

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B. Tech Winter 2019-20 Examination

Semester: 5

Date: 12/12/2019

Semester Code: 03110305

Time: 10:30am to 1:00pm

Subject Name: Soil and Water Conservation Engineering

Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new questions on new page.

Q.1 Objective type questions (All are Compulsory)**(15)**

1. Greater organic matter in the soil makes K value

A. high	B. low	C. no effect	D. none of above
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2. An erosion in which rate of soil loss exceeds the rate of soil formation is referred as

A. accelerated erosion	B. normal erosion	C. glacial erosion	D. chemical erosion
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3. A network of gully is called as

A. gullied area	B. ravine area	C. hilly area	D. flat areas
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4. Soil erodibility depends on

A. particle size distribution	B. soil structure & strength	C. Both A&B	D. Soil Cover
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5. In saltation process a soil particle can jump maximum up to the height of

A. 0.5 m	B. 1.0 m	C. 0.25 m	D. 15 m
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6. Contour farming is most effective to control erosion for the land slope between

A. 3-8%	B. 5-8%	C. 1-3%	D. More than 10%
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7. A convex shape slope involves erosion

A. less erosion	B. more erosion	C. no effect	D. none of above
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8. Rational formula states that $Q = (1/360) ciA$, when

A. 'i' in mm/h	B. C in ha	C. 'i' in cm/h	D. A in km^2
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9. Which particles get much time to deposit

A. sand	B. silt	C. fine clay	D. coarse sand
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10. The number of stream segment per unit area is termed as

A. drainage density	B. stream frequency	C. length ratio	D. drainage pattern
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11. Which of the following LUCC is suitable for grazing and forestry?

A. VI	B. VII	C. V	D. VIII
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12. The USLE estimates soil loss in the unit of

A. t/ha/year	B. t/ha	C. t/year	D. tonnes
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13. The most suitable shape of gassed water way is

A. Triangular	B. Trapezoidal	C. Rectangular	D. Parabolic
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14. For vertical cut, the width of bench terrace is

A. $W = \frac{100}{S}$	B. $W = \frac{DS}{100}$	C. $W = \frac{100S}{VI}$	D. $W = \frac{100VI}{S}$
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15. Graded terrace are useful in areas of

A. medium rainfall	B. medium to high rainfall	C. very less rainfall	D. high rainfall only
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- Q.2 Answer the following questions(Attempt any three) (15)**
1. Explain various stages of gully development.
 2. Explain factors affecting soil erosion.
 3. Explain various types of sediment load.
 4. Explain short term water harvesting techniques.
- Q.3 A. Explain characteristics of contour and uses of contour map. (07)**
B. Explain the different wind erosion control measures (08)
- OR**
- B. Explain classification of gully. (08)**
- Q.4 A. Explain design steps for bench terraces. (07)**
- OR**
- A. Explain design criteria for bund construction. (07)**
B. Explain Universal Soil loss Estimation model along with its limitations. (08)