

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Third semester B.Tech examinations (S) September 2020

**Course Code: CE205****Course Name: ENGINEERING GEOLOGY**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer any two full questions, each carries 15 marks.*

Marks

- |   |   |     |
|---|---|-----|
| 1 | a) What is weathering?  | (3) |
|   | b) Discuss Dearman classification of weathering.  | (4) |
|   | c) Describe different types of weathering and their products.   | (8) |
| 2 | a) What is an aquifer?  | (8) |
|   | b) Discuss different sources of ground water.   | (3) |
|   | c) With the help of a figure differentiate various types of aquifers encountered in earth.  | (9) |
| 3 | a) The sandstone recovered from Dharmadam island, Kannur has bulk volume of $145\text{m}^3$ and estimated to have a pore space volume of $27.76\text{m}^3$ . Calculate the porosity of the sandstone. | (5) |
|   | b) Explain the relevance of weathering in construction engineering  | (4) |
|   | c) Using a profile picture, discuss characteristics of soil in different soil horizons.   | (6) |

**PART B***Answer any two full questions, each carries 15 marks.*

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|---|---|-----|
| 4 | a) Discuss Mohr scale of hardness.  | (5) |
|   | b) Define mineral calcite. How are they identified in the field? Discuss the importance of calcite in construction engineering.                                   | (6) |
|   | c) Discuss the mineral properties that affect its strength.   | (4) |
| 5 | a) What are basalts? How do basalts differ from granites?   | (5) |
|   | b) Metamorphic rocks and sedimentary rocks cover larger part of Kerala compared to igneous rocks. Evaluate the statement with respect to their geographic spread. | (5) |
|   | c) Discuss seismic waves? How do body waves differ from surface waves?  | (5) |
| 6 | a) Briefly explain the concept of plate tectonics.  | (5) |
|   | b) Compare and contrast feldspar and quartz.  | (4) |

- c) Discuss engineering properties of rocks. (6)

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 a) With neat diagram, describe folding in rocks. Write a note on the significance of rock folding in engineering designs. (8)
- b) What are rock joints? How do they differ from geological faults? (7)
- c) Calculate the true dip directions to a shale- coarse sandstone contact with strike N130°. (5)
- 8 a) What are contours? Draw a contour diagram representing 60m deep basinal depression within a plateau land located at 120m height from msl. Note that, the basin has a mound of 40m height at its center. (9)
- b) What are landslides? Discuss the role human beings in accelerating landslides. (6)
- c) Discuss how structural contours help to deduce the subsurface structure of rock sequences. (5)
- 9 a) Discuss different engineering methods adopted to conserve river bank and flood plain from frequent flood. (10)
- b) Discuss various coastal landforms and their strategies to protect them from erosion. (10)

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