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**PRESIDENCY UNIVERSITY**

  **Bengaluru**

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| **End - Term Examinations – January 2025** |
| **Date:** 04- 01- 2025 **Time:** 1:00 pm – 04:00 pm |

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| **School:** SOE | **Program:** B.Tech CIV |
| **Course Code :**CIV2008 | **Course Name :**Engineering Geology |
| **Semester**: III | **Max Marks**: 100 | **Weightage**: 50% |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
| **Marks** | **20** | **54** | **26** | **-** | **-** |

 **Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

**Answer ALL the Questions. 10 x 2 Marks=20 Marks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1** | What is igneous rock? Give an example. | **2 Marks** | **L1** | **CO2** |
| **2** | What is liquid immiscibility? | **2 Marks** | **L1** | **CO2** |
| **3** | Define metamorphism. | **2 Marks** | **L1** | **CO2** |
| **4** | Define aquifer with an example. | **2 Marks** | **L1** | **CO2** |
| **5** | Name any four factors influencing weathering. | **2 Marks** | **L1** | **CO2** |
| **6** | Name any two software packages of GIS. | **2 Marks** | **L1** | **CO2** |
| **7** | Who produce and publish all satellite imageries for public? | **2 Marks** | **L1** | **CO3** |
| **8** | What is salt water intrusion? | **2 Marks** | **L1** | **CO2** |
| **9** | Define land cover and land use mapping | **2 Marks** | **L1** | **CO3** |
| **10** | Define faults. | **2 Marks** | **L1** | **CO3** |

**Part B**

 **Answer the Questions. Total Marks 80**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **11** | **11a** | Sedimentary rocks are secondary rocks which are formed through the deposition and compaction of sediments and through chemical precipitates. Illustrate origin processes of sedimentary rocks. | **10 Marks** | **L2** | **CO2** |
| **11b** | Depending upon mode and mechanism of accumulation and consolidation, sedimentary rocks may broadly be classified four types. Classify the sedimentary rock types with examples. | **10 Marks**  | **L2** | **CO2** |
| **OR** |
| **12** | **12a** | Chemical weathering is a process of alteration of rocks of the earth crust by chemical decomposition brought about by atmospheric gases and moisture. Explain main processes involved in chemical weathering with examples of chemical reactions. | **12 Marks** | **L2** | **CO2** |
| **12b** | The processes of weathering which are mainly related to the activities of plants, animals and organisms like bacteria etc., are known as biological weathering. Explain the major processes involved in biological weathering. | **08 Marks** | **L3** | **CO2** |
|  |  |  |  |  |  |
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| **13** | **13a** | Pedologists have distinguished a number of horizons or layers within the soil. A vertical section made though a soil from the surface down to the bedrock reveals various layers, the identification of which is termed a soil profile. Construct the soil profile sketch and explain it. | **12 Marks** | **L3** | **CO1** |
| **13b** | Rocks that are good at bearing water have high porosity and permeability. Rocks with wider fractures or pore spaces can store more groundwater. Classify the geological formations based on porosity and permeability. | **08 Marks** | **L3** | **CO1** |
| **OR** |
| **14** | **14a** | Engineering geology is a multidisciplinary field that combines principles from geology and engineering. Enlist and explain any five sub- disciplines of engineering geology. | **10 Marks** | **L2** | **CO1** |
| **14b** | Engineering geology is the application of geology to engineering to ensure that geological factors are considered in the design, construction, and maintenance of engineering works. Extend the application of geology in civil engineering as a multidisciplinary discipline. | **10 Marks** | **L3** | **CO1** |
|  |  |  |  |  |  |
| **15** | **15a** | Folds may be defined as undulations or bends or curvatures developed in the rocks of the earth crust as a result of compressional forces to which these rocks have been subjected from time to time in the past geological history of the earth. Illustrate the different elements of folds with neat diagram. | **08 Marks** | **L2** | **CO2** |
| **15b** | The orientation, shape, and location of folds can reveal the direction and intensity of past tectonic forces that acted on the rocks. Folds have important implications for engineering and construction projects. Illustrate the engineering considerations of folds.  | **12 Marks** | **L2** | **CO2** |
| **OR** |
| **16** | **16a** | An aerial photograph is the picture of the ground surface taken from the air with a camera pointing downward. Classify the types of aerial photographs and their applications in the field of photogrammetry and photointerpretation. | **08 Marks** | **L3** | **CO2** |
| **16b** | Geographic information system (GIS) is defined as a system of computer hardware and software designed to allow users to collect, manage, analyze and retrieve large volumes of spatially referenced data and associated attributes collected from a variety of sources. Demonstrate the components, essential elements for operation and technical modules of software package in GIS. | **12 Marks** | **L3** | **CO2** |
|  |  |  |  |  |  |
| **17** | **17a** | Earthquake is the most dangerous natural phenomenon that generates sizable destruction in structures. Suggest any ten measures to protect building structures from earthquake. | **10 Marks** | **L3** | **CO3** |
| **17b** | Usually folds are classified on the basis of upward and downward bending and also symmetrical characters. Classify folds types based on these two characters with neat sketch. | **10 Marks** | **L3** | **CO3** |
| **OR** |
| **18** | **18a** | The Global Positioning System is a US owned utility that provides users with positioning, navigation, and timing (PNT) services. Enlist and explain the different segments of GPS.  | **10 Marks** | **L3** | **CO3** |
| **18b** | Remote sensing is the science and art of acquiring information about the Earth's surface without actually being in contact with it. This is done by sensing and recording reflected or emitted energy and processing, analyzing, and applying that information. Explain the applications of remote sensing. | **10 Marks** | **L2** | **CO3** |

**\*\*\*\*\* BEST WISHES \*\*\*\*\***