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Question Paper Code: 45103

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

Fifth Semester

Civil Engineering

14UCE503 - RAILWAYS, AIRPORT AND HARBOUR ENGINEERING

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Metre gauge _____ wide.
(a) 1.4m (b) 2.1m (c) 1.8 m (d) 1 m
2. The sleepers which satisfy the requirements of an ideal sleeper, are
(a) cast iron sleepers (b) R.C.C sleepers
(c) steel sleepers (d) wooden sleepers
3. Public phones are provided in the following categories of railway stations
(a) D (b) A, B, C (c) F (d) E
4. The quantity of stone ballast required per meter tangent length, is
(a) 1.15m³ (b) 1.14 m³ (c) 1.11 m³ (d) 1.13 m³
5. The meteorological to I.C.A.O the slope of transitional surface at right angles to the centre line of runway, is kept
(a) 1 in 4 (b) 1 in 7 (c) 1 in 6 (d) 1 in 5
6. The bearing of the runway at threshold is 290°, the runway number is
(a) N 70° W (b) 290° (c) 29° (d) W 20° N

7. The height of the pilot's eye above the runway surface is assumed
 (a) 1 m (b) 3 m (c) 4 m (d) 5 m
8. Two single runways may be arranged so as to have
 (a) L-shape (b) T-shape (c) X-shape (d) All of the above
9. Location of soundings by two angles from the shore requires establishing
 (a) one range line parallel to shore
 (b) one range line perpendicular to shore
 (c) two range lines mutually perpendicular
 (d) no range line
10. The width of the entrances of the harbours is restricted to
 (a) 100m (b) 125m (c) 150m (d) 180m

PART - B (5 x 2 = 10 Marks)

11. Define super elevation of railway track.
12. Define station yards.
13. Define cross wind component and wind coverage.
14. Why wind direction indicator is provided?
15. What do you understand by littoral drift?

PART - C (5 x 16 = 80 Marks)

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16. (a) Explain the conventional surveys for track alignment. (16)

Or

- (b) A 5° curve branches off from a main curve of 3° in an opposite direction in the layout of a B.G.yard. Determine speed restriction on the main line if speed on the branch line is restricted to 35 kmph. Assume cant deficiency as 75mm. (16)

17. (a) What is meant by crossings? Discuss various types of crossings used in Indian Railways. (16)

Or

- (b) Explain the various types of railway stations. (16)

18. (a) What are the factors which influence the location of an airport? (16)

Or

(b) Explain the term ponding and its design process. (16)

19. (a) Length of a runway at MSL is 1600m. The site has an elevation of 320m, with a reference temperature 33.6°C. The runway has to be constructed with an effective gradient of 0.25 . Determine actual length of runway. (16)

Or

(b) Briefly discuss the various geometric standards for the taxiway with special reference to the recommendations of the ICAO. (16)

20. (a) Discuss the different types of gravity wharves and the circumstances under which you will select each type. (16)

Or

(b) Describe the various types of harbour signals. (16)

