



Important Instructions to examiners:

- 1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.
- 2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.
- 3) The language errors such as grammatical, spelling errors should not be given more. Importance (Not applicable for subject English and Communication Skills).
- 4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figures drawn by candidate and model answer may vary. The examiner may give credit for any equivalent figure drawn.
- 5) Credits may be given step wise for numerical problems. In some cases, the assumed constant values may vary and there may be some difference in the candidate's answers and model answer.
- 6) In case of some questions credit may be given by judgment on part of examiner of relevant answer based on candidate's understanding.
- 7) For programming language papers, credit may be given to any other program based on equivalent concept.

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1. A) Solve any three :	12
a) Define i) Permit ii) Fare	04
Answer: i) Permit: It means a permit issued by a state or Regional transport authority or an authority prescribed in this behalf under M.V. Act authorizing the use of a motor vehicle as a transport vehicle.	02
ii) Fare: It means the sum payable for a daily or seasonal ticket in respect of the hire of a contract or Stage carriage. Fare is charged on the trip base or distance to be travelled.	02
b) List the documents required for getting driving license.	04
Answer: (Same credit should be given to documents required for learners licence or Permanent driving licence.) Documents required for getting Learner's driving license. 1) Application cum declaration of physical fitness in FORM 1. 2) Medical certificate issued by RMP in prescribed form No.1-A. 3) Age and address proof by any one of the following document attested by a competent authority- 1. Ration card 2. Electoral Roll or Voting ID Card 3 Life Insurance Policy 4. Passport 5. Electricity bill or telephone bill 6 Pay slip issued by any office of the Central government or a state 7 House Tax receipts 8. School leaving certificate 9. Birth Certificate. 4) Receipt of appropriate fees paid. 5) Three copies recent photograph (size 5 cm X 6cm)	04
OR	
Documents required for getting Permanent Driving License- 1. Application in Form No .4 2. Effective Learners license. 3. Proof of age and address. 4. Medical certificate in Form No1-A 5. Three copies recent photograph (size 5 cm X 6cm) 6. Driving schools certificate in Form No.5 for all transport vehicles 7. Receipt of appropriate fees paid. 8. All valid documents of the vehicle on which the test to be conducted.	



c) Write the difference between STA and RTA.		04																											
Answer: Difference between STA and RTA. (Each point carry ½ Mark)		04																											
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d) What are conditions for tourist permit?		04																											
Answer: (Any 4 points –each point carry 1 Mark) Conditions for tourist permit i) Permit holder shall cause to be prepare in respect of each trip list in triplicate of tourist passenger to be carried in the vehicle , duly attested by the executive magistrate or sub inspector of police or nay Gazette officer of the STA or RTA in this regard the area from which the tour emanates giving full particulars as under - <ul style="list-style-type: none">• Name of the passenger• Address of the passenger• Starting point and the point of destination ii) One copy of the list shall be sent by registered AD post to the Authority which issued the permit for record the second copy shall be carried in the tourist vehicle and shall be produced on demands by the officers preserved by the permit holders. iii) The tourist vehicle shall either commence its journey or end its journey circular or end its journey circular otherwise in the home state subject to the condition that the vehicle shall not remain outside the home state for a period of more than two mounts. The permit holder shall see that every return of the tourist vehicle to the home state is reported to the authority while issued the permit. iv) The tourist vehicle shall not be parked on any bus stand used by stage carriage and shall not operate from such bus stand. v) The tourist vehicle shall be painted in white colour with a blue ribbon of five centimeter		04																											



