

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

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

**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) List and define the component parts of a railway track  | (5)   |
|   | (b) Explain the functions and requirements of rails   | (10)  |
| 2 | (a) What is the equilibrium cant on a $2^{\circ}$ curve on a BG track, if the speed of various trains are 10 trains at 50kmph., 8 trains at 55 kmph. and 4 trains at 60kmph. respectively | (5)   |
|   | (b) Explain the various type of gradient used on railway track? What is grade compensation and why is it necessary?   | (10)  |
| 3 | (a) Explain the term ballast less tracks and explain its advantages.  | (4)   |
|   | (b) Enumerate the role of Indian railways in National development   | (6)   |
|   | (c) What are the factors affecting the selection of gauges?   | (5)   |

**PART B**

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

- |   |  |      |
|---|--|------|
| 4 | a) What are the different types of signals according to location? Illustrate with the help of neat sketch              | (5)  |
|   | b) How are railway stations classified? Explain each with neat sketches  | (10) |
| 5 | a) Explain scissors crossover with neat sketch   | (5)  |
|   | b) What are the different systems of controlling the movement of trains? Explain the working of absolute block system. | (10) |
| 6 | a) Discuss on Conventional and Advanced Remedial Aids for preventing railway accidents.                                | (4)  |
|   | b) Draw a neat sketch of a Left hand turnout and mark its components.  | (6)  |
|   | c) Explain how the accidents are classified on Indian Railways.  | (5)  |

**PART C**

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

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|---|---|------|
| 7 | a) List the various methods of tunnelling in hard and soft rocks. Explain in detail any one tunnelling method employed in hard strata and soft soil | (10) |
|---|---|------|

- b) Why shore protection works are necessary? Explain common forms of shore protection works (10)
- 8 a) Write notes on (10)
- (i) Lighting and Ventilation of tunnels
  - (ii) Lining of tunnels
- b) State the natural and meteorological phenomena a harbour engineer has to study and briefly mention the effects of these phenomena (10)
- 9 a) What are the various forces acting on breakwater? (5)
- b) Distinguish between (i) Wharf and Pier (ii) Transit shed and ware house (5)
- c) Write down the procedure for constructing a tunnel in clayey soil. Explain its advantages.(Draw necessary diagrams) (10)

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