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Question Paper Code : 53104

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

Civil Engineering

15UCE304 -HIGHWAY AND RAILWAY ENGINEERING

(Regulation 2015)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any Six of the following Questions)

1. _____ are a separate class of highways with superior facilities and design standards and are meant for through traffic having very heavy volume of traffic. CO1- R
(a) National highway (b) Express way (c) Toll roads (d) State highway
2. ISD is – times SSD CO1- R
(a) 1 (b) 2 (c) 3 (d) 4
3. Temperature stress in concrete pavements is caused due to _____ CO2- R
(a) Repeated application of load
(b) Change in weather
(c) Due to expansion and contraction of slab
(d) Temperature differential between top and bottom of slab
4. When the crack pattern on a bituminous surface course is almost of the same pattern and location as the cracks of lower pavement layer the cracks are known as _____ crack CO3- R
(a) Reflection (b) Alligator (c) Longitudinal (d) Depression
5. Ravelling is caused due to CO3- R
(a) Insufficient binder content (b) Excessive binder content
(c) Use of low viscosity bitumen (d) Heavy channelised traffic

6. Spraying of bitumen binder of low viscosity over a granular or non granular is called application of _____ CO3- R
 (a) Tack coat (b) Prime coat (c) Seal coat (d) Stabilisation
7. Longitudinal movement of rail with respect to sleepers in track is known as CO4- R
 (a) Kink (b) Fish plate (c) Creep (d) Coning
8. _____ is used in rail joints to maintain continuity of rail. CO4- R
 (a) Fish plate (b) Coning (c) Sleeper (d) Ballast
9. Most suitable material for highway embankment is CO4- R
 (a) Granular soil (b) Organic soil (c) Silt (d) Clay
10. Reception, sorting and departure of trains is done at CO4- R
 (a) Marshalling yard (b) Goods yard
 (c) Passanger yard (d) Locomotive yard

PART – B (3 x 8 = 24 Marks)

(Answer any Three of the following Questions)

11. Briefly outline the main features of various road patterns commonly used. CO1- U (8)
12. Enumerate the step by step procedure for bituminous mix design by Marshal stability method. CO2-U (8)
13. Describe the purpose and use of Benkelman Beam with neat sketches. CO3- U (8)
14. Draw a neat sketch of permanent way and explain the functions of various components. CO4- U (8)
15. Draw a typical cross section of a permanent way and indicate its components. Explain various functions of each component. CO4- U (8)