Course Code: 19CE0110 **R19**

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY::PUTTUR
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QUESTION BANK (DESCRIPTIVE)

Subject with Code: Engineering Geology (19CE0110) **Course & Branch**: B.Tech - CE

Year & Sem: II-B.Tech & II-Sem **Regulation:** R19

UNIT –I
INTRODUTION

1	a. Define geology and explain different branchesofgeology? b. Explain the scope and importance of geology in civil engineeringworks.	[L1][CO1] [L2][CO2]	**[06M]** **[06M]**
2	a. What is weathering? Enumerate the various mechanisms of rock weathering? b.Distinguish between weathering and erosion.	[L2][CO1] [L4][CO3]	**[06M]** **[06M]**
3	a. Explain the brief study of case histories of failure of some civil engineering constructions due to somegeologicaldrawbacks? b. Write in detail about the structure of the earth and composition with aneat diagram	[L2][CO1] [L2][CO2]	**[06M]** **[06M]**
4	a. Describe the various process of weathering. b. How do civil engineers determine the extent of weathering pattern in major civil engineering constructions?	[L2][CO2] [L6][CO3]	**[06M]** **[06M]**
5	a. Explain the process of weathering of common rock like Granite? b. How is Geology related to Engineering? Discuss the scope of application of geological knowledge in the planning work?	[L2][CO1] [L3][CO3]	**[06M]** **[06M]**
6	a. Discuss the role of geological agents in weathering of rocks. b. Explain the significance of geological studies to solve civil engineering problems.	[L2][CO2] [L1][CO1]	**[06M]** **[06M]**
7	a. Discuss the scope of application of geological knowledge in the planning work. b. Describe chemical weathering in detail.	[L2][CO3] [L2][CO2]	**[06M]** **[06M]**
8	a. What is the role of atmosphere in weathering? b. Explain the physical factors in the process of weathering.	[L3][CO2] [L2][CO1]	**[06M]** **[06M]**
9	a. Discuss the application of engineering geology in civil engineering projects. b.Explain how mechanical and chemical weathering of rocks makes them unsafe for civil engineering construction.	[L3][CO2] [L5][CO3]	**[06M]** **[06M]**
10	a.What are the types of geological agents? Describe briefly the natural agencies. b. Explain in detail the role of temperature in mechanical weathering of rocks.	[L3][CO2] [L2][CO2]	**[06M]** **[06M]**

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UNIT –II
MINERALOGY

1	a. Define mineral and explain the various physical properties of minerals? b. Write physical properties of Garnet and Hematite minerals.	[L1][CO2] [L2][CO3]	**[06M]** **[06M]**
2	a. What is a rock forming mineral? Discuss process of formation of mineralsin nature. b. Describe the following minerals. Mention their chemical composition and add a note on how they are identified inrocks. a) Quartz. b)OrthoclaseFeldspar. .	[L1][CO1] [L1][CO2]	**[06M]** **[06M]**
3	a. What are secondary minerals? How are formed? Add a note on their significanceinrocks? b. Name atleast four clay minerals and their importantengineeringproperties.	[L2][CO3] [L4][CO3]	**[06M]** **[06M]**
4	a. Write short notes onthefollowing a) Moh's scale ofhardness b. Isomorphism b. Define Hardness, Fracture, and Specific gravity.	[L2][C02] [L1][CO2]	**[06M]** **[06M]**
5	a. Explain the various process of formation of ore minerals. b. Give a detailed account on chemical composition, physical properties, origin, occurrence, Engineering behavior and uses of clay minerals.	[L2][CO3] [L4][CO3]	**[06M]** **[06M]**
6	a. Write a note on different physical properties of minerals and state how these are useful in the accurate identification of the mineral species. b. Identifying the physical properties of Talc.	[L3][CO2] [L5][CO3]	**[06M]** **[06M]**
7	a. Describe any two important rock forming minerals from the civil engineering point of you. b. Describe the physical properties which depend on light.	[L3][CO2] [L4][CO3]	**[06M]** **[06M]**
8	a.What are the various physical properties useful to identify a mineral in hand specimen. Describe any three in detail. b. DescribeMoh's sale of hardness for minerals and cleavage properties to identify a mineral in hand specimen.	[L2][CO1] [L2][CO1]	**[06M]** **[06M]**
9	a. Write about feldspar group. b. Differentiate between Muscovite andBiotite Mica.	[L6][CO3] [L4][CO3]	**[06M]** **[06M]**
10	a. Interpret the mineral and the rock and describe the physical properties of minerals with examples. b. Illustrate the applications of various minerals.	[L1][CO1] [L1][CO1]	**[06M]** **[06M]**

