(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 2289905 Roll No.

B.TECH.

Regular Theory Examination (Odd Sem-V) 2016-17

SOIL & WATER CONSERVATION

Time : 3 Hours *Max. Marks : 100*

SECTION - A

1. Attempt All Parts. All parts carry equal marks. Write answer of each part in Short. (10×2=20)

a) Define wind erosion?

b) What do you understand by Sand Dune?

c) Define Land capability?

d) Write down Universal soil loss equation?

e) What is Terminal velocity?

f) What is Gully erosion?

g) What do you understand by Saltation?

h) What is Sediment delivery ratio?

i) What is trap efficiency?

j) What is mulching?

Section - B

2. Attempt any five questions form this section. (5×10=50)

a) Calculate the Volume of Earth work for a 100 ha catchment which has a land slope of 3%. The following parameters of the contour bund were calculated -

- V.I = 1.3;
- Base width = 2.25 m;
- Top width = 0.45 m;
- Height of bund = 0.90 m;

Also determine the percentage area lost due to bunding?

b) Calculate soil loss from a plot of one hectare having slope length 122 m and slope steepness 10%. Rainfall erosion index of the place is 325. Assume soil erodibility factor as 0.25mg/ha; Cropping management factor as 0.16 and conservation practice factor as 0.6.

c) What is Water harvesting. Explain the principles and techniques of water harvesting?

d) What is Water erosion. Explain the mechanism of Water erosion?

e) A watershed has 50 ha of row crop cultivated good terraced land 10 ha of good pasture land with hydrologic soil group C. The weighted curve number for the watershed for antecedent moisture condition

II is 90. The 6 hours, 50 year frequency rainfall for the area is 120mm. Determine the estimated maximum volume runoff for 50 years recurrence interval for antecedent moisture condition II.

f) What is Bunding. Write down the design of contour bunds?

g) What is land capability classification? Discuss briefly the classification made by the soil conservation service of the USDA.

h) How does the formation of sand dune take place in arid zone or in coastal areas? What steps should be followed for stabilization of the sand dunes?

Section - C

Note : Attempt any two questions **(2×15=30)**

3. Calculate the vertical intervals of contour bunds on a 4.5% land slope. The rainfall is moderate with average infiltration rate and good coverage of the land with vegetation?

4. What do you understand by open channel flow. Explain the all designing steps of open channel flow with diagram?

5. What is Grass waterway. Explain the designing step of grass waterway?