



Summer -2019 EXAMINATION

Subject Name: TMA

Model Answer

Subject **17616**

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 judgement 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.

| Q. No | Sub Q. N. | Answer | Marking Scheme |
|-------|-----------|---|----------------|
| 1 | A) | Attempt any Five of the following: | 20 |
| | a) | Define the terms as per MVA-1988: (i) Fitness Certificate (ii) Registered laden weight (iii) Pay load (iv) Contract carriage | 4 |
| | | Answer: (each term carries : 1 mark) (i) Fitness Certificate: It is the document in the prescribed form, showing that vehicle is mechanically fit and comply with all the specifications and requirements of motor vehicle act. If the vehicle to be used for commercial operation the vehicle is inspected physically by Transport Authority on regular basis for its road worthiness. The Certificate of Fitness is issued in Form 38. This certificate while remains effective, be valid throughout India. (ii) Registered laden weight: means the weight of a vehicle or trailer including the maximum load that can be carried safely when it's being used on the road. The laden weight of any vehicle is the weight of the vehicle when it is carrying any passengers, goods or other items. It does not include the body and all parts normally used with the vehicle or trailer when it's used on a road. (iii) Pay load: This includes the vehicle's unloaded curb weight, passengers weight, and cargo weight. (iv) Contract carriage: "contract carriage" means a motor vehicle which carries a passenger or passengers for hire or reward and is engaged under a contract, whether expressed or | 04 |



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| | | <p>implied, for the use of such vehicle as a whole for the carriage of passengers mentioned therein and entered into by a person with a holder of a permit in relation to such vehicle or any person authorized by him in this behalf on a fixed or an agreed rate or sum—</p> <p>a) on a time basis, whether or not with reference to any route or distance; or</p> <p>b) from one point to another, and in either case, without stopping to pick up or set down passengers not included in the contract anywhere during the journey.</p> | |
| | b) | State the advantages of road transportation. | 4 |
| | | <p>Answer:- (any four points- 1 mark for each)</p> <p>Advantages:</p> <ol style="list-style-type: none">1. Less Capital Outlay: Road transport required much less capital Investment as compared to other modes of transport such as railways and air transport. The cost of constructing, operating and maintaining roads is cheaper than that of the railways. Roads are generally constructed by the government and local authorities and only small revenue is charged for the use of roads.2. Door to Door Service: The outstanding advantage of road transport is that it provides door to door or warehouse to warehouse service. This reduces cartage, loading and unloading expenses.3. Service in Rural Areas: Road transport is most suited for carrying goods and people to and from rural areas which are not served by rail, water or air transport. Exchange of goods, between large towns and small villages is made possible only through road transport.4. Flexible Service: Road transport has a great advantage over other modes of transport for its flexible service; its routes and timings can be adjusted and changed to individual requirements without much inconvenience.5. Suitable for Short Distance: It is more economic and quicker for carrying goods and people over short distances. Delays in transit of goods on account of intermediate loading and handling are avoided. Goods can be loaded direct into a road vehicle and transported straight to their place of destination.6. Lesser Risk of Damage in Transit:7. As the intermediate loading and handling is avoided, there is lesser risk of damage, breakage etc. of the goods in transit. Thus, road transport is most suited for transporting delicate goods like chinaware and glassware, which are likely to be damaged in the process of loading and unloading. | 4 |



