**H.T No**

**Regulations:**

**A17**



**Sreenidhi Institute of Science and Technology**

(An Autonomous Institution)

**Code No: 6K405 Date: 23-Jan-2020 (FN)**

**B.Tech II-Year II-Semester External Examination, Jan/Feb - 2020 (Supplementary)**

**Engineering Geology (CIVIL)**

**Time: 3 Hours Max.Marks:75**

***Note: a****) No additional answer sheets will be provided.*

*b) All sub-parts of a question must be answered at one place only, otherwise it will not be valued.*

*c) Missing data can be assumed suitably.*

**Part - A Max.Marks:25**

**Answer all QUESTIONS.**

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| 1. | Differentiate between Geology and Engineering Geology. | [3M] |
| 2. | Separate the minerals having as per number of cleavege sets (0, 1, 2, 3)  Quartz, Garnet, Mica, Feldspar, calcite, hornblende, Galena, Asbestos,Kyanite, Olivine | [3M] |
| 3. | Write aboutClassification of rocks with examples | [3M] |
| 4. | List the different types of faults and folds. | [3M] |
| 5. | Types of dams as per Size and height, Material used, Purpose and function. | [3M] |
| 6. | Write aboutGeophysical methods and their uses | [2M] |
| 7. | Differentiate between ore forming and rock forming minerals | [2M] |
| 8. | What is the textural difference between Igneous, Sedimentary and metamorphic? | [2M] |
| 9. | defineLiquefaction and seismicity | [2M] |
| 10. | i)Why civil engineer require engineering geology knowledge  ii)What are foliated and non-foliated rocks write with examples | [2M] |

**Part – B Max.Marks:50**

**ANSWER ANY FIVE QUESTIONS. EACH QUESTION CARRIES 10 MARKS.**

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| 11. | a) | Write shot notes on any two of the following   1. Dams and failures 2. Lithosphere 3. Crust 4. Core | [5M] |
|  | b) | Define weathering? Types of weathering. What happens when rock weathers? Why rock weathers? Any mineralogical changes occur or not? Finally how it effects civil engineering structures. | [5M] |
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| 12. | a) | Write shot notes on any two of the following   1. Write moh’s scale of hardness from lower to higher order 2. Physical properties of Calcite or quartz 3. Diagnostic properties of Asbestos, Kyanite, Garnet 4. Methods of identification of Minerals | [5M] |
|  | b) | Write the physical properties of Quartz and Feldspar | [5M] |
|  |  |  |  |
| 13. | a) | Attempt any two of the following   1. Textures of Igneous rocks 2. Textures of Sedimentary rocks 3. Textures of Metamorphic rocks 4. Megascopic physical properties of Granite or Gneiss | [5M] |
|  | b) | What is rock cycle? How the different rocks are originated and explain the sub cycles in the rock cycle. | [5M] |
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| 14. | a) | Explain the different parts of a fold and the position of axial plane and behavior of limbswith respect to different folds of sedimentary formation. | [5M] |
|  | b) | Give the list of faults and with neat sketches explain different parts of faults and how, why faults are detrimental to the civil structures such as dams, reservoirs and tunnels. | [5M] |
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| 15. | a) | Attempt any two short notes of the following   1. Lining of tunnels With respect to Igneous, sedimentary and Metamorphic rocks 2. Concept of Over break in tunneling and explain effects of under and over breaking 3. water tightness and geological considerations 4. Types of dams based on purpose, function, size/height, Material | [5M] |
|  | b) | Write any case history of dam failures by considering the geological factors affecting the life of a reservoir by using following terminology: weathering, Structural aspects, rock types, and mineralogy | [5M] |
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| 16. | a) | Attempt any two of the following   1. Geological Hazards 2. Liquefaction during earthquakes 3. Disaster prevention, Mitigation and Management | [5M] |
|  | b) | What is the use of Geophysical Studies in civil Engineering? List the Geophysical Methods and associated principles, describe the electrical method. | [5M] |
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| 17. | a) | Explain the layered structure of the earth diagrammatically and describe plate tectonics with reference to present day configuration of continents | [3M] |
|  | b) | Attempt any two of the following   1. Write the chemical composition of Pyrite, Hematite, Magnetite, Graphite, Galena, Pyrolusite, Bauxite. Write the physical properties of the mineral with highest specific gravity (Hint: The mineral has 3 sets of cleavages) 2. Write the color of the following minerals. Quartz, Garnet, Mica, Feldspar, calcite, hornblende, Galena, Asbestos, Kyanite, Olivine. Write the physical properties of Dark green color mineral (Hint: two sets of cleavages making angles, 1560 and 240) 3. Write the names of the minerals having hardness <7 and write the physical properties of mineral with hardness 7 | [3M] |
|  | c) | Classify the following rocks as per their origin: Granite, Basalt, Dolerite, Schist, Sandstone, Gneiss, Slate, Shale, Limestone, Dolerite, Marble, Quartzite, Charnockite, Pegmatite. Write the megascopic physical properties of non foliated rock ( Hint: sugary texture.) | [4M] |
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| 18. | a) | Attempt any two of the following   1. Shield areas and Seismic belts 2. Seismic Waves and their properties 3. Unconformities 4. Ground water table, Types of Ground water and Springs | [3M] |
|  | b) | Visualize and explainthe scenario of a tunnel passing across a faulted anticline and as a civil engineer what you do under this geological considerations. | [3M] |
|  | c) | Explain seismic refraction method from civil engineering point of view | [4M] |

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