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**Question Paper Code: 94105**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2023

Fourth Semester

Civil Engineering

19UCE405 - HIGHWAY ENGINEERING

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Jayakar committee is formed for CO1- U  
(a) Road development plan      (b) recommendation for institutions such as IRC, CRRI  
(c) Speed limits      (d) Toll collection
2. The Width of the three lane road is CO1-App  
(a) 10.5m      (b) 15 m      (c) 11.5m      (d) 9m
3. The ruling design speed on a NH as per IRC is CO2-App  
(a) 80 Kmph      (b) 100 Kmph      (c) 120 Kmph      (d) 140 Kmph
4. The degree of the circular curve is 20 Degree. Estimate the radius of CO2-U  
the curve  
(a) 86 m      (b) 96 m      (c) 106m      (d) 116 m
5. The role of Surface course in pavement is CO3-U  
(a) Wear and tear and protecting base course      (b) Good look  
(c) Good wearing surface      (d) Protecting the vehicles
6. Dowel bars are used in CO3-U  
(a) Transverse joints      (b) Longitudinal joints      (c) both joints      (d) construction joints
7. Camber provided in water bound macadam road is CO4-U  
(a) 1 in 33      (b) 1 in 40      (c) 1 in 25      (d) 1 in 13



18. (a) Design the pavement for construction of a new by-pass with the following data: Two lane carriage way, Initial traffic in the year of completion of construction = 1500 CVPD (sum of both directions), Traffic growth rate = 5% Design life = 15 years, Vehicle damage factor based on axle load survey = 2.5 standard axles per commercial vehicle. Design CBR of subgrade soil = 6%. CO3-App (16)
- Or
- (b) Write down the functions of providing dowel bars and tie bars in Cement concrete pavement joints. Highlight their roles and advantages CO3-U (16)
19. (a) Describe the step by step procedure in construction of bituminous concrete road CO4- U (16)
- Or
- (b) Describe the step by step procedure in construction of water bound macadam road CO4- U (16)
20. (a) Describe any 5 types of failures commonly occur in flexible pavement with neat sketches also suggest suitable remedial measures CO5- U (16)
- Or
- (b) How cracks and potholes affect the performance of a bituminous road. Justify with suitable suggestions to over this issue CO5- U (16)

