R and Italy
  - C) U.K and France
  - D) Iraq and Jordan
- 11) -----project consists of a 226 m high & 518 m long concrete straight gravity storage dam on rivers Sutlej
  - A) Nile
  - B) Sutlej
  - C) Nagarjuna sager dam
  - D) Bhakranagar project
- 12) The central portion of the dam that directly over lie on the channel is known as
  - A) Crest
  - B) Heel
  - C) Asics of the dam
  - D) River section
- 13) The upstream portion of the dam where it conducts the bearing surface is known as
  - A) Toe
  - B) Abutment
  - C) Axis of the dam
  - D) Heel
- 14) The width of the arch dam is how many times to that to its height
  - A) Half
  - B) One forth
  - C) One sixth
  - D) One height
- 15) The bhakra dam on satlus lies on a rather unfavorable site which exhibits a downstream slope of
  - A) 60-70<sup>0</sup>
  - B) 75-90<sup>0</sup>
  - C) 55-80<sup>0</sup>
  - D) 45-50<sup>0</sup>
- 16) Earth dam failures due to
  - A) Velocity of water
  - B) Percolation of water
  - C) Over tapping
  - D) Water table fluctuation
- 17) The maximum height to which an earth dam can be made is

- A) 200M                      B) 150M                      C) 125M                      D) 95M
- 18) A dam for storing water is made thicker at the bottom than at the top because [       ]  
 A) Pressure on the side increases with depth    B) Pressure on the side increases with depth  
 C) Pressure does not change with depth        D) Quality of water increase with depth
- 19) Which dam in India has distinction of being the longest main stream dam in the world [       ]  
 A) Rihand Dam              B) Hirakud dam              C) Bhakra Dam              D) Sikidari Dam
- 20) The central building research institute is in [       ]  
 A) New Delhi              B) Roorkee                      C) Pune                      D) Bangalore
- 21) It is found that the talus slope has a constant slope angle which is generally about [       ]  
 A) 45°                      B) 60°                      C) 75°                      D) 35°
- 22) The angle of rest with respect to horizon seldom exceeds [       ]  
 A) 50°                      B) 45°                      C) 70°                      D) 30°
- 23) In a site location in a wide canyon with gently sloping walls and where conditions required on outlet works though the dam, the most economical type of dams are [       ]  
 A) Buttress dam              B) Arch dam                      C) Earth dam                      D) Gravity
- 24) Opening through the dam through which checking and repair is done is [       ]  
 A) Conduit                      B) Inspection chamber    C) Gallery                      D) Silt
- 25) The largest tunnel in the world provides a short route connecting [       ]  
 A) Italy and France    B) U.S.S.R and Italy    C) U.K and France    D) Iraq and Jordan
- 26) The railway tunnel which is under construction in the city of palaces, Calcutta passes through [       ]  
 A) Clay with peat and sand layer              B) Granitic rock  
 C) Quartzite                      D) Sand layer only
- 27) The roof load in tunnel through unconsolidated or fragmentary material is rather insignificant provided the thickness of roof exceeds times to the diameter of tunnel [       ]  
 A) Two                      B) Four                      C) Three                      D) Five
- 28) In an underground mine the tunnel passing through an ore on body is [       ]  
 A) Prive                      B) Raise                      C) Wing                      D) Cross cut
- 29) If in the mines, tunnels are made downward to connect upper level to lower one, the same is known as [       ]  
 A) Cross cut                      B) Conduit                      C) Wing                      D) Prive
- 30) The tunnel alignment is essentially through competent rock mass with little or no ground water seepage is called [       ]  
 A) Soft rock tunnel    B) Hard rock tunnel    C) Both A&B                      D) None
- 31) A good blast with a good yield is obtained if the cut hole is [       ]  
 A) Normal to face                      B) Inclined at 45° to the face  
 C) Inclined at 15° to the face                      D) Inclined at 30° to the face
- 32) The best ground water reservoirs would have [       ]  
 A) Low permeability and low porosity    B) low permeability and high porosity  
 C) High permeability and low porosity    D) High permeability and High porosity
- 33) Which of the following lining material is useful for shield driven tunnels in sub aqueous regions? [       ]  
 A) Stone masonry    B) Timber                      C) Cast iron                      D) Cement concrete
- 34) If 'D' is the diameter of tunnel in meters, then the thickness of lining in mm, as per the empirical formula is given by [       ]  
 A) 42 D                      B) 82 D                      C) 104 D                      D) 124 D
- 35) Which one of the following tunneling methods is used for laying underground sewers? [       ]  
 A) Needle beam method                      B) Army method  
 C) German method                      D) Italian method

- 36) Which one of the following is a component of a shield for tunneling? [     ]  
A) Liner plate            B) Trench jack            C) Stiffener            D) Cutting edge
- 37) Which one of the following is considered to be an advantage of the heading and benching method of tunnel construction? [     ]  
A) It is suitable for construction in unstable rocks  
B) In this method, it is easy to install timber support  
C) Tunneling can be continuous and the work can be expedited  
D) In case of excessive water, it is easy to take correct steps
- 38) Drift method of tunneling is used to construct tunnels in [     ]  
A) Soft Grounds            B) Rock            C) Self Supporting Grounds    D) Broken Grounds
- 39) When the crest chord-height ratio is under 3 and the rock is capable of withstanding high pressures, not being able to fail by shearing, which form of dam is most suitable? [     ]  
A) Rock fill Dams            B) Thin Arch or Thin Cupola Dams  
C) Buttress Dams            D) Multiple Arch Dams
- 40) The reservoir behind the Bhakra dam lies upon sedimentary rocks [     ]  
A) Dharwars            B) Cuddapah    C) Siwalik system            D) Jurassic system

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