



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; February - 2022

Transport Management and Motor Vehicle Act.

Time: 3 hrs

Max. Marks: 100

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

ii) Assume missing data, if any iii) Draw neat sketches wherever necessary

UNIT - I

- | | | |
|------|--|----|
| 1 a. | Write a note on historical evolution of public-surface-transport and growth of transport network, duly mentioning various modes responsible for evolution of transport network. | 6 |
| b. | Explain various fixed installations necessary, as a part of transport infrastructure for a public surface transport system. | 6 |
| c. | Briefly explain, with neat sketches, the two types of bus stations duly mentioning facilities provided. | 8 |
| 2 a. | Sketch a neat layout of a garage, briefly explain the functioning, to take up large scale overhaul, indicating all necessary planned sections and equipment, for a large road transport undertaking. | 10 |
| b. | Discuss about analysis of road accidents of Public Transport vehicles? Explain measures for prevention of the same. | 5 |
| c. | Relating to future public-surface transport, write a note on energy situation, environmental & social issues and vehicle with new technologies. | 5 |

UNIT - II

- | | | |
|------|--|----|
| 3 a. | What do you understand by Municipal and company undertaking. List different forms of ownership in relation to road transport undertaking. Briefly explain with the limitations of each of them. | 11 |
| b. | With neat sectionalized diagrams, explain, the functions and responsibilities of the traffic, secretarial and engineering departments of a road transport organization administration? | 9 |
| 4 a. | With regard to Organization and management, with neat sectionalized diagrams, briefly explain the functions and responsibilities of decentralized control of an Internal Organization of a public road Transport system. | 7 |
| b. | List the causes which affect the punctuality of public road transport operation. Give description about the remedies for the same. | 7 |
| c. | What are the specific duties of Public relations office, press and publications and publicity sections of public relations division in relation to a public transport organization? | 6 |

UNIT - III

- 5 a. What are the factors that influence the route planning and traffic volume estimation? Briefly explain. 6
- b. Prepare a table from estimated number of passengers travelling at different times of the day from 5:30 am to 11:30 pm at one-hour interval from the following data.

Average number of houses per acre	12
Acreage of estate	250
Total number of houses	3,000
Average number of :	
Persons per house	3.4
Workers per house	1.0
Shoppers per house	1.0
School children per house	0.8

14

Assess probable weekday travelers of all segments of interest. Assume suitable timings for different set of passengers. Estimate, the number of buses required to cater estimated number of passengers. Suitable assumptions shall be made wherever found necessary with valid reasons.

- 6 a. Explain:; i) Timings, bus Workings, schedules 10
- ii) Concept of Flat Graph and Graph of overlaps
- b. Show by means of flat graph and overlaps graph, the existing time table route A to B as given below. Explain, what modification is necessary for an optimized economical operation of the same? 10

Timetable- Route A to Route B											
		am				pm					
A	Departure	06.30	08.00	09.30	11.00	13.30	16.30	18.00	19:30	21.00	21.30
B	Arrival	07.15	08.45	10.15	11.45	14.15	17.15	18.45	20.15	21.45	22.15
B	Departure	7.30	09.00	10.30	12.00	14.30	17.30	19.00	20.30	22.00	22.30
A	Arrival	08.15	09.45	11.15	12.45	15.15	18.15	19.45	21.15	22.45	23.15

UNIT - IV

- 7 a. Which type of fare collection system is more practical in the current scenario pertaining to public transport? Briefly explain various types of fare collection system. 8
- b. Describe the significance of following fare structures: 12
 - 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
- 8 a. With regard to public transport operation, explain, prime costs and Supplementary costs that come under total cost of production? Describe any two methods of making provision for depreciation of public service vehicles. 8

b. Calculate total operating cost per vehicle mile from the following data of,

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

12

Further, discuss about the influence of vehicle 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) Rs.	825	733	660	550	508	471	440	413	388	367

(ii) Overhead cost										
KM per annum (Thousands)	50	55	60	65	70	75	80	85	90	95
Overheads cost (km) Rs.	3996	1998	1332	999	799	666	571	500	444	400

(ii) Mileage Costs				
Fuel	Lubricating Oil	Tyres	Maintenance	Repair
←----- Rs. 5.74 per vehicle km. -----→				

UNIT - V

- 9 a. List and briefly explain about significance of various chapters that are discussed in Indian motor vehicle act. 10
- b. As per, new traffic rules in India, tabulate the penalty charged when one is observed offending the traffic rules, applicable from September 01, 2019. 10
- 10 a. Briefly explain Cautionary, Mandatory, and Informatory Signs. Sketch any two signs in each case. 10
- b. Write a note on; 10
 - i) Taxation
 - ii) Insurance of vehicle with regard to public transport vehicles

* * * *