MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

MANIPAL INSTITUTE OF TECHNOLOGY

VII SEMESTER B.TECH (CIVIL ENGINEERING)

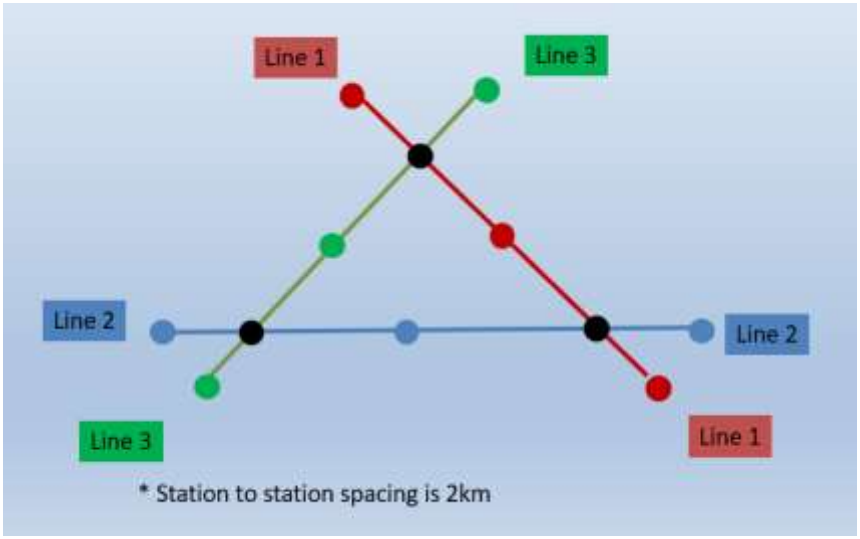
END SEMESTER EXAMINATION

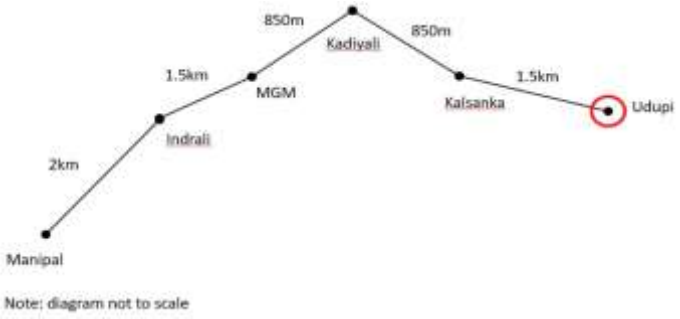
URBAN MASS TRANSPORT SYSTEM (CIE 4067)

(– - 2023)

TIME: 3 HRS. **MAX. MARKS: 50**

Note: 1. Answer all questions.
2. Any missing data may be suitably assumed.

Q. NO	QUESTION	MARKS	CO
1A	What is public transport network? What are the challenges faced by transit planner while planning for transport network?	**2**	**3**
1B	Describe the effect of area coverage, operating speed and directness of travel of transit system leading to passenger attraction.	**3**	**3**
1C	Compute the transit network size and topology indicators for the transit network shown in the figure given below. 	**5**	**3**
2A	Describe the characterises of regular transit lines considered in transit scheduling.	**2**	**4**
2B	What are the output components of transit scheduling? Explain.	**3**	**4**
2C	Develop a master schedule for a bus transit service on route 169A bound to Udupi from Manipal. The various inputs are as follows. Average speed of the bus = 8.3 m/sec	**5**	**4**

<table>
<tr><td></td><td>Headway = 15 minutes
Peak Service Hours: 7:00 am – 9:30am
Other routes converge on the Udupi terminal at :03 and :33 past the hour.
 
</td><td></td><td></td></tr>
<tr><td>3A</td><td>Define: terminal, station, bus stop and depot.</td><td>2</td><td>5</td></tr>
<tr><td>3B</td><td>Distinguish between heavy rail station and light rail station.</td><td>3</td><td>5</td></tr>
<tr><td>3C</td><td>Describe the objectives of bus stop layout?</td><td>5</td><td>5</td></tr>
<tr><td>4A</td><td>With a neat sketch describe the ramp gradient used in bus stops.</td><td>2</td><td>5</td></tr>
<tr><td>4B</td><td>Describe the design principle of bus loading zone.</td><td>3</td><td>5</td></tr>
<tr><td>4C</td><td>Describe bus berthing system with neat sketch.</td><td>5</td><td>5</td></tr>
<tr><td>5A</td><td>Compute the number of bus trips generated for the year 2050 using regression analysis from the data, for the year 2023, given below.

The population in the
<table>
<tr><td>Zone</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Population in thousands for the year 2023</td><td>12</td><td>14</td><td>18</td><td>10</td></tr>
<tr><td>Bus trips in hundreds</td><td>8</td><td>10</td><td>15</td><td>6</td></tr>
<tr><td>Population in thousands for the year 2050</td><td>20</td><td>15</td><td>25</td><td>12</td></tr>
</table></td><td>4</td><td>3</td></tr>
<tr><td>5B</td><td>Describe route configuration with neat sketch.</td><td>2</td><td>4</td></tr>
<tr><td>5C</td><td>List the requirements of transit fare.</td><td>4</td><td>5</td></tr>
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