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UNIT-III
PETROLOGY

1	a. Define term "rock" Describe the classification of rocks &their characteristics? b. Describe thefollowingrocks? a) Granite b)Pegmatite c)Sand stone d)Marble .	[L2][CO1] [L2][CO2]	**[06M]** **[06M]**
2	a.What is metamorphism? Discuss the various agentsofmetamorphism? b. Why heat is considered the most important agent ofmetamorphism?	[L1][CO2] [L3][CO3]	**[06M]** **[06M]**
3	a. Explain the structures and textures ofsedimentaryrocks? b. What are the clasticrocks?	[L2][CO2] [L3][CO3]	**[06M]** **[06M]**
4	a. Explain the classification of sedimentary rocks givingsuitable example? b. Whatare extrusive and intrusive igneous rocks? Describe theirsalientfeatures?	[L3][CO2] [L3][CO3]	**[06M]** **[06M]**
5	a. Describe the columnar flow and sheet structures of igneous rocks. b. Write detailed note on rock cycle and Magma.	[L2][CO2] [L2][CO3]	**[06M]** **[06M]**
6	a.Explain the composition, texture, characteristics, occurrence and uses of limestone, schist, gneiss. b. What is dolerite? Describe it's composition, origin and distribution	[L2[CO3] [L2][CO2]	**[06M]** **[06M]**
7	a. Explain the concept on Textures of igneous rocks and metamorphic rocks. b. Analyze the composition, texture, characteristics, occurrence and uses of laterite, slate, quartzite.	[L2][CO2] [L4][CO3]	**[06M]** **[06M]**
8	a.Write short notes on a. Structures of igneous rocks b. Structures of metamorphic rocks b. In what way the granite, limestone and marble are used on the basis of their civil engineering applications? Add theirmechanicalproperties.	[L3][CO2] [L3][CO3]	**[06M]** **[06M]**
9	a. Describe the origin, texture, structure and occurrence of pegmatite, sandstone, basalt. b. Write an essay on engineering properties distribution and uses of granite.	[L2][C03] [L3][CO3]	**[06M]** **[06M]**
10	a. How would you differentiate between igneous rock, metamorphic rock and sedimentary rock on the basis of structure and texture? b. Write a case study about rocks and mineral resource of any geological conditions in India.	[L4][CO2] [L2][CO3]	**[06M]** **[06M]**

