



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)
Seventh Semester, B.E. - Automobile Engineering
Semester End Examination; Dec. - 2019
Road Transport Management

Time: 3 hrs

Max. Marks: 100

Note: i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.

ii) Draw neat pencil sketches. iii) Missing data, if any, shall be assumed appropriately and stated clearly.

UNIT - I

- 1 a. Write a note on:
- (i) History of Road transportation system 10
 - (ii) Infrastructure requirement for road transportation system
- b. Sketch and briefly explain about the details of the facilities provided at the Road Transport Bus Stations. 10
- 2 a. Sketch a neat layout of a garage for a large road transport undertaking. Indicating all the necessary planned sections and equipment, describe the functioning, to take up large scale overhaul. 12
- b. Explain the objectives and advantages of preventive and breakdown maintenance of public service vehicles. 8

UNIT - II

- 3 a. Explain Municipal and Company undertaking and different forms of ownership in relation to road transport undertaking. 10
- b. Sketch and Explain the functions and responsibilities of the Traffic Secretarial and Engineering Departments of a road transport organization administration. 10
- 4 a. Sketch and explain functions and responsibilities of Centralized and Decentralized control of a Road transport system. 12
- b. What are the causes which affect the punctuality of Road transport operation? What are the remedies for the same? 8

UNIT - III

- 5 a. Describe the factors that influence the Route planning and traffic volume estimation? Briefly explain. 6
- b. Estimate number of passengers travelling at different times of the day from 6 am to 11 pm at one-hour interval from the following data, in tabulated form.

Probable weekday travelers

| | |
|--------------------------------------|---------|
| Workmen (Monday - Saturday) | 800/day |
| Students (Monday - Saturday) | 200/day |
| Shoppers (Monday - Friday) | 300/day |
| (Saturday) | 600/day |
| Pleasure seekers (Monday - Saturday) | 200/day |
| Casuals (Monday - Saturday) | 300/day |
| Sunday traffic | 400/day |

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Suitable timings for different set of passengers may be assumed. How many number of buses required to cater estimated number of passengers? Adopt appropriate assumptions, wherever found necessary with valid reasons.

- 6 a. Describe; (i) Timings, Bus Workings, Schedules
(ii) Concept of Flat Graph and Graph of Overlaps

Specify by means that of a flat graph, the timetable for the buses as shown below. With valid reasons, recommend modifications, if needed.

| Timetable – Route A to Route B | | | | | | | | | |
|--------------------------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | am | | | | pm | | | |
| A | Departure | 08.00 | 09.30 | 11.00 | 13.30 | 16.30 | 18.00 | 19.30 | 21.00 |
| B | Arrival | 08.45 | 10.15 | 11.45 | 14.15 | 17.15 | 18.45 | 20.15 | 21.45 |
| C | Departure | 09.00 | 10.30 | 12.00 | 14.30 | 17.30 | 19.00 | 20.30 | 22.00 |
| D | Arrival | 09.45 | 11.15 | 12.45 | 15.15 | 18.15 | 19.45 | 21.25 | 22.45 |

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- b. Describe Cautionary, Mandatory and Informatory Signs. Outline the following signs:

10

Left Reverse Bend, Slippery Road, Loose Gravel, Dangerous dip.

UNIT - IV

- 7 a. Briefly explain various types of fare collection system.

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- b. Define the following fare structures:

- (i) Concession fares (ii) Straight and tapered fare scales
(iii) Standard layout and Anomalous Fare Table
(iv) Inter-availability of tickets and summation of fares

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- 8 a. Explain, what do you mean by Prime Costs and Supplementary Costs, which come under total cost of production? Describe any two methods of making provision for depreciation of Road transport vehicles.

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- b. Estimate the total operating cost per vehicle mile from the following data of :

- (i) Wages cost (ii) Overheads costs (iii) Mileage Cost

Discuss, for Road transport vehicles, the influence of vehicles speed and annual mileage covered with wages, overheads and total cost.

| (I) Wages Cost | | | | | | | | | | |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| KMPH | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 |
| Wages cost /km (₹) | 825 | 733 | 660 | 550 | 508 | 471 | 440 | 413 | 388 | 367 |

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| (II) Overheads Cost | | | | | | | | | | |
|----------------------------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| KMPH per annum (Thousands) | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 |
| Overheads Cost/km (₹) | 3996 | 1998 | 1332 | 999 | 799 | 666 | 571 | 500 | 444 | 400 |

| (III) Mileage Cost | | | | |
|----------------------------|-----------------|-------|-------------|--------|
| Fuel | Lubricating oil | Tyres | Maintenance | Repair |
| ← ₹ 5.74 per vehicle km. → | | | | |

UNIT - V

- 9 a. Describe the specific duties of Public relations office, Press and Publications and Publicity sections of public relations division in relation to a Road transport organization. 9
- b. What are causes of accidents? Explain the measures may be taken to prevent the same with respect to Road transport vehicle operation. 11
- 10 a. Explain, about types and capacities, Basic features, Entrance and exits, Comforts and capacity vehicle design. 10
- b. What is the influence of energy situation, environmental and social issues and vehicle with new technology? 10

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