width at the center of the exterior of the body and the word “Tourist “shall be inserted on two sides of the vehicle within a circle of sixty centimeters diameters. vi) The permit holder shall display in the front top of the tourist vehicle a board in yellow with letters with letter in black with the inscription “Tourist permit valid in State(s)....” In English and Hindi and also if he so prefer in regional language of the home state.	
B). Solve any one	06
a) Write the procedure for a registration of a vehicle.	06
Answer: Procedure for a registration of a vehicle: 1) To obtain the registration certificate for motor vehicle, the applicant is required to apply in Form- 20 to registering authority within 7 days from the date of purchase of vehicle. The Form 20 is the document which contains the particulars about the owner and the vehicle such as name and address of the owner, Class of Vehicle, type of body, Name of Manufacturer, Year of Manufacture, No. of cylinder, Power, Chassis No., Engine No. etc. The owner of vehicle is required to fill up all the information and submit the same to the authority in whose region the applicant resides. 2) The application must be accompanied with following documents – (<i>Note: Essential documents for a particular class should be mentioned</i>) 1. Sale certificate in Form No. 21 given by dealer. 2. Roadworthiness certificate in Form No.22, 22 – A form the manufacturer. 3. Roadworthiness certificate in Form No. 22 - A Part II from the body builder for transport vehicles. 4. Purchase invoice (for vehicle attracting life time tax). 5. Temporary registration if any. 6. Valid insurance certificate. 7. Address proof. 8. Entry tax payment proof if any vehicle, body or tanker is purchased from outside the state. 9. Octroi receipt if registering in municipal limits. 10. PAN number or Form No. 60 in two copies (except 2 wheeler). 11. Manufactures certificate for invalid carriage. 12. Customs clearance certificate in case of imported vehicles along with licence and bond if any. 13. Bill of entry for imported vehicle. 14. Design approval from transport commissioner in the case of trailer. 15. 7/12 abstract or Tahasildar certificate in the case of agricultural tractor and trailer. 16. Appropriate fees 17. Fitness certificate of Vehicles.(Form No.38) 3) After fulfillment of above document the owner of vehicle is required to produce the vehicle before the registering authority for inspection or for verification. The registering authority verifies the entries made in Form 20 with actual particulars of the vehicle. Once the registration formalities are over, a registration number is allotted to the vehicle and registration book is given to the owner.	02 02 02



b) State basis of taxation. Which vehicles are exempted from the tax?	06
<p>Answer: Basis of taxation. 1. One Time Tax on Non- Transport Vehicles On motorcycle, cars, mopeds, jeeps etc. registered in non-transport category, onetime tax (OTT) is levied and collected on Vehicle cost. A cost of vehicle in relation to vehicle manufactured in India (Cost of vehicle = manufacturing cost of vehicle + Central Excise + Sales Tax)</p> <p>2. OTT – Taxes on Transport vehicles Payment of OTT for LMV (Transport) is mandatory for the new vehicles registered after May` 2000. But for old vehicles registered prior to May` 2000, it is an optional. They can either adopt yearly method or OTT.</p> <p>3. Annual Tax 1. Goods Vehicles and Passenger Vehicles : Vehicles not eligible to pay OTT likes Trucks, Tempo, Buses and Seating capacity, type of permit and construction of vehicle form the basis of taxation of passenger vehicles can adopt Quarterly, half yearly or yearly method of tax payment.</p> <p>Vehicles exempted from the BMV Tax Act: (Any Four - each point carry 1 Mark)</p> <ol style="list-style-type: none">1. The motor vehicles used for fire bridges purpose and police purpose.2. The motor vehicle used for medical relief of such as ambulance or mobile dispensaries.3. The motor vehicle is used for education purpose and religious teaching.4. The motor vehicle used in connection with “Shramdan work “approved by the state govt.5. Tractor and Trailers used for the transportation of agriculture products.6. Motor vehicle specially adopted for the use of person suffering from physically defect or Permanent disability.7. All motor vehicle which are under intimation of Non-use.8. All motor vehicle belonging to diplomatic officers.9. Motor vehicle used for object of general public utility.10. Motor vehicles belonging to government of India and state government.	02
2. Solve any four :	16
a) What is the necessity of permit?	04
<p>Answer: (Any four points – 1 mark each) Necessity for permit</p> <p>1) No owner of a motor vehicle shall use or permit the use of the vehicle as a transport vehicle in any public place, whether or not such vehicle is actually carrying any passengers or goods save in accordance with the conditions of a permit granted or countersigned by a Regional or State Transport Authority authorizing him the use of the vehicle in that place in the manner in which the vehicle is being used.</p> <p>2) Every application for a permit shall be made to the Regional Transport Authority of the region in which it is proposed to use the vehicle or vehicles.</p> <p>3) If it is proposed to use the vehicle or vehicles in two or more region lying within the same state, the application shall be made to the Regional Transport Authority of the region in which the major portion of the proposed route or area lies.</p> <p>4) As per the conditions prescribed in the permit, a vehicle owner should strictly follow the conditions.</p> <p>5) Revenue generates through new grant of permits.</p> <p>6) Through permits it is easy to fulfill the increasing traffic demands and effective control.</p>	04