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UNIT IV
STRUCTURAL GEOLOGY, GEOPHYSICAL STUDIES

1	a. 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?	[L4][CO5]	**[06M]**
	b. What is an anticline? How do you differentiate asymmetrical anticline from asymmetrical Anticline?	[L4][CO5]	**[06M]**
2	a.What is a monocline? How is an isoclinal fold different from a monocline?	[L1][CO1]	**[06M]**
	b. What is a fold? Describe with the help of well labeled neat sketches&different parts of fold.	[L4][CO4]	**[06M]**
3	a. What is an Unconformity? Describe different types of unconformities. Add a note on the Importance of unconformity.	[L2][CO1]	**[06M]**
	b. Differentiate between true dip and apparent dip of rock formation.	[L2][CO6]	**[06M]**
4	a. Explain the different types of folds with the help of neat sketches?	[L2][CO1]	**[06M]**
	b.With a neat sketch, describe a clinometer-compass and write a note on its uses. And explain True dip and Apparent dips?	[L3][CO5]	**[06M]**
5	a. What are joints? Discuss thevaries types of joints.	[L2][CO1]	**[06M]**
	b. Identify the various geological structures and their role in selection of sites for engineering projects.	[L2][CO5]	**[06M]**
6	a. What are geophysical methods that help in knowing about subsurface features during civil engineering investigations.	[L2][CO2]	**[06M]**
	b. Explain in detail the principal, procedure and applicability of seismic methods for subsurface investigations.	[L2][CO1]	**[06M]**
7	a. Evaluate the seismic refraction survey to be conducted for determining the depth to bed rock.	[L6][CO1]	**[06M]**
	b. Discuss in detail about the electrical method of investigations for groundwaterexploration.	[L2][CO2]	**[06M]**
8	a. Explain in detail about resistivity methods andwennerconfiguration. Adda note on its civil engineering applications.	[L2][CO1]	**[06M]**
	b. Describe different geophysical methods in terms of principal, parameters, methods, equipment andapplications of Gravity methods, Magnetic methods?	[L2][CO1]	**[06M]**
9	a. Explain the types of electrode configuration profiling sounding and applications of resistivity methods and their importance of civil engineering.	[L3][CO1]	**[06M]**
	b. Explain various electrical methods associated with geophysical studies.	[L3[CO1]	**[06M]**
10	a. Discuss in detail about the electrical method of investigations for ground water exploration?	[L2][CO1]	**[06M]**
	b. How geological investigations are conducted for subsurface investigations using magnetic methods.	[L3][CO5]	**[06M]**

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UNIT V
GROUNDWATER, LANDSLIDES, EARTH QUAKES, DAMS, RESERVOIRS, TUNNELS

1	a. Define ground water. Write an essay on origin and distribution of ground water. b. Describe in detail various components of the hydrological cycle. Add a note on the factors controlling the movement of ground water?	[L1][CO4] [L2][CO4]	**[06M]** **[06M]**
2	a. What is a water table? What are types of ground water? Which occur in the zone of aeration and saturation? b. Explain the engineering significance of ground water.	[L1][CO1] [L2][CO4]	**[06M]** **[06M]**
3	a. Write short notes on: a)Types of aquifers b)Types of springs c) Cone of depression b. Explain various investigation uses in groundwater exploration.	[L2][CO1] [L2][CO4]	**[06M]** **[06M]**
4	a. What are landslides? And explain the causes and effects of landslides. b. Enumerate the various types of landslides. Add a note on the preventive Measures to be taken to preventthelandslides.	[L3][CO1] [L3][CO4]	**[06M]** **[06M]**
5	a. What is meant by earthquake? Describe the various effects of earthquakes. b. What are the precautionary measures taken in the construction of buildings in earthquake prone zones.	[L2][CO1] [L2][CO1]	**[06M]** **[06M]**
6	a. What are dams and reservoirs? Explain the purpose of construction of major dams and reservoirs in India. b. Explain the geological structural controls on selection ofdamsite.	[L2][CO1] [L2][CO6]	**[06M]** **[06M]**
7	a. Explain the geological factors influencing water tightness and lifeofreservoirs. b. Explain the relationship between valley topography and types ofdams.	[L2][CO4] [L3][CO4]	**[06M]** **[06M]**
8	a. List out the factors contributing to the success of a reservoir? b. Describe the geology of the Nagarjunasagar dam site in Andhra Pradesh.	[L4][CO1] [L2][CO4]	**[06M]**
9	a. Describe the geological consideration for successful tunneling. b. What is a tunnel? Explain the terms that are used in tunnels with neat sketches? Explain the purpose oftunnelling?	[L2][CO1] [L4][C01]	**[06M]** **[06M]**
10	a. How the geological structures are responsible for the failure of any tunnel alignment b. Explain the sliding uplift and elastic rebound problems at a dam site.	[L3][CO1] [L2][CO1]	**[06M]** **[06M]**

Preparedby:
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