

**III B.Tech II Semester Supplementary Examinations, April/May 2006**  
**TRANSPORTATION ENGINEERING**  
**(Civil Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Explain with the help of sketches of different road patterns. [8]  
(b) What are the engineering surveys required for finalising road alignment? Explain the objectives of preliminary surveys. [8]
2. (a) What are different road margins? Explain. [8]  
(b) Explain summit curves and valley curves. [8]
3. (a) List the IRC guidelines for the design of a rotary intersection. [8]  
(b) How are Origin-Destination studies conducted? [8]
4. (a) Explain the significance of various laboratory tests on road aggregates. [8]  
(b) Explain the Westergaard's concepts for temperature stresses. What are the critical combinations of stresses? [8]
5. (a) Explain construction procedure of Water Bound Macadam roads. [8]  
(b) What kind of problems can be expected in maintenance of concrete pavements? Explain. [8]
6. (a) What are different gradients used in railway track? How is grade compensation applied? [8]  
(b) Derive an expression for superelevation of broad gauge curved railway track. [8]
7. (a) How are rails designated? List the types of rail failures. [8]  
(b) Describe the suitability of materials for railway ballast. [8]
8. (a) Give the complete classification of signals indicating their characteristics. [8]  
(b) How are station yards classified? Draw a neat sketch of a double line station having 4 lines. [8]

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