Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014**

**Subject code: 1721306** **Date: 20-06-2014**

**Subject Name: Transportation Facility Design**

**Time: 02:30 pm - 05:00 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** **(a)** Enlist the functions of various Transportation terminals. **07**

**(b)** Explain with neat sketch different types of grade separated intersections along with their suitability. **07**

**Q.2** **(a)** What do you mean by Traffic rotary? What are the advantages and disadvantages of rotary intersections? **07**

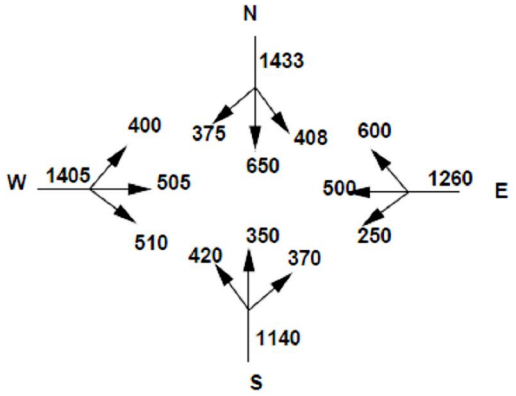
**(b)** Explain various types of at grade intersections. **07**

**OR**

**(b)** Briefly explain: Area Traffic control. **07**

**Q.3** **(a)** Where do you suggest rotary intersection? Explain with neat sketch rotary elements. **07**

**(b)** The width of a carriage way approaching an intersection is given as 15 m. The entry and exit width at the rotary is 10 m. The traffic approaching the intersection from the four sides is shown in the figure below. Find the capacity of the rotary using the given data. **07**




**OR**

**Q.3** **(a)** Explain the warrants for deciding a signal installation at a particular intersection. **07**

**(b)** A fixed time 2 phase signal is to provided at an intersection having a North-South and an East-West road where only straight ahead traffic is permitted. The design hour flows for these arms are given in the following table: **07**

| | North | South | East | West |
|---|---|---|---|---|
| Design hour flow (q), PCU/hr | 800 | 400 | 750 | 600 |
| Saturation flow(s), PCU/hr | 2400 | 2000 | 3000 | 3000 |

Calculate the optimum cycle time and green times for the minimum overall delay. The inter-green time should be the minimum necessary for efficient operation. The time lost per phase due to starting delays can be assumed to be 2 seconds. The value of amber period is 2 second.

| | | | |
|---|---|---|---|
| **Q.4** | **(a)** | Explain with a flow chart the facilities required at the Airport passenger terminal. | **07** |
| | **(b)** | Write short note on Terminal processing time with suitable example. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain the concept of inland port. | **07** |
| | **(b)** | Explain design of horizontal curves with sketch and write formula for finding its length. | **07** |
| **Q.5** | **(a)** | What is the need of coordinated control of signals at various intersections on main traffic route? Explain various types of coordinated signal systems. | **07** |
| | **(b)** | Write short note on design of Pedestrian facilities in urban area. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Enlist various off street parking facilities. Explain any two of them which can be useful for India urban areas. | **07** |
| | **(b)** | What are the functions of Railway station? Discuss the various requirements of a railway station. | **07** |

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