b) State the objectives of taxation.	04
Answer: Objectives of taxation (Any 4 –each point carry 1 Mark) 1) Raising the revenue of government. 2) Economical growth of state and nation. 3) Reduction in unemployment. 4) Reduction in regional disparities. 5) Distributional justice to all the people.	
c) Define : i) Route ii) Goods vehicle	04
Answer: i) Route: It means line of travel of the specific way in between two terminals on which the motor vehicle may be operated.	02
ii) Goods vehicle: It means any motor vehicle constructed or adopted to use upon the road solely for carriage of the goods. Such vehicle can be used on contract or under hire purchase agreement. It can be categorized on the basis of gross vehicle weight as Heavy goods vehicle, Medium goods vehicle and Light goods vehicle	02
d) Write the importance of Automobile Engineers in motor industry.	04
Answer: Importance of Automobile Engineers in motor industry :(Any eight, Each point carry ½ Mark) An automobile engineer plays a vital role and can perform following activities in manufacturing and service industry 1. Design and development of automotive components and system. 2. To adopt new technology and to introduce various improvement programmers in new generation vehicles. 3. With the advanced technology , implement strategies to reduce manufacturing as well as maintenance costs. 4. To test and standardize various vehicle components. 5. To try for different means of fuel company. 6. To try to make vehicles more attractive, more comfortable and more reliable. 7. Try to go through research in the areas of pollution and noise control devices, and verify the exhaust emission and noise within permissible limit. 8. He is required to carry out the research for drivers satisfaction in various fields like to convert two stroke mobiles into four stroke with [possible changes in design and to adopt computer aided design (CAD) for betterment of the industry . 9. To carry out the research for operation of the vehicles with non – conventional fuel resources from existing fuel resources. 10. To work in to the various cadres like Research Engineer, Supervisor , Forman, Manager in different sections of the industry, Maintenance Engineer etc. 11. An automobile engineer as an authority have to perform different functions in office of transport industry as an licensing authority and registration authority.	04



As a technocrat , an automobile engineer having required knowledge and skills in specific areas plays an important role in development of automobile industry.	
e) What is importance of motor vehicle insurance?	04
<p>Answer: importance of motor vehicle insurance</p> <p>It is the insurance which provides social compensation for the benefit of general public who are injured or who have got death or whose vehicle has damaged in road accident. The motor vehicle insurance is covered under the two types of insurance policies-</p> <p>i) Comprehensive insurance- It covers the risk of vehicle and its owner or driver as well as third party which involves in accident.</p> <p>ii) Third Party insurance – It means the person or property other than the vehicle and vehicle owner are safeguarded under this insurance. It is compulsory to all vehicles to safeguard the interest of pedestrians.</p> <p>Motor vehicle Insurance is an agreement between the insurer and the insured wherein the insurer provides financial cover for the vehicle and the insured in return pays specific premium annually. It provides protection for your vehicle against the financial loss and liability that could result as a part of accident or theft.</p>	02 01 01
f) Explain the function of BEST.	04
<p>Answer: (Any eight ,Each point carry ½ Mark)</p> <p>Function of BEST.</p> <ol style="list-style-type: none">1. It is public sector transport organization through Mumbai municipal corporation.2. Best piles buses that connect almost all parts of Braham Mumbai & urban Mumbai.3. Best supplies commercial electricity to Mumbai.4. The total operational area is divided in to zones & emergency brake down buses are provided for each zone.5. Through BEST buses approximately 45,00,000 passenger travel trough out the Mumbai per day.6. It has 25 depot.7. Special transport arrangements are made and extra buses under various Action plans are operated during the year on various social /religious occasions.8. The under taking also pays special attention to operate extra buses in case of dislocation of Railways heavy rain and similar such event.9. BEST eases the journey of lady passenger , particularly working women by introducing “ladies first” buses at various point where the ladies are given priority while boarding the bus at the starting point.10. The under taking has a well – equipped Training Center for traffic staff and designed program to reeducate them on such relevant topics as fuel conservation , safety measures , behavior with the public etc.	04
3.Solve any four	16
a) Explain Petroleum Conservation and Research Association.	04
<p>Answer:</p> <p>Petroleum Conservation and Research Association:</p> <p>As a part of the Government’s response to the oil crisis of early seventies, the PCRA was set up in 1976 to undertake studies to identify the potential and to make recommendations for achieving conservation of petroleum products in various sectors of the economy.</p>	01



