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Question Paper Code : 53104

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2019

Civil Engineering

15UCE304 -HIGHWAY AND RAILWAY ENGINEERING

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The Indian Roads Congress was formed in the year CO1 -R
(a) 1928 (b) 1934 (c) 1929 (d) 1930
2. The first 20 year development plan is also called as CO1- R
(a) Nagpur road plan (b) Lucknow road plan
(c) Bombay road plan (d) Delhi road plan
3. Bitumen is obtained from CO2-R
(a) Wood (b) Petroleum (c) Coal (d) Kerosene
4. The mix design should take into consideration CO2-R
(a) Stability (b) Durability
(c) Stability and durability (d) Age
5. The materials not included in highway construction are CO3- R
(a) Stone (b) Dust (c) Soil (d) Petrol
6. The most preferred shape of highway drainage is CO3-R
(a) Rectangular (b) Trapezoidal (c) Triangular (d) Circular
7. The first Indian railway was laid in CO4-R
(a) 1775 (b) 1804 (c) 1825 (d) 1853

8. The life of a wooden sleeper depends upon CO4-R
 (a) quality of its timber (b) ability to resist decay
 (c) resistance to weathering (d) all the above
9. If n is length of a rail in meters the number of sleepers per rail length CO5-R
 generally varies from
 (a) n to $(n + 2)$ (b) $(n + 2)$ to $(n + 4)$ (c) $(n + 3)$ to $(n + 6)$ (d) $(n + 4)$ to $(n + 5)$
10. Arrangement made to divert the trains from one track to another is CO5-R
 known as
 (a) railway point (b) railway crossing (c) turnout (d) railway junction

PART – B (5 x 2= 10Marks)

11. What are the special features of Roman roads? CO1-R
12. What are the desirable properties of road aggregates? CO2-R
13. Define rigid pavement. CO3-R
14. Define permanent way. CO4-R
15. State the principles of interlocking. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) What are the various classifications of roads? Converse in detail. CO1- App (16)
 Or
 (b) What are the Special considerations for hilly areas? Explain with necessary points. CO1- App (16)
17. (a) What are the typical layers of a flexible pavement? Discuss in detail with a sketch. CO2- App (16)
 Or
 (b) Discuss the design procedure of IRC for flexible pavement. CO2- Ana (16)
18. (a) Explicate the causes and remedies of Transverse cracks. CO3 -Ana (16)
 Or
 (b) What is geo-textile? Explain the use of geo-textile in highway construction. CO3- Ana (16)
19. (a) What is meant by gradient? Enumerate the various types of gradient with all the detail. CO4- U (16)

Or

- (b) Explain super elevation giving its relationship with gauge, speed and radius of the curve. CO4- Ana (16)
20. (a) Explain about Track Drainage. How Surface and Sub surface Water can be removed from Railway track. Give all in detail. CO5- U (16)
- Or
- (b) Explain in detail about different types of crossing with neat sketch. CO5- U (16)

