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Roll No. ....

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**5th Sem. /Civil**  
**Subject : Highway Engineering**

Time : 3 Hrs.

M.M. : 60

**SECTION-A**

**Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)**

- Q.1 The inward transverse inclination given to the cross section of carriageway is called gradient. (CO1)  
a) Camber                      b) Embankment  
c) Slope                        d) Super elevation
- Q.2 The bitumen containing inert material \_\_\_\_\_. (CO3)  
a) Tar                            b) Cutback  
c) Asphalt                      d) Emulsion
- Q.3 The major problem of hill road in winter season. (CO4)  
a) Snow avalanche          b) Landslide  
c) Snow fence                d) Snow makers
- Q.4 Pot holes for repair should be cut to size in \_\_\_\_\_ - shape (CO2)  
a) Rectangular                b) Circular  
c) Square                        d) Triangular

- Q.5 Which type of lighting is becoming popular due to energy efficiency and long life-span? (CO3)  
a) HPS                            b) LPS  
c) MH                             d) LEDs
- Q.6 C.A.O. was establishment in the year. (CO6)  
a) 1942                            b) 1950  
c) 1962                            d) 1947

**Section-B**

**Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)**

- Q.7 Bitumen is completely soluble in \_\_\_\_\_. (CO3)
- Q.8 WBM road is an example of \_\_\_\_\_. (CO2)
- Q.9 Define Retaining wall. (CO2)
- Q.10 The curve in which convexity lies on the outer edge of a hill road is called \_\_\_\_\_. (CO4)
- Q.11 \_\_\_\_\_ is the compressible filler material. (CO4)
- Q.12 Define Hanger. (CO6)

**Section-C**

**Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)**

- Q.13 What are the advantages of providing curves? (CO1)
- Q.14 Write the function of N.H.A.I. (CO1)

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- Q.15 What is the necessity of road drainage system? (CO4)
- Q.16 Write short note on resurfacing when it is necessary. (CO4)
- Q.17 Write the procedure to conduct ductility test of bitumen. (CO3)
- Q.18 Name the various method of soil stabilization. Explain mechanical stabilization. (CO2)
- Q.19 What is the function of seal coat? (CO2)
- Q.20 What are the causes of land-slides? How you will prevent them? (CO4)
- Q.21 What are the main types of road signs? (CO5)
- Q.22 What are the advantages of air transportation as compared to other modes of transport? (CO6)

#### **Section-D**

**Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)**

- Q.23 Explain Los angle's Abrasion test to determine hardness of road aggregate. State its significance. (CO3)
- Q.24 (a) State the various types of camber. What are the objects of providing camber. (CO1)
- (b) What are the advantages of super elevation? (CO1)
- Q.25 Explain in detail the maintenance of Bituminous roads.