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Total Number of Pages : 02

B.Tech
PCI6J001

6th Semester Regular / Back Examination 2018-19

1 ADVANCED TRANSPORTATION ENGINEERING

BRANCH : CIVIL

Time : 3 Hours

Max Marks : 100

Q.CODE : F605

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 Only Short Answer Type Questions (Answer All-10) (2 x 10)

- What are the types of gauge of railway track used in India and what are the corresponding gauge widths?
- What is composite sleeper index? How do you calculate C.S.I.?
- What are the key constructions you would like to suggest during construction of track in case of valley alignment and cross country alignment?
- Determine the equilibrium cant on a 2 degree curve on a broad gauge, if the weighted average of speeds is 58.125 km.p.h.
- Write the uses of curves that provided during construction of railway track.
- State the importance(s) of Facing points of Turnouts and Trailing points of Turnouts.
- What is/are the use(s) of wind rose diagram?
- What are the parts of network which is used for controlling the air traffic?
- Classify harbour depending upon its utility.
- What is Caisson? Write the types of Caisson.

Part- II

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

- Why is it desirable to maintain uniformity of gauges for railway track in any country? Mention the factors those govern the choice of different gauges.
- Explain the necessity of sleepers in railway track. What are the desirable qualities or requirements of good sleepers?
- State the observations those help you to notice the occurrence of creep in railway track. Explain the causes the creep by percussion theory and drag theory.
- What are the key points need to be considered when the project report for a railway project is prepared by an engineer?
- How do you define the Super-elevation? What are the objects of providing super-elevation on curves of a railway track?
- Calculate the cant deficiency and permissible speed for a 4° curve on a B.G. track.
- Sketch "left hand turn out" and name each components of it.
- Explain the role of topography, wind and economic consideration in selecting the site for airport.
- A taxiway is to be designed for operating Boeing 707-320 which has the following characteristics: Wheel base = 17.70m, Tread of main loading gear = 6.62m, Turning speed = 40 kmph, coefficient of friction between tire and pavement surface = 0.13. Determine the turning radius of the taxiway.
- What are the facilities provided in airport building?
- What are the factors to be studied and scrutinized in harbour planning?
- Differentiate between sliding caisson and ship caisson.

Part-III

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

- Q3

Draw a neat sketch of typical cross section of a Permanent way and name the different parts. Discuss in brief the basic functions of various components of this permanent way.

(16)
- Q4

Determine the length of transition curve and draw the offsets at every 20 m. Given that the design speed of the train on curve is 105 km.p.h. on a B.G. track.

(16)
- Q5

Discuss briefly the various components considered in geometric design of runway as recommended by ICAO.

(16)
- Q6

Discuss the requirements of the harbours, classified depending upon the utility.

(16)