Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech Degree Examination July 2021 (2019 Scheme)

Course Code: CET202
Course Name: ENGINEERING GEOLOGY

Max. Marks: 100 Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks) Marks

1		Describe the influence of climate on the physical weathering of rocks	3
2		Name any three types of erosion by running water	3
3		Explain the intensity scale used for the rating of earthquakes	3
4		Explain the characteristics of primary earthquake waves	3
5		Relate porosity of a rock to the presence of groundwater in it	3
6		Explain hydraulic conductivity	3
7		Define thermoluminescence of minerals with one example	3
8		Describe the mineralogy of dolerite	3
9		Explain the attitude of rocks	3
10		Describe any three types of faults	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

11	a)	Explain the processes responsible for the origin of river sand	7
	b)	Relate crops and cropping systems to soil conservation	7
12	a)	Explain the role of topography and nature of slope materials on the origin of landslides.	7
	b)	Illustrate the depositional features generated by the rivers	7

Module -2

13		Explain the classification of earthquakes	14
14		Explain the importance of Magnitude scales in earthquake disasters management	14

Module -3

15		Relate the availability of groundwater at a given area to the presence of different types of confining beds in that area	14
16	a)	Enumerate and explain the different types of natural ways of groundwater recharge	7
	b)	Groundwater can generate problems to civil engineering structures. Do you agree with this? Give reasons to support your answer	7

Module -4

17	a)	When you get hard rocks for construction purpose in the project sites in Kerala, which is the most probable type of rocks that you may get? Justify your answer	7
	b)	Classify the structural features present on sedimentary rocks	7
18	a)	Explain hardness of minerals	8
	b)	How will you megascopically identify the gneiss in the field	6

Module -5

19	a)	Relate the presence of folds in rocks at a project site to the competence of that rocks to support load	8
	b)	Explain the parts of a fault with the help of a diagram	6
20		Explain the geological part of site investigation for the construction of a dam in a region	14

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech Degree Examination June 2022 (2019 scheme)

Course Code: CET202

Course Name: ENGINEERING GEOLOGY

Max. Marks: 100 Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks) Marks

1		Explain the relevance of Geology in Civil Engineering.	3
2		Describe the important types of physical weathering.	3
3		Write a note on the seismic belts of the world in relation to earthquakes.	3
4		Explain seismic safety factor.	3
5		Describe the vertical distribution of groundwater with the help of a neat diagram.	3
6		Give an account of the significance of Ghyben-Herzerg relation.	3
7		Enumerate the chemical composition and physical properties of Biotite and Calcite.	3
8		Describe the rock cycle with the help of a neat diagram.	3
9		Explain the engineering significance of faults.	3
10		Differentiate between Clinometer compass and Brunton compass.	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

11	a)	Describe a typical soil profile with the help of a neat diagram.	5
	b)	Give an account of soil erosion and soil conservation measures.	9
12		What are landslides? Discuss the types, causes and controlling measures of landslides.	14

Module -2

13	a)	Discuss the theory of origin of earthquakes with suitable illustrations.	5
	b)	Give details on the types of earthquakes and measuring the size of an earthquake.	9

14		Describe the different types of seismic waves. With the help of a neat sketch explain the internal structure of the earth as revealed by the propagation of seismic waves.	14

Module -3

15		Explain Darcy's law and the properties of aquifers. Give an account of the different types of aquifers.	14
16	a)	Discuss the problems created by groundwater to civil engineering structures and their control measures.	9
	b)	Describe the electrical resistivity method of groundwater exploration.	5

Module -4

17		Give an account of the various physical properties of minerals examples which are helpful in their identification, with suitable examples.	14
18	a)	Describe the chemical and mineralogical classification and important structures exhibited by igneous rocks.	10
	b)	Write a note on the important rock types of Kerala.	4

Module -5

19	a)	Describe the parts of a normal fault with the help of a neat sketch.	5
	b)	Give an account of the common types of faults observed in the field.	9
20		Explain the geological considerations of site investigation for the construction of dams and reservoirs.	14

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech Degree Supplementary Examination June 2023 (2019 scheme)

