

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER- VI EXAMINATION – SUMMER 2020****Subject Code: 2160603****Date: 26/10/2020****Subject Name: RAILWAY, BRIDGE & TUNNEL ENGINEERING****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1**
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|-----|---|-----------|
| (a) | Compare railway transportation and road transportation | 03 |
| (b) | Define and state the effect of creep. Explain theory of creep. | 04 |
| (c) | Define and explain the following : Ruling Gradient, super elevation, cant deficiency, negative super elevation , grade compensation | 07 |

- Q.2**
- | | | |
|-----|---|-----------|
| (a) | Draw a neat sketch of Right hand turn out in railways. | 03 |
| (b) | Differentiate between (i) Station and Yard (ii) Junction and Terminal station | 04 |
| (c) | Describe in detail the Safety in railways – accidents and remedial measures.. | 07 |

OR

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|-----|--|-----------|
| (c) | Describe in detail the Interlocking of. signals and points | 07 |
|-----|--|-----------|
- Q.3**
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|-----|--|-----------|
| (a) | Cross section of Permanent way a railway track in embankment.. | 03 |
| (b) | Explain the stages of construction of new railway line. | 04 |
| (c) | Describe in detail the drainage, maintenance works for a railway track | 07 |

OR

- Q.3**
- | | | |
|-----|---|-----------|
| (a) | Enlist the points to be considered for the site selection for construction of a bridge. | 03 |
| (b) | Enlist the function of bearing in the bridge. Explain rocker and roller bearing | 04 |
| (c) | Explain the following (i) Abutment (ii) Bearing (iii) Afflux (iv) Ease water (v) cut water (vi) Economic span of bridge (vii) wing wall | 07 |
- Q.4**
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|-----|--|-----------|
| (a) | Enlist and explain the advantages of various temporary and movable bridges | 03 |
| (b) | Describe the method of erection of steel girder bridge | 04 |
| (c) | Discuss the methods of testing and strengthening of bridges. | 07 |

OR

- Q.4**
- | | | |
|-----|--|-----------|
| (a) | Give classification of Tunnels with respect to shape and purposal. | 03 |
| (b) | Write short note on “ Safety Precautions in tunneling” | 04 |
| (c) | Discuss in detail the river training works . with neat sketches | 07 |

- Q.5** (a) State the importance of the alignment of a tunnel and Shafts **03**
- (b) Explain with neat sketch one method of Tunneling in Hard Rock . **04**
- (c) Discuss about (i) Tunnel lining (ii) Lighting in tunnels **07**

OR

- Q.5** (a) Why drainage is necessary in tunnel, explain one method of drainage system. **03**
- (b) Explain with neat sketch one method of Tunneling in Soft ground **04**
- (c) Discuss with neat sketch the method for ventilation during tunnel construction and the measures taken for dust control. **07**
