Registration No : | | | | | | | | | | |

Total Number of Pages : 02

Course: B.Tech
Sub_Code: PCI6J001

6th Semester Back Examination: 2022-23
SUBJECT: Advanced Transportation Engineering
BRANCH(S): Civil
Time : 3 Hour
Max Marks : 100
Q.Code : M048

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right hand margin indicate marks.

Part-I

Q1 **Answer the following questions:** **(2 x 10)**

a) Define permanent way.
b) Write any two factors for deciding the weight of rail.
c) What are the possible causes of creep?
d) What are the function of check rail and wing rail?
e) Define bridge joint.
f) Write two advantages of conning of wheel.
g) Define TNC and ANC.
h) Define Calm period and cross wind component.
i) What is code Beacon?
j) Differentiate between dock and harbor.

Part-II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 × 8)**

a) What are the requirements of an ideal permanent way?
b) What are the requirements of good ballast used in Indian railway?
c) Compare between flat footed and bull headed rails.
d) Calculate the elements of 1 in 12 turnout on a straight BG track, when it is given, angle of switch is 1° 45' 30".
e) Briefly explain the various theories of creep.
f) Briefly explain the geometric standard of taxiway.
g) What are the requirements of good joints?
h) Explain briefly the different types of airport marking.
i) Briefly explain the different types of imaginary surfaces.
j) Explain the principles of interlocking.
k) What are the engineering principles of signaling?
l) What are the different classifications of harbor basins?

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 What are the different types of tractive resistance? A 4-10-2 locomotive is required to haul a train at a speed of 95 kmph. The train is made to run on a straight level track with an axle load of driving wheels of the engine is 23 tonne each. **(16)**

i. Calculate the maximum permissible load that can be pulled by the engine.
ii. What should be the reduction in speed, if the train has to ascend a slope of 1 in 160 with a 3º curve?

Q4 Draw the schematic diagram of Right hand Turnout and left hand turnout and show its various component parts. **(16)**

Q5 Briefly explain the various factor which affect the airport site selection. **(16)**

Q6 Briefly explain the different components of Dock. **(16)**