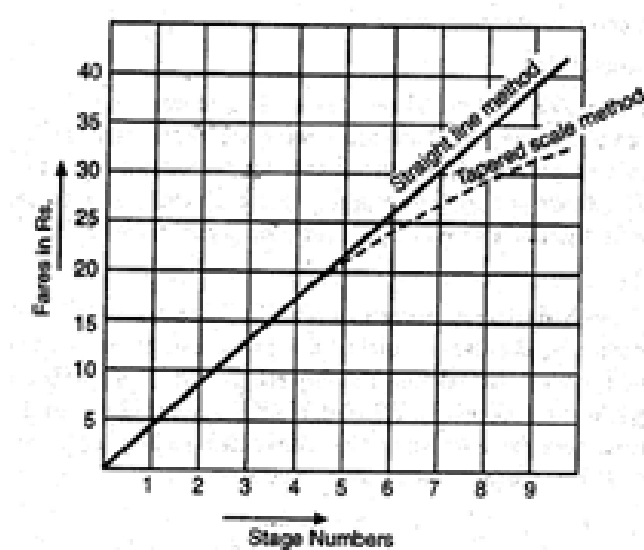
<p>It sponsors R&D activities for the development of fuel-efficient equipment / devices and organizes multi-media campaigns for creating mass awareness for the conservation of petroleum products.</p> <p>Fuel oil utilization studies, energy audits, boiler modernization scheme, introduction of equipment bank concept, use of energy vans, development of oil consumption norms, model depot projects, driver training programs, demonstration clinics/ workshops/ exhibitions, consumer meets, education films/TV spots, hoarding/ electronic display, distribution of printed literature, R&D projects are other activities.</p> <p>Its aim is to establish synergetic institutional linkages at the national and international levels in the areas of petroleum conservation and environment protection.</p> <p>It provides training and technical advisory services, designed to achieve economy and efficiency in use of petroleum products for cleaner environment.</p>	01 01 01
<p>b) Explain the procedure for preparing bus transport schedule.</p>	04
<p>Answer: Procedure for preparing bus transport schedule:</p> <p>Proper scheduling of number of buses available and crew in transport organization are very important resources for profitable and effective transport operation.</p> <p>Bus transport scheduling-</p> <p>1) Asses the traffic demand - Traffic survey helps to assess the traffic demand; road survey helps to judge the feasibility of operation. Route length, route condition, traffic points, and running time fixation of bus stop these aspects are to be covered inroad survey.</p> <p>2) Calculate the total time required completing the trip – It consists assessment of running time and Standing time required during a single trip, considering the distance to be covered. Maintenance time i.e. routine daily checks such as greasing, washing, cleaning, topping up diesel etc. should also be considered in this.</p> <p>3) Calculate the number of buses required to be operated considering frequency of service for a maximum utilization of a bus.</p> $\frac{\text{Running time(Twice)+ Stand Time (Twice)}}{\text{Frequency of Service}} = \text{No. of Vehicles}$ <p>4) Assign the actual number of buses to be operated on a specific route considering traffic demand and frequency of service. Also assign required number of crews for a bus.</p> <p>5) Make maximum utilization of existing buses to be operated on existing routes.</p>	04
<p>c) Explain important factors while buying a old vehicle.</p>	04
<p>Answer:</p> <p>Factors to be considered for buying a old vehicle: (Any 8) –</p> <p>1) Tyres: the condition of tyres its life and nature of wear must be noted.</p> <p>2) Body: The condition of the body and paint must be checked.</p> <p>3) Battery: The condition of battery is also essential before valuation because its cost is also high.</p> <p>4) Rattling noise: Check noise level and its origin or source.</p> <p>5) Engine: Starting qualities, good pick up, low fuel combustion, power output must be checked on road test. Check also engine oil pressure. Exhaust smoke will also indicate the condition of cylinder and working parts.</p> <p>6) Running Condition: On the road test it is possible to know drive the mechanism such as clutch, gear box, universal joint, differential. The wear and tear can be seen on road test.</p>	1/2 mark each



