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**Question Paper Code: 34103**

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fourth Semester

Civil Engineering

01UCE403 – HIGHWAY ENGINEERING

(Regulation 2013)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

- The road foundation for modern highways construction, was developed by
  - tresguet
  - telford
  - macadam
  - telford and macadam simultaneously
- Border Roads Organisation for hilly regions, was formed in
  - 1947
  - 1954
  - 1958
  - 1960
- Width of vehicles affects the width of
  - lanes
  - shoulders
  - parking spaces
  - all the above
- The type of transition curves generally provided on hill roads, is
  - circular
  - cubic parabola
  - Lemniscate
  - spiral
- Design of flexible pavements is based on
  - mathematical analysis
  - empirical formulae
  - compromise of pure theory and pure empirical formula
  - none of these

6. The thickness of a pavement may be reduced considerably by
- (a) compaction of soil
  - (b) stabilisation of soil
  - (c) drainage of soil
  - (d) all the above
7. In water bound macadam roads, binding material, is
- (a) sand
  - (b) stone dust
  - (c) cement
  - (d) brick dust
8. Aggregate impact test is used to evaluate
- (a) percentage wear
  - (b) Toughness
  - (c) Crushing strength
  - (d) water absorption percentage
9. Reflection cracking is observed in
- (a) Flexible pavement
  - (b) Rigid pavement
  - (c) Rigid overlay flexible pavement
  - (d) Bituminous overlay over cement concrete pavement
10. Intermediate catch water drains are provided only, if
- (a) catchment area of the watershed above road is large
  - (b) intensity of rainfall is heavy
  - (c) single catch water drain is inadequate
  - (d) all the above

PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. Explain the different stages of ground surveys which are to be conducted for the construction of highways. (8)
12. Describe the types of sight distance with neat sketch. (8)
13. Explain CBR method of designing flexible pavements. (8)
14. Illustrate the construction of WBM Road with neat sketch. (8)
15. Discuss the typical failures occurring in flexible pavements. (8)