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GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, June - 2021

(Sixth Semester)

BCEPC6030 - Transportation Engineering - II

(Civil Engineering)

Time: 2 hrs

Maximum: 50 Marks

Answer ALL Questions**The figures in the right hand margin indicate marks.****PART – A: (Multiple Choice Questions)****(1 x 10 = 10 Marks)**Q.1. Answer ALL questions

[CO#] [PO#]

- | | | |
|---|--|---|
| a. Two important constituents in the composition of steel used for rail are | 1 | 1 |
| (i) Carbon and silicon | (ii) Manganese and phosphorous | |
| (iii) Carbon and manganese | (iv) Carbon and sulphur | |
| b. 23. A train is hauled by 2-8-2 locomotive with 22.5 tonnes and on each driving axle. Assuming the coefficient of rail-wheel friction to be 0.25, what would be the hauling capacity of the locomotive? | 1 | 2 |
| (i) 15.0 tonnes | (ii) 22.5 tonnes | |
| (iii) 45.0 tonnes | (iv) 90.0 tonnes | |
| c. If n is length of a rail in metres, the number of sleepers per rail length generally varies from | | |
| (i) n to (n + 2) | (ii) (n + 2) to (n + 4) | |
| (iii) (n + 3) to (n + 6) | (iv) (n + 4) to (n + 5) | |
| d. If a 0.7% upgrade meets a 0.65% downgrade at a summit and the permissible rate of change of grade per chain length is 0.10%, the length of the vertical curve, is | 2 | 2 |
| (i) 10 chains | (ii) 12 chains | |
| (iii) 14 chains | (iv) 16 chains | |
| e. The angle between the gauge faces of the stock rail and tongue rail, is called | 2 | 1 |
| (i) Switch angle | (ii) Angle of crossing | |
| (iii) Angle of turnout | (iv) None of these | |
| f. Pick up the correct statement from the following: | 3 | 1 |
| (i) Minimum turning radius of aircrafts decides the size of the apron and the radius of the curves at taxi-ends | (ii) Take off and landing distances for an aircraft, determine the minimum runway length | |
| (iii) The length of the normal haul of the air craft decides the frequency of operation | (iv) All the above | |
| g. The engine failure case for determining the basic runway length may require | 3 | 1 |
| (i) Only clearway | (ii) Only stop way | |
| (iii) Either a clearway or a stop-way | (iv) Either a clearway or a stop-way or both | |
| h. The runway length after correcting for elevation and temperature is 2845 m. If the effective gradient on runway is 0.5 percent then the revised runway length will be | 3 | 2 |
| (i) 2845 m | (ii) 2910 m | |

- | | | | | |
|----|--|--|---|---|
| | (iii) 3030 m | (iv) 3130 m | | |
| i. | Which of the following are repair docks? | | 4 | 1 |
| | (i) Marine railways, dry docks, floating docks, wet docks | (ii) Dry docks, wet docks, floating docks, lift docks | | |
| | (iii) Wet docks, floating docks, lift docks, marine railways | (iv) Wet docks, lift docks, marine railways, dry docks | | |
| j. | As compared to wall type breakwater, mound type breakwater | | 4 | 1 |
| | (i) Requires skilled labour | (ii) Requires low maintenance cost | | |
| | (iii) Requires less material | (iv) Results in less damage due to gradual failure | | |

PART – B: (Short Answer Questions)

(2 x 5 = 10 Marks)

Q.2. Answer ALL questions

- | | [CO#] | [PO#] |
|---|-------|-------|
| a. What is ballast? Name different types of ballast? | 1 | 1 |
| b. Define cant deficiency? What are its considerations? | 2 | 1 |
| c. What are the advantages of automatic signaling system? | 2 | 1 |
| d. Distinguish Between Runway and taxiway. | 3 | 1 |
| e. What are the different components of Dock? | 4 | 1 |

PART – C: (Long Answer Questions)

(6 x 5 = 30 Marks)

Answer ANY FIVE questions

- | | Marks | [CO#] | [PO#] |
|---|-------|-------|-------|
| 3. Explain with neat sketches for various types of rail failures and state its rectifications. | (6) | 1 | 1 |
| 4. Give a typical cross section of permanent way with its levelled descriptions. Indicate its various components and its functions. | (6) | 1 | 1 |
| 5. Derive the expression for super elevation. A 5° curve diverges from a 3° main curve in reverse direction in the layout of B.G Yard. If the Speed on the branch line is restricted 35KMPH .determine the restricted Speed on the main Curve. | (6) | 2 | 2 |
| 6. Define gradient in railway track and describe the various gradients in railway track. | (6) | 2 | 1 |
| 7. The length of the runway under the Standard condition is 1600 m. The airport site has an Elevation of 320m. And the reference temperature of the airport is 33.60° C. It is decoded to construct the runway with can effective Gradient of 0.25 %. Determine the Corrected length of the Runway. | (6) | 3 | 2 |
| 8. What is Terminal Building? Describe the various functions of Terminal Building. | (6) | 3 | 1 |
| 9. Sketch the general layout of harbour and give the detailed descriptions of each component of Harbour. | (6) | 4 | 1 |
| 10. Write in details about dredging and Buoys. | (6) | 4 | 1 |

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