

B.Sc. (Honours) Agriculture Semester-II Examination, 2019

Course No: AEG-121 (New)

(Introductory Soil and Water Conservation Engineering)

Signature of Centre Superintendent

Roll No. : (in figure) _____ (in words) _____

Student Index No. _____ Regn. No. _____ of _____

Time : Two Hours

Full marks : 50

Questions are of value as indicated in the margin

Part - I

(Objective and Short Answer Type)

(Use only ball point pen)

Time : 30 minutes

Full marks : 20

- Note:** 1. Answer in question paper itself.
2. Striking, rewriting or overwriting are not allowed in the objective type questions.

1. State True (T) or False (F) in respect of the following statements:

0.5×10=5

- a) Adelaide is mostly used for chain survey work.
- b) Apron is a part of chute spillway.
- c) Check line is the longest line in the chain survey.
- d) India's water resource is more than 10% of global water resources.
- e) Level type bench terrace is constructed for high rainfall areas.
- f) Ravines are advance form of gully erosion.
- g) Shelter belts are used for wind erosion protection.
- h) Slope of a slanting surface can't be more than 100%.
- i) Total Station is a survey instrument.
- j) Two contour lines intersect at vertical cliffs.

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2. Fill up the blanks with most appropriate words:

0.5×10=5

- a) Formula for calculating area of a triangle with three sides _____.
- b) Contour bund is suitable under land slope of _____%.
- c) Fore and back bearing differed by _____.
- d) Gunter's chain is having _____ no of links.
- e) Hydraulic radius can be defined as a ratio of _____ to _____.
- f) Stream bank erosion can be controlled by installing _____ at the side of the bank.
- g) Terrace is constructed to reduce _____.
- h) The maximum value of cropping and management factor is _____.
- i) Under low rainfall region, the bench terrace is slopping _____ ward side.
- j) USLE stands for _____.

P.T.O.

3. Write short notes on the following (*any five*):

2×5=10

a) Strip cropping

b) Types of gullies

c) Manning's formula

d) Types of water erosion

e) Base line and check line

f) Whole circle bearing and Reduced bearing

g) Spur

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Part - II
(Descriptive Type)

Time : 90 Minutes

Full marks : 30

Questions are of value as indicated in the margin

Answer *any five* questions from the following.

4. What is the difference between surveying and levelling? Enlist at least three instruments under each category and describe their workability in a nutshell. 1.5+(1.5×3=4.5)=6
 5. What are the agronomical measures to arrest soil erosion? Also describe briefly the importance of engineering measures in soil and water conservation. 3+3=6
 6. What is plain table survey? Briefly explain the procedure to carry out it. 2+4=6
 7. What are different stages of gully development? Briefly describe the various gully control measures used. 3+3=6
 8. Determine the dimension of a grassed waterway for stability and capacity, with a trapezoidal cross section using the following data: Peak rate of runoff = 3.5 cumec; grade = 0.3%; vegetal cover = grass; manning's n = 0.045; soil moderately erodible; side slope, z = 2. 6
 9. Define USLE and explain the various parameters associated with it. 6
 10. What is water harvesting? Describe its usefulness and types of water harvesting. 2+2+2=6
 11. Calculate the terrace length per hectare, and area lost when 1:1 batter slope is provided for a bench terrace with VI of 3m on a 20% sloppy land. 3+3=6
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