7) Registration and Tax payment: The vehicle R.C. book must be checked. This will indicate the model and year of manufacture and number of owners; the tax paid to the insurance, expiry date can also be seen.	
8) Make and Model, Year: This can be seen from R.C. book but with experience it is possible to indicate the number of years of service of vehicle.	
9) Number of Owners : From R.C. book it is possible to know the number of owners and type of persons who owned.	
10) Popularity of the make depending upon the public opinion market rates of the vehicles goes up and down.	
d) Explain the terms 'Vehicle Ledger' and 'Truck History Card'	04
Answer: Vehicle Ledger: The data obtained from Trip Operational Sheet (TOS) is posted in a ledger called a vehicle ledger. The trip is indicated by a trip number which is also a T.O.S No. Additional columns are provided for gross profit before vehicle tax, depreciation and tyre cost. The balance of cash available is given in last column. Thus the vehicle ledger is collective record of the trips exposing the financial aspect of transportation.	02
Truck History Card: The performance of truck is evaluated from the truck history card this card gives detailed information about the mileage, tax paid, no. of repairs etc. Thus the truck history card helps in deciding whether scrap the truck or not.	02
e) State function of Central Institute of a road transport.	04
Answer: Functions of CIRT : (Any four)	04
1. To promote and provide for the study of the principles and practices of organization and management in various spheres of public transport.	
2. To conduct research on critical issues in transport development and to undertake consultancy assignments to improve organizational effectiveness and operational efficiency.	
3. To impart training and education to all categories of managers and professionals engaged in furthering the cause of public transport.	
4. To help the government and its agencies in evolving integrating policies and legislative framework to enable a balanced growth of the transport sector.	
5. To be the clearing house of ideas, information and data pertaining to transport industry with specific reference to satisfy, environment and productivity.	
6. To lay down standards, specifications and norms for various materials used in heavy vehicles through performance evaluation, material analysis and quality monitoring.	
7. To undertake research for improvement and technological up gradation of vehicles used for passenger transportation together with their components and assemblies.	
4 A) Solve any three:	12
a) How freight is calculated on basis of telescopic method.	04
Answer: Telescopic or Tapered scale method:	
Tapered scale of fare provides a decreasing rate of charge as the distance traveled increases. Normally in this fare method, the first few kilometers would have a straight line type of fare which would then progressively taper off. Suppose, the fare rate is Rs.1/- per kilometer then the fare for 5	02



kilometer may be Rs.5/- and any journey within this 5 kilometers will be charged Rs.5/- this is known as minimum fare after 5 kilometers the fare rate may decrease proportionately. For instance, the fare for 15 kilometers may be fixed as Rs.13 instead of rs.15/-.



02

b) What are benefits of warranty system?

04

Answer: (Any 4 –each point carry 1 Mark)

- 1 In warranty system Defective parts are replaced.
- 2 In warranty system the defective parts are repaired in stipulated time.
- 3 The cost is not charged from the customer.
- 4 These expenses of repairs are born by the manufacturer.
- 5 Sometimes with the understanding of parent company the warranty claims are offered to their customers even after expiry of warranty period.

04

c) Describe the procedure of survey and valuation of vehicle.

04

Answer:

Procedure of Survey:

It is mandatory for a person intending to act as a surveyor to obtain a license from the controller of insurance, ministry of finance, Govt. of India.

Whenever an accident occurs all particulars have to be collected for purpose of preparing a accident survey report as below-

- 1) General: Site, date and time of accident
- 2) Registration no. of vehicle involved in accident
- 3) Nature of Accidents
- 4) Primary Cause of accident
- 5) Light condition
- 6) Road and traffic condition
- 7) Responsibility of driver
- 8) Responsibility of Pedestrian
- 9) particulars of motor vehicle
- 10) Result of investigation and court proceedings.

02

**Procedure of Valuation:**

The process of determining the current worth of a vehicle is called as valuation. There are many techniques that can be used to determine value, such as subjective and objective

- 1) Know the current market value of vehicle
- 2) Calculate the depreciation of vehicle based on market value. for this consider –
 - i) Make, Model and Variant e.g. Maruti Swift VDi
 - ii) Month and Year of Manufacture e.g. July 2009
 - iii) The city in which the car was registered.
- 3) Calculate the depreciation of vehicle based on usage and aging.
- 4) Analyze the mechanical condition and damage occurred with respect to Body, Chassis, and Aesthetics, Engine condition, vibrations, noise etc.
- 5) Consider the Tyre condition and decide tyre cost.
- 6) Kilometers driven (you can find this on the odometer on the dashboard)
Considering all above factors the valuation of used car is done.

02

d) List any four motor vehicle offences and penalties for it.

04

Answer: **Offences and penalties under motor vehicle act:** (Any Four - Each offence along with penalty carry 1 mark)




No.	Nature of Offence	Section of M. V. Act 1988	Penalty/Compounding Fee (Rs)
1	Traveling without ticket	178 (1)	200
2	Refuses to supply a ticket or supplies an invalid ticket	178 (2)	200
3	Allowing unauthorised person to drive vehicles	180	300
4	Driving vehicles without valid licence	181	300
5	Obtaining driving licence not been entitled or who is disqualified	182 (1)	200
6	Obtaining conductor's licence not been entitled or who is been disqualified	182 (2)	100
7	Using vehicle in violation of pollution norms	190 (2)	500 each
8	Sale of a vehicle or alteration of vehicle in contravention to provisions of motor vehicles laws	191	300
9	Using vehicle without registration	192 (1)	1) 300 each 2) 1000 each
10	Driving uninsured vehicle	196	300 each

