Total number of printed pages: 02 **UG/3rd Semester/UCE 303**

2023

Engineering Geology

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. a) Differentiate between 10

i) Magnitude and intensity of earthquake

ii) Flowage and subsidence

iii) Faults and folds

iv) Horst and graben fault

v) Open and closed fold

b) Fill in the blanks. 10

i) _____ are the layers which form the sides of a _____ after buckling in anticline and syncline fold.

ii) A fold in which the _____ of the axial plane is dipping in a vertical plane is called _____ fold.

iii) more the velocity, _____ is the pressure and _____ will be the erosion.

iv) roundness of the grain will indicate _____ amount of abrasion whereas angularity of the grain will indicate _____ amount of abrasion.

v) _____ packed grains will indicate that the rocks are have been compacted with little pressure whereas _____ packed grains will indicate that the rocks have been compacted with greater pressure.

2. a) What are the essential physical properties that are determined to check the suitability of any rock as road metal? 4

b) What is silting up of the reservoirs? List any three remedies to stop or minimize the silting up of reservoirs. 5

c) What topographical features should an ideal dam site have? Discuss the various structural features of a dam site. 3+8

3.	a)	Discuss any three cause of landslide.	6
	b)	Explain the factors on which effect of earthquake depends.	6
	c)	What are the precautions that can be adapted to make buildings sufficiently earthquake proof?	8
4.	a)	Discuss the various parts of faults with the help of a suitable diagram.	10
	b)	What happens when a reservoir is built in a faulted zone? Discuss the safety measures or techniques that can be adopted in these areas.	4
	c)	Define true dip and apparent dip. If a bed dips at 20^0 towards east, 25^0 towards west, 15^0 towards North and 12^0 towards south, what will be the true and apparent dips?	6
5	a)	How the quality and quantity of water from the wells can be compared in igneous, sedimentary and metamorphic rocks	6
	b)	Discuss the hydraulic action, abrasion and corrosion processes in erosion by running water.	6
	c)	How rock weathering occurs on the earth surface? Discuss the various types of weathering.	5
	d)	Discuss the engineering importance of geological work of running water.	3
6.	a)	What is metamorphism? Name the rocks you will expect to be derived by progressive metamorphism of the following rocks: Sandstone, shale, limestone, dolerite.	2+4
	b)	How transformation of the deposited material into thick and massive rocks takes place? Also discuss the processes involved.	2+2+2
	c)	How concordant bodies are formed? Discuss its important forms with diagram.	2+6
7	a)	Define specific gravity. Discuss the factors on which specific gravity of a mineral depends.	6
	b)	What are the important uses of fossils? Also discuss the factors on which preservation of fossils depends.	3+3
	c)	Define the following terms, i) radioactivity ii) hexagonal system iii) hardness of a mineral iv) epicenter	8

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