

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

**Course Code: CE407**

**Course Name: TRANSPORTATION ENGINEERING - II**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two full questions, each carries 15 marks.*

Marks

- |   |   |      |
|---|---|------|
| 1 | (a) Sketch the typical cross section of B.G. track on embankment  | (5)  |
|   | (b) Describe the functions and requirements of ballast  | (10) |
| 2 | (a) What is coning of wheel? Why is it necessary for rail wheel interactions?   | (5)  |
|   | (b) A $8^\circ$ curve diverges from a main curve of $5^\circ$ in an opposite direction in the layout of a BG yard, calculate the super elevation and speed on the branch line, if the maximum speed permitted on the main line is 45km.p.h. | (10) |
| 3 | (a) What is meant by super elevation? What are the objects of providing SE on curves?   | (4)  |
|   | (b) Compare and differentiate the different types of rails with neat sketches.  | (6)  |
|   | (c) What are the various causes of creep?   | (5)  |

**PART B**

*Answer any two full questions, each carries 15 marks.*

- |   |  |      |
|---|--|------|
| 4 | a) Draw a sketch showing positions of various signals for a junction of two main line and two branch lines with a siding   | (5)  |
|   | b) What is a yard? What are the different types of yards? Explain the functions of a Marshalling yard and describe the points to be considered in its design.                            | (10) |
| 5 | a) A 1 in 8.5 crossover is laid between 2 BG parallel tracks with their centres 5m apart. Find length of straight track and overall length of the crossover.                             | (5)  |
|   | b) Explain different types of railway signals according to their function. With the help of neat sketch explain the essential features and working principle of a Semaphore type signal. | (10) |
| 6 | a) Differentiate between 'Daily maintenance' and 'Periodic maintenance'  | (4)  |
|   | b) Write short notes on warner signal, Shunting signal, and routing signal with neat sketches  | (6)  |
|   | c) What is Through packing and Scissor Packing? List the difference between them   | (5)  |

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 a) Classify harbours on the basis of utility and explain the uses and requirements of them. (10)
- b) How is transferring of center line into the tunnel carried out? Explain with the help of neat diagram (10)
- 8 a) What is a bulk head? Explain shield method of tunnelling through water bearing soils (10)
- b) What is a dry dock? What are the classifications of dry dock? Explain in detail, any two types of dry docks with neat sketches. (10)
- 9 a) Explain the requirements of a good harbour. (5)
- b) Write short note on: (10)
- (i) Spring and Neap Tide
  - (ii) Littoral Drift
  - (iii) Tidal Bore
  - (iv) Offshore moorings
- c) Enumerate the various ship characteristics that affect the harbour design. (5)

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