

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (R,S) Examinations April 2026 (2019 Scheme)

Course Code: CET434

Course Name: RAILWAY AND TUNNEL ENGINEERING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|----|--|-----|
| 1 | Explain the role of Indian Railway in National development of a country | (3) |
| 2 | Draw the typical cross section of double lane railway track in embankment and mark its components. | (3) |
| 3 | Explain semaphore signal with a neat sketch. | (3) |
| 4 | Write a detailed notes on marshalling yards. | (3) |
| 5 | What is track maintenance? What are its needs? | (3) |
| 6 | Compare shallow and deep screening. | (3) |
| 7 | Sketch a typical tunnel cross section and marks its components. | (3) |
| 8 | Explain the classification of tunnel. | (3) |
| 9 | What is the purpose of providing tunnel drainage? | (3) |
| 10 | Explain Tunnel ventilation methods. | (3) |

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

- | | | |
|----|---|------|
| 11 | a) What is track alignment. What are the basic requirements and factors affecting ideal rail alignment? | (10) |
| | b) What is creep. What are its causes and effects? | (4) |

OR

- | | | |
|----|---|------|
| 12 | a) What is a permanent way? Explain the components of permanent way indicating its requirements and function of each component. | (10) |
| | b) Write notes on Ballast less track. What are its advantages and disadvantages? | (4) |

Module II

- | | | |
|----|--|------|
| 13 | a) What are Switches and Crossing? Elucidate the different types of switches and crossing with sketches. | (10) |
| | b) Explain the different systems of controlling train movements | (4) |

OR

- 14 a) What is Railway signalling? Explain in detail the classification of railway signals with suitable sketches. (10)
- b) What is interlocking? What are the different methods of interlocking? (4)

Module III

- 15 a) Compare surface, elevated and underground railways indicating its advantages and disadvantages. (6)
- b) Explain in details regarding LRT and MRT. What are its contributions in urban development? (8)

OR

- 16 a) List out the causes and remedial measures of accidents at level crossing. (6)
- b) Elaborate the causes and mitigation measures adopted for railway accidents caused by human error. (8)

Module IV

- 17 a) List out different methods of tunnelling in hard rocks. Explain any one of the methods with neat sketches. (7)
- b) How is transferring of centre line into the tunnel carried out? Explain with the help of neat diagram. (7)

OR

- 18 a) Explain any one method for constructing a tunnel in water bearing soil. Explain its advantages. Draw necessary diagrams (7)
- b) Elaborate on Tunnel boring equipments. What are its merits? Under what situations they are suitable? (7)

Module V

- 19 a) What is Tunnel lining? Explain the various materials that can be used for tunnel lining comparing their merits and demerits. (10)
- b) List the Purpose of tunnel lining. (4)

OR

- 20 a) Explain different Tunnel lighting methods. (7)
- b) Elaborate on Dust control measures with neat sketches. (7)