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| | <p>8. Saving in Packing Cost:</p> <p>9. As compared to other modes of transport, the process of packing in motor transport is less complicated. Goods transported by motor transport require less packing or no packing in several cases.</p> <p>10. Rapid Speed: If the goods are to be sent immediately or quickly, motor transport is more suited than the railways or water transport. Water transport is very slow. Also much time is wasted in booking the goods and taking delivery of the goods in case of railway and water transport.</p> <p>11. Less Cost: Road transport not only requires less initial capital investment, the cost of operation and maintenance is also comparatively less. Even if the rate charged by motor transport is a little higher than that by the railways, the actual effective cost of transporting goods by motor transport is less. The actual cost is less because the motor transport saves in packing costs and the expenses of intermediate loading, unloading and handling charges.</p> <p>12. Private Owned Vehicles: Another advantage of road transport is that big businessmen can afford to have their own motor vehicles and initiate their own road services to market their products without causing any delay.</p> | |
| c) | Which motor vehicles are exempted from insurance? | 4 |
| | <p>Answer: (1 mark for each point) Vehicles Exempted from insurance are:</p> <p>i) Vehicle owned by the Central Government or a State Government and used for Government of State Government and used for Government purposes unconnected with any commercial enterprise.</p> <p>ii) The Central Government or a State Government if the vehicle issued for Government purpose connected with any commercial enterprise.</p> <p>iii) Any local authority</p> <p>iv) Any State Transport undertaking for example, where such undertaking is carried on by a State Government or any Road Transport Corporate established under the Road Transport Corporation Act, 1950</p> | 4 |
| d) | How the warranty system is useful in case of an accident | 4 |
| | <p>Answer: Importance of warranty system: A warranty is usually a written contract for a product and declares the maker's responsibility to repair or replace a defective product or its parts. When you make a major purchase, the manufacturer or seller makes an important promise to stand</p> | 4 |



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| | <p>behind the product. Some warranties provide coverage only if you maintain or use the product as directed. For example, a warranty may cover only personal uses as opposed to business uses of the product. Make sure the warranty will meet your needs. In warranty system defective parts are replaced or repaired in stipulated time. The cost is not charged from the customer. These expenses of repairs are born by the manufacturer. Sometimes with the understanding of parent company the warranty claims are offered to their customers even after expiry of warranty period.</p> <p>If you have purchased any product under warranty and found any defect within warranty period, contact the retailer and try to resolve the problem. In case of accident warranty system comes in to useful as to minimize repair charges of vehicle components.</p> | |
| e) | Explain the use of computer In a bus transport | 4 |
| | <p>Answer: Use of computers in a bus transport: Bus transportation is highly dependent on computers to manage traffic flow, monitor operation, and handle payments.</p> <p>Following Particulars of bus transport use computers</p> <ul style="list-style-type: none">i) Passenger Information Systemsii) Passenger information displaysiii) Driver desk displaysiv) Internet access for infotainmentv) Wireless service and diagnosisvi) Ticketingvii) GPS navigation system | 4 |
| f) | Describe the working of BEST and MSRTC | 4 |
| | <p>Answer: Working of BEST (Bombay Electric Supply and Transport):</p> <p>1. Organization setup: The Transport Division is headed by Assistant General Manager (Transport), and he is assisted by Chief Manager (Traffic). BEST's entire operation is divided into 25 depots, and all these depots are placed in zones. The Dy. Chief Managers (Traffic) are zonal in-charge, who are assisting the Chief Manager (Traffic). The Depot Managers are heading each Depot. Traffic Superintendents/ Asst Traffic Superintendents, Sr. Traffic Officers, Traffic Officers, Assistant Traffic Officers and Sr. Asst. /Office Asst. assist the Depot Managers. This team of officers directly controls the operational and</p> | 2 |



administrative activities of the respective Depot. Apart from this team, the supervisory category viz. Bus Inspectors, for plugging the leakage in revenue, Starters for controlling the bus operation etc., are appointed at depots. Each depot is provided with a wireless vehicle, which is used to monitor the operation of buses in the jurisdiction of the depot.