Course Code: CET202

Course Name: ENGINEERING GEOLOGY

Max. Marks: 100 Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks) Marks

1		Discuss exfoliation.	3
2		Explain four factors controlling mass wasting.	3
3		Compare Sial and Sima.	3
4		Elucidate magnitude of earthquakes.	3
5		Examine hydraulic conductivity.	3
6		Appraise drains as a groundwater controlling measure.	3
7		Compare the texture and mineralogy of shale and limestone.	3
8		Is chemical composition sufficient to name a mineral. Justify.	3
9		Compare axial plane and plunge of fold.	3
10		Discuss of the fault terminology: fault plane, slip, heave, throw, hade and foot wall.	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

11	a)	Examine the role of water in chemical weathering considering two reaction routes.	8
	b)	Discuss the zones of leaching and accumulation in a residual soil profile.	6
12	a)	Elucidate the origin of longshore and rip currents and their relation to waves.	14

Module -2

13	a)	Explain the inner and outer core of the earth.	6
	b)	Discuss the behaviour of P waves in mantle with depth.	8
14	a)	Is asthenosphere molten or liquid? Elucidate why.	6
	b)	Elucidate on body waves and their nature.	8

Module -3

15	a)	Expound the conditions that result in artesian system.	9
	b)	Differentiate between aquifer and aquifuge and the conditions that form them.	5

16	a)	Appraise the efficacy of liners and barriers as methods to control the effect of groundwater on engineering structures.	14

Module -4

17	a)	Describe the mineralogical classification of igneous rocks.	8
	b)	List the chemical composition, cleavage, hardness, streak of orthoclase and quartz.	6
18	a)	Appraise a. cleavage of minerals, b. foliation in rocks	9
	b)	Explain rock cycle.	5

Module -5

19	a)	Explain strike, dip and apparent dip.	8
	b)	Would the dip of a bedding plane be greater than the apparent dip? Justify.	6
20	a)	Discuss how folds, faults, attitude of strata/bedding and width of river valley would influence the site selection of dams.	14

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S4 (R, S) / S2 (PT) (R, S) Examination June 2023 (2019 scheme)

Course Code: CET202

Course Name: ENGINEERING GEOLOGY

Max. Marks: 100 Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks) Marks

1		Explain any three significances of geology in civil engineering	3
2		Differentiate between longshore current and rip current.	3
3		Compare and contrast intensity and magnitude of an earthquake	3
4		Differentiate Moho and Guttenberg discontinuities	3
5		Using diagnostic physical properties how do you differentiate quartz and calcite	3
6		Compare the suitability of shale and sandstone as construction material	3
7		Differentiate an aquifer and an aquiclude	3
8		Explain Darcy's law	3
9		Draw a neat sketch of a normal fault and show hanging wall and foot wall	3
10		Differentiate fault and joint.	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

11	a)	Explain different mechanism of physical weathering	9
	b)	What are the engineering significances of weathering	5
12	a)	What are the various causes of landslides	9
	b)	Describe any five erosional landforms produced by rivers	5

Module -2

13	a)	Explain the different seismic zones in India	5
	b)	Explain the various effects of earthquake	9
14	a)	With the help of neat sketch explain the interior of the earth	8
	b)	Compare seismic activity along different types of lithospheric plate boundaries	6

Module -3

15	a)	Describe the vertical distribution of groundwater	8
	b)	Describe the different methods to control groundwater at construction sites	6
16	a)	Explain how resistivity survey is used in ground water exploration	9
	b)	Derive Ghyben-Herzberg equation	5

Module -4

17	a)	Explain the different physical properties of minerals that affect the strength of a rock	8
	b)	River sand is dominated by quartz. Evaluate the various reasons for this	6
18	a)	Discuss the suitability of granite and marble as flooring slab in areas exposed to rains. Justify your answer	7
	b)	Using structures in the rock how do you differentiate sedimentary rocks from the rest	7

Module -5

19	a)	Explain the geologic considerations in the construction of a tunnel	7
	b)	What are the various structural criteria in selecting an ideal site for dam construction	7
20	a)	Describe any five types of faults	10
	b)	Describe the different parts of a fold	4

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