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| D:\VK\GIET LOGO.jpg | **GIET UNIVERSITY, GUNUPUR – 765022 Set I**  B. Tech (Fourth Semester – Regular) Examinations, April / May – 2021  **Sub. Code – Sub. Name PRINCIPLES OF SOIL SCIENCE (Agricultural Engineering)** |
| Time: 3 hrs Maximum: 70 Marks | |

**Answer ALL Questions**

**The figures in the right hand margin indicate marks.**

**PART – A: (Multiple Choice Questions) (1 x 10 = 10 )**

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**1) *Choose the correct answer (Word/ Figure):***

i) Granite and basalt are -------------------type of rocks.

(a) metamorphic (b) Igneous (c) mineral (d) Sedimentary

ii) Downward movement of water through soil profile is defined as----------------

(a) infiltration (b) seepage (c) runoff (d) erosion

iii) Soil is a ------------------ dimensional natural body.

(a) 1 (b)2 (c)3 (d) 4

iv) Unit of bulk density is--------------------

(a) % (b) ppm (c) kg (d) g/cc

v) The diameter of sand is ------------- mm

(a) <0.002 (b) 0.002- 0.02 (c) 0.2-2.0 (d) 0.02-0.2

vi) Igneous rocks constitute--------- of earth’s crust.

(a) 75% (b) 95% (c) 50% (d) 60%

vii) Generally Pudding is necessary for -------- crop.

(a) Rice (b) Wheat (c) Maize (d) Mustard.

viii) Unit of cation exchange capacity is-----------

(a) mg/kg (b) dS/m (c) cmol( p+)/kg (d) ppm

ix) Soil physical property which cannot change by tillage is -------

(a) structure (b) porosity (c) bulk density (d) texture

x) The number of essential plant nutrients discovered so far are -----------

(a) 15 (b) 16 (c) 17 (d) 18

**2)** **PART – B: (Short Answer Questions) (2 x 10=20)**

1. Write the Volume composition of a mineral soil.
2. How the earth’s crust is made up of ?
3. Define Sedimentary rocks ?
4. What do you mean by Anion Exchange Capacity of soil?
5. What is soil colour ?
6. Write about soil temperature
7. What is epipedon of soil
8. Which are essential major nutrients ? write two functions of each .
9. Write five properties of Acid soil .
10. Define Chemical fertilizer with suitable examples.

**PART – C: (Long Answer Questions) (10 x 4 =40 )**

1. Define pedological and edaphological concept of Soil. What is a soil profile? Describe it’s sections with a neat diagram. 3+2+5=10

OR

What are the factors involved in weathering of rocks and minerals? Discuss briefly any two of processes of decomposition. 4+6=10

4) How do various factors influence soil formation? Differentiate between active and passive soil forming factors? 6+4=10

OR

Write four important physical properties of soil. Classify and Describe soil structure, discuss it’s significance for agriculture. 2+4+4=10

5 ) Describe importance of soil water for agriculture. Classify it on the basis of it’s potential. Briefly discuss the principle of determination of soil moisture by tensio-meter? 5+3+2=10

OR

Define colloids? Describe some important properties of soil colloids. Without colloids Soil is dead- Justify 2+4+4=10

6) Define soil . Write it’ physical , chemical and biological properties with examples.

OR

What is soil air ? Which factors influence it ? 3+7= 10

**KEY**

**PART – A: (Multiple Choice Questions) Set-l**

**1) *Choose the correct answer (Word/ Figure):***

i) Igneous rock

ii) Infiltration

iii) 3

iv) g/cc

v) 0.2 to 2.0

vi) 95%

vii) Rice

viii) cmol( p+)/kg

ix) texture

x) 17