MIDTERM EXAM

Question No. | Mark | Max. Mark | Notes |
--- | --- | --- | --- |
1 | 5 | | |
2 | 10 | | |
3 | 4 | | |
4 | 6 | | |
**Total** | **50** | | |

**Question 1:** (5 points)

Study the following statements & indicate if they are (True or False) & Comment.

1- Laybys are provided instead of central reservation in order to separate high speed opposing traffic.

[ ] True

[ ] False

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2- The purpose side-slopes of cuttings and embankments is avoid ponding تجمع المياه in surface deformations on the carriageway.

[ ] True

[ ] False

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3- Vehicular traffic flow is one of the basic warrents of signal installation at intersections.

[ ] True

[ ] False

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4- Fill in the blank

The central reservation (median strip) in a road cross-section has the following uses:
1. ………………
2. ………………
3. ………………
4. ………………
**Question 2:**

(10 points)

Calculate the capacity of Approach A to the intersection shown below. The intersection is controlled by traffic signals. The effective green time of phase I = 20 seconds and the cycle time is 60s. Two vehicles may wait in the middle of the intersection without blocking traffic flow. Assume that all vehicles using the intersection are passenger cars. The saturation flow of Approach C was calculated earlier as 1950pcu/h, and the actual demand flow was 900 pcu/h. Make any necessary reasonable assumptions.
Question 3: (4 points)

For the data given question 2, *draw the timing diagram* if the inter-green period was chosen to be 6 seconds. *Make any necessary reasonable assumptions.*
Question 4: (6 points)

The entry capacity of each approach in the beneath roundabout is given by the following equation:

\[ Q_e = 2400 - 0.8Q_c \]

Where \( Q_c \) is the circulating flow. Calculate the Ratio of Flow over Capacity (RFC) of all approaches.

The peak hour flow in PCU/hr are presented in the figure at the right.

Make any necessary reasonable assumptions.