04



B) Solve any one	06
a) State the basis on which vehicle for passenger transport is selected.	06
Answer: (Any 6 –each point carry 1 Mark) For selection of vehicle for passenger transport is to be considered on following basis 1) Traffic demands- A careful study of traffic survey is essential to determine routes to be followed. 2) Class of passengers- considering economy class of passengers type of facilities to be provided are taken into account. 3) Type of service- Type of services according to class of passengers such as ordinary, semi luxury , luxury, a/c, non a/c vehicle. 4) Seating capacity of vehicle – It means no. of passengers to be carried by vehicle. 5) Distance to be covered – Depending upon time taken for one trip no. of buses running on route and frequency should be decided. 6) Facilities to be provided- Such as slipper coach, Air conditioned, seating comfort, First aid etc. 7) Geographical conditions of transport area- such as ghat sections, national highways, state highways, express highways, urban and rural area etc. 8) Operating cost of vehicle.	06
b) List the factors to be considered while buying a new vehicle.	06
Answer: Factors to be considered while buying a new vehicle: 1) Ex showroom price and on road price. These prices of various dealers are to be compared. 2) Use of vehicle – Exact purpose for which vehicle to be used should be decided. 3) When and where to buy- sometimes prices changes after annual budget of central govt. the are different prices for same vehicle in different cities of same zone. 4) Closing the deal: while completing the buying process, check whether all the forms are filled properly and receipts are correct. 5) Running in inspecting the vehicle- on the road test it is possible to know the drive the mechanism such as clutch, gear box, universal joint, differential etc. 6) Points to check- test drive, controls, bonnet, suspension, switches, seat, noise, ventilation, safety, boot and interior storage. <i>Note: Any other relevant factors shall also be considered</i>	01 mark each
5. Solve any four	16
a) Explain the function of MSRTC.	04
Answer: (Any four functions 1 mark each) Function of MSRTC Maharashtra State Road Transport Corporation (MSRTC) is state transport undertaking provides it service throughout state. 1) The main function of MSRTC is to provide transport facility in urban as well as rural areas especially in remote region of state. 2) It also provides luggage transport and courier facility throughout state. 3) It employs the three tire system for maintaining their buses as Central Workshop, Divisional Workshop and Depots. 4) It provides concessional fare facilities to students, senior citizens, handicapped and blind persons, freedom fighters etc. 5) It also provide contract carriages (educational tours) and special occasion (Marriage, Morcha)	04



6) It generates revenue to the state government.		
b) Differentiate between MSRTC and BEST.		04
Answer: : (Any 4 point –each point carry 1 Mark)		
Sr. No.	MSRTC (Maharashtra State Road Transport Corporation)	BEST(Bombay Electric Supply and Transport)
1	It is Maharashtra State Transport Undertakings	It is public sector transport organization under Mumbai Municipal corporation.
2	MSTRC plies buses that connect almost all the towns and villages of the state	BEST plies buses that connect almost all the parts of Bruhan Mumbai and urban Mumbai
3	MSRTC does not supply electricity	BEST supplies commercial electricity to Mumbai.
4	It employs three tire system for maintaining their buses as central work shop, divisional workshop and depots	The operational area is divided into zones and emergency breakdowns vans are provided for each zone.
5	It has more than 233 depots	It has 25 depots
6	Central workshops are at Mumbai, Pune, Ahmednagar and Nasik, Nagpur	The total area is divided into five zones.
c) Draw any four traffic signs		04
Answer: (Any 4 traffic signs from Mandatory signs /Cautionary Signs/ Informatory Signs – Each traffic signs carry 1 Mark) Mandatory signs		
		
