

RDL 700: Biomass Production

(Minor - II)

Max. Marks: 21

Duration: 1 hour

Date: 20th March, 2015

Q.1. Elaborate on/ clear the terms:

- | | | |
|------------------------------|------|-----|
| a) Alfisols | 0.25 | |
| b) Ultisols | 0.25 | |
| c) Entisols | 0.25 | |
| d) Inceptisols | 0.25 | |
| e) Micas | 0.5 | |
| f) Feldspars | 0.5 | |
| g) Serpentine | 0.5 | |
| h) Glauconite | 0.5 | |
| i) Epidocrocite and Limonite | 0.5 | |
| j) Goetnite and Magnetite | 0.5 | (4) |

Q.2. Differentiate;

- | | |
|--|-------------|
| a) Khadar from Bhangar soils | |
| b) Montmorillonite from kaolinite clay particles (with diagrams) | |
| c) Illite from chlorite clay particles (with diagrams) | |
| d) Autochthonous bacteria from zymogenous bacteria | 1.5x4 = (6) |

Q.3. What do you mean by chelating property of humus? Explain it 2.5

Give the formula to determine pore space % 0.5

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c) Give the range of N,P,K (in kg/ha) and C (%) of medium soils according to the rating chart for soils discussed in the class

(4)

Q. 4) List any three technologies seen by you during your visit to micro model, IIT Delhi. Also mention the roles of the mentioned technologies in rural development. 1.5

✓) Calculate the N in kg/ha on the basis of 0.25% N in soil of density 1.3 tons/m³. 0.5
 2.5% N in soil of density 1.3 tons/m³.

(2)

Q.5 Match the following

1 x 1

1. Obligate aerobes	a. Only anaerobic growth; but continues in the presence of oxygen
2. Facultative aerobes	b. Both aerobic and anaerobic growth; greater growth in the presence of oxygen
3. Obligate anaerobes	c. Only aerobic growth; oxygen required in low concentration.
4. Aerotolerant anaerobes	d. Only aerobic growth; oxygen required
5. Microaerophilic	e. Only anaerobic growth; ceases in the presence of oxygen.

(1)

Q.6 A) Complete the sentence by choosing the correct option, filling the blank

a) Natural substance which is difficult to degrade biologically is -----
 a. Lignin b. cellulose c. hemicellulose d. chitinase

b) Most abundant natural polymer present on earth is -----
 a. Cellulose b. pectin c. subarin d. chlorophyll

c) ----- scientist showed that Fermentation is initiated by living organisms. 1.5

(B) Which microorganism is widely used for the process of fermentation? 0.5

d) Discuss, how the fermentation is different from aerobic respiration? 2 (4)