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GIET UNIVERSITY, GUNUPUR – 765022
 B. Tech (Fourth Semester – Regular) Examinations, June – 2021
BPCAG4020 - PRINCIPLES OF SOIL SCIENCE
 (Agricultural Engineering)

Time: 2 hrs

Maximum: 50 Marks

Answer ALL Questions**The figures in the right hand margin indicate marks.****PART – A: (Multiple Choice Questions)****(1 x 10 = 10 Marks)****Q.1. Answer ALL questions****[CO#] [PO#]**

- | | | |
|------------------------------------------------------------------------|---|------------------|
| a. Granite and basalt are -----type of rocks. | 1 | 1 |
| (i) metamorphic | | (ii) Igneous |
| (iii) mineral | | (iv) Sedimentary |
| b. Downward movement of water through soil profile is defined as----- | 1 | 1 |
| (i) infiltration | | (ii) seepage |
| (iii) runoff | | (iv) erosion |
| c. Soil is a ----- dimensional natural body. | 1 | 1 |
| (i) 1 | | (ii) 2 |
| (iii) 3 | | (iv) 4 |
| d. Unit of bulk density is----- | 2 | 1 |
| (i) % | | (ii) ppm |
| (iii) kg | | (iv) g/cc |
| e. The diameter of sand is ----- mm | 2 | 1 |
| (i) <0.002 | | (ii) 0.002- 0.02 |
| (iii) 0.2-2.0 | | (iv) 0.02-0.2 |
| f. Igneous rocks constitute----- of earth's crust. | 3 | 1 |
| (i) 75% | | (ii) 95% |
| (iii) 50% | | (iv) 60% |
| g. Generally Pudding is necessary for ----- crop. | 3 | 1 |
| (i) Rice | | (ii) Wheat |
| (iii) Maize | | (iv) Mustard. |
| h. Unit of cation exchange capacity is----- | 3 | 1 |
| (i) mg/kg | | (ii) dS/m |
| (iii) cmol(p+)/kg | | (iv) ppm |
| i. Soil physical property which cannot change by tillage is ----- | 4 | 1 |
| (i) structure | | (ii) porosity |
| (iii) bulk density | | (iv) texture |
| j. The number of essential plant nutrients discovered so far are ----- | 4 | 1 |
| (i) 15 | | (ii) 16 |
| (iii) 17 | | (iv) 18 |

PART – B: (Short Answer Questions)**(2 x 5 = 10 Marks)****Q.2. Answer ALL questions****[CO#] [PO#]**

- a. Write the Volume composition of a mineral soil.
- b. What do you mean by Anion Exchange Capacity of soil?
- c. Write about soil temperature
- d. What is epipedon of soil
- e. Define Chemical fertilizer with suitable examples.

1	1
2	1
3	1
3	1
4	1

PART – C: (Long Answer Questions)**(6 x 5 = 30 Marks)****Answer ANY FIVE questions****Marks [CO#] [PO#]**

3. Define pedological and edaphological concept of Soil. What is a soil profile? Describe its sections with a neat diagram.
4. What are the factors involved in weathering of rocks and minerals? Discuss briefly any two of processes of decomposition
5. How do various factors influence soil formation? Differentiate between active and passive soil forming factors?
6. Write four important physical properties of soil. Classify and Describe soil structure, discuss its significance for agriculture
7. Describe importance of soil water for agriculture. Classify it on the basis of its potential. Briefly discuss the principle of determination of soil moisture by tensio-meter?
8. Define colloids? Describe some important properties of soil colloids. Without colloids Soil is dead- Justify
9. Define soil. Write its physical, Chemical and biological properties with examples.
10. What is soil air? Which factors influence it?

(6)	1	1
(6)	1	1
(6)	2	1
(6)	2	1
(6)	3	1
(6)	3	1
(6)	4	1
(6)	4	1

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