Cautionary Signs		
		04
Informatory Signs		
		



d) State general skills necessary for driving of motor vehicle.	04
<p>Answer: general skills necessary for driving of motor vehicle (Note: credit should be given to any 4 proper driving skills, each point carry 1 mark)</p> <p>For driving motor vehicle always keep attention on the activities happening around the vehicles and react accordingly. Some general skills</p> <ol style="list-style-type: none">1) The driver should able to adjust rear view, side view mirrors.2) Take suitable precautions before starting the engine.3) Give appropriate signals by hand or by electrical indicators clearly on turns.4) Stop the vehicle in emergency safely.5) Regulate the speed to suit varying road and traffic conditions.6) Make proper use of accelerator, clutch, gears, brakes, steering and horn.7) Concentrate on driving with attention and presence of mind.8) Traffic rules and regulations must be strictly followed.9) Change the lanes using proper signals with care.10) Able to keep well to the left in normal driving mode.11) Able to change to the lower gears quickly from the top gear. When the traffic conditions warrant such change, such as driving down hills.12) Able to overtake, allow to be overtaken, meet or cover the path of other vehicle safely.	04
e) Write causes of accident and their remedies.	04
<p>Answer: (Any four causes with suitable remedies – 1 mark each)</p> <p>Large number of road accidents including fatal one are taking place in India every year and majority of road accidents occur due to driver's faults. Following are the different causes of accidents and their remedies-</p> <ol style="list-style-type: none">1) Carelessness – for example using a handheld mobile telephone while the vehicle is moving, driving through the red light, emerging from a side road into the path of another vehicle, listening loud music - Remedy - Avoid all the driving distractions while driving.2) Lack of experience and licensing untrained drivers (that is those without the knowledge of road signs) – Remedy - As a golden rule, while driving look well ahead and all around carefully also follow all traffic signs and signals so that you are ready for any hazards that might occur.3) Aggressive driving habits like Overspeed, improper lane changing, improper overtaking etc- Remedy- Avoid the aggressive driving habits for safe drive, training to drivers, Awareness programs4) Bad Weather conditions like bad lights, fogs, heavy rain etc. Remedy - It is necessary to use fog lamps or low beam headlights and operate efficiently other important devices like indicators, horn, wipers, parking light etc.5) Lack of sensitivity and responsibility - Driving under the influence of alcohol, intoxicated substances and under stress caused by economic or family problems Remedy - Avoid alcohol while driving and be a responsible driver. Drivers training regarding traffic rules and regulations may avoid accident.	04
f) State the function and role of: i) ARAI. ii) VRDE	04



<p>Answer: (Each point carry 2 mark)</p> <p>ARAI. Automotive research Association Of India:-</p> <ul style="list-style-type: none">• ARAI is co-operative industrial research association by the automotive industry with the Ministry of Industries, Government of India. It's only automotive engineering R&D institute in India to be awarded ISO 9001 Quality System Certification. The ARAI is located in the western part of Pune, Maharashtra established in 1986.• The objectives of the Association are Research and Development in automotive engineering for industry, product design and development, evaluation of automotive equipment and ancillaries, standardization, technical information services, execution of advanced courses on the application of modern technology and conduct of specific tests.• It also responsible for car mileage figure for every car sold in India. ARAI claims to be the first Indian institute to develop HCNG fuel engine.• In order to meet the development requirements of Industry, several facility and competence build-up projects have been completed. Most notable amongst these are Engine Design/Simulation Software Installation, development of bi-fuel CNG kits, new techniques and software capabilities in Noise, Vibration, Harshness Analysis as well as Vehicle Crash Analysis and VDACS software for chassis dynamometer control. Amongst the new facilities added are the Particulate Measurement System and most modern Digitally Controlled Load Simulation. <p>ii)VRDE Vehicle Research and Development Establishment</p> <p>(VRDE) is a laboratory of the Defence Research & Development Organization (DRDO) located in Vahannagar, District Ahmednagar. Its primary function is to help the defence and automotive industry regarding design, development, testing and certification of vehicle components. It is ISO 9001:2000 certified from July 2004.</p> <p>The National Centre for Automotive Testing (NCAT), a separate division of VRDE, provides one stop solution to all vehicles testing (Laboratory as well as Road testing) and evaluation requirements of defense services as well as automotive industry. India's first and one of the biggest in the world, Automotive Electro-Magnetic Compatibility (EMC) test facility, which is also known as EMC Tech Centre has been established. The Energy Research Centre is also on its way to completion. National Centre of Excellence for Combustion and Gasification (NCECG) is also being established</p>	02
<p>6. solve any four :</p>	16
<p>a) List any four precautions taken for safe driving.</p>	04
<p>Answer: (Any 4 –each point carry 1 Mark)</p> <p>Before moving the vehicle from rest position start the vehicle and inspect the vehicle carefully for any leakage, tyre pressures, abnormal sound , fuel level etc. and then drive.</p> <ol style="list-style-type: none">1. Do not talk on mobile phone while driving.2. Use of seat belts while driving.3. Stay in Traffic Speed limits and slow down on Turns.4. Look Left and Right twice, and go slow on Crossings.5. When Turning Left or Right ... Look at the Rearview mirror, give Indicator, sound Horn, and take turn while staying in your lane (Try to stick to the side).6. Stay in your Lane, and use the correct Signals. Don't leave your lane.7. Notice all the Traffic Signs you see on your way, and act appropriately.	04



<p>8. When crossing Animal-driven Vehicles, give enough places by slowing down, and Do Not Sound Horn, because it may scare the Animal and it may run away.</p> <p>9. Keeps appropriate distance from the Vehicle moving ahead of you, so that there is enough places to stop your vehicle without damage, in case the vehicle ahead stops abruptly.</p> <p>10. Give importance to Vehicle ahead of you when driving on a hill or on a slope. In this case, when the road is not wide enough to allow overtaking, give space to any vehicle overtaking, by stopping your vehicle to a side. It is advised not to overtake in intense situations on hilly roads.</p>	
b) What measures are required to avoid accidents?	04
<p>Answer: (Any 8 –each point carry 1/2 Mark)</p> <ol style="list-style-type: none">1) The biggest responsibility lies on the driver while using the road2) The vehicle being the fast moving, can do any damage if carelessly driven.3) Drive slowly and carefully on the road where school or hospital is situated.4) Always keep to your left- while over taking always overtake from right.5) When passing stationary vehicle, keep a watch on pedestrian who may come out suddenly.6) Drive slow a narrow widening road7) When the traffic is held up never try to force your way by enriching on the off side of the road.8) Do not overtake on bends (On curves)9) Always keep a good distance in between your vehicle and other10) To close driving is dangerous11) Always park the vehicle on specified place12) Always give signal on turning	04
c) State the precaution taken in following cases : i) Fog and mist ii) Snow and ice.	04
<p>Answer:</p> <p>Precaution taken in Driving cases :</p> <p>i) Fog and mist-</p> <ol style="list-style-type: none">1) While driving in fog and mist to improve visibility, turn on the dipper beam of the head lights.2) Put your head lights on even when you may not need them to see they helps other to see you.3) Keep safe distance between two vehicles while driving.4) Switch on Fog Lamps in these situations.5) Turn on A/c to remove or to prevent forming moisture on wind shield <p>ii) Snow and ice: Snow, ice and freezing rain means slippery roads, longer stopping distances and poor visibility.</p> <ol style="list-style-type: none">1) To prevent skidding, drive slowly and apply brakes cautiously.2) Avoid sudden and harsh braking.3) Use traction control systems to prevent skidding of vehicle on slippery surface.4) Use of special quality anti-skid type of tyres.5) Slow down, and leave more space between approaching vehicles.	02



d) List any four Automobile Manufacturers in India with their products.	04
<p>Answer: (Any four industries with their products – one mark each)</p> <p>1] TATA MOTORS Ltd., Pune, Maharashtra. Products – i) Passenger vehicles – a) Hatchback – Nano, Indica b) Sedan – Indigo c) Station wagon - Sumo, Safari ii) Commercial vehicle – a) Passenger Transportation – Buses, Winger, Venture, Magic b) Goods Carrier – Prima trucks, Ace</p> <p>2] Mahindra & Mahindra - Plant located at Nasik, Maharashtra. Products – i) Passenger vehicles – Quanto, Bolero, Scropio, XUV 500 ii) Commercial vehicle – Maxximo, Bolero Maxi Truck, Mahindra Navistar Trucks</p> <p>3] Volkswagen Group India Private Limited - Plant located at Pane, Maharashtra. Products – Passenger vehicles – a) Hatchback – Polo, Fabia b) Sedan – Jetta, Vento, Skoda Rapid c) Station wagon - Touareg, Phaeton</p> <p>4] Hindustan Motors - Plant located at Uttarpara, West Bengal. Products – Passenger vehicles – Ambassador, Pajero, Lancer, Outlander</p> <p>5) Maruti Suzuki India Ltd. – Plant Located at Manesar Plant – Gurgaon Products – Passenger Cars- a) Swift, Alto, Wagon R</p> <p>6) Bajaj Auto Ltd. – Plant Located at Pune, Maharashtra Products – a) Motor Cycles – Discover125 , Pulsar 150 DTSi b) Three Wheelers – Bajaj RE 2S, Bajaj RE 2S CNG, Bajaj RE 2S LPG\</p>	04
e) Write the long forms of CRRI, PCRA, and CIRT.VRDE.	04
<p>Answer:</p> <p>1) CRRI : Central Road Research Institute</p> <p>2) PCRA: Petroleum Conservation and Research Association</p> <p>3) CIRT: Central Institute of Road Transport</p> <p>4) VRDE: Vehicle Research and Development Establishment</p>	01 01 01 01