2. **Traffic Control Room:** It works round the clock. The section is provided with VHF sets connecting all the depots as also the Police Control, Traffic Police Control, and Railways etc. The officer regulates the entire operation smoothly with the help of the Divisional Officers, by being in touch with them through wireless sets.
3. **Bus Control Room:** It functions round the clock, to attend to the vehicle breakdowns on field. The total operational area is divided into zones. Emergency breakdown vans are provided for each zone. These vehicles are provided with necessary spares/units so as to carry out emergency repairs on the field itself. For speedy communication these vehicles are equipped with VHF sets.
4. **Traffic Training Center:** The BEST has established a Training Center, to provide training and refresher courses to the operating crew members. On line training to new bus drivers is also provided with the help of training vehicles. At the depots Accident Prevention Training Vehicle counseling the operating staff about safe driving habits.
5. **Ticket & Cash department:** The Ticket and Cash Department collects the daily revenue earned at the depots. The same is counted, consolidated, and remitted in the banks. Inventory of ticket blocks to be issued to the conductors, is also maintained by the Ticket & Cash Department.
6. **Accident & Claims Section:** The Accident and Claims Section, as the name suggests, is established for settling the claims of personal injury / death due to accident involving our buses. Also various programs on Road Safety / Passenger Safety, to create awareness amongst the operating staff, passengers, pedestrians, and school children, are organized by this section in co-ordination with Training Center.
7. **Traffic Planning Section:** The Planning Section is established to prepare the schedules for different routes. The schedules are revised after every four months. Uneconomic routes are discontinued and the financial viability of the routes is appraised both at depot level as also at the Head Quarter level.

Maharashtra State Road Transport Corporation (MSRTC)

It is the state run bus service of Maharashtra, India with approx.16, 000 buses which ferry 7 million passengers daily on 17,000 routes. It is the third largest bus service provider in India and serves routes to towns and cities within Maharashtra and adjoining states.



It employs the three tire system for maintaining their buses as Central Workshop, Divisional Workshop and Depots. The work distribution at different levels is as follows)

- i. **Central Workshop:** This performs Reconditioning of engine, gear box and differential, Work pertaining to major accidents, Body building, Tyre retreading, and work pertaining to retrieval of spare parts etc.
- ii. **Divisional Workshop-** This performs Reconditioning of starter motor, Brake units, Radiators, Work pertaining to minor accidents, Body repairs, Periodical road worthiness inspection, RTO approval of reconditioned buses etc.
- iii. **Depot:** This performs Washing, cleaning, oil change, minor servicing, replacement of all major and minor units and assemblies etc.

g) Differentiate between STA and RTA

Answer: (any four point: 1 mar each)

| | STA | RTA |
|---|---|---|
| 1 | It is the State Transport Authority | It is the Regional Transport Authority |
| 2 | STA give effect to the directives issued under section 67 to control road transport by state government throughout the state. | RTA decides the policies to control road transport as per the directives of STA throughout the region. |
| 3 | To co-ordinate and regulate the activities and policies of the Regional Transport Authorities | To fix the fares for the auto-rickshaws, taxies etc. from time to time throughout the region |
| 4 | To conduct not less than two meetings in a year | To conduct not less than six meetings in a year and do the business regarding control of road transport |
| 5 | Chairman- Transport secretary | Chairman-Divisional/Revenue Commissioner |
| 6 | Members- I.G.(Police), Chief Engineer of PWD, Few MLA's and Two non-government Representatives | Members-Deputy I.G.(Police),Superintending Engineer of PWD, Few MLA's and One non-government representative |
| 7 | Secretary – Transport commissioner or Joint transport commissioner | Secretary – Regional transport officer |
| 8 | To consider applications for grant, renewal, and transfer of permit on interstate routes | To consider applications for grant and renewal |

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| 2 | | Attempt any <u>FOUR</u> of the following: | 16 |
| | a) | State the documents required to obtain learners licence. | 4 |
| | | <p>Answer: (Any 4- 1 mark each)</p> <p>i) Address proof-</p> <ul style="list-style-type: none"><input type="checkbox"/> Voter ID<input type="checkbox"/> Life Insurance Policy<input type="checkbox"/> Passport<input type="checkbox"/> Electricity/Water/Telephone Bill<input type="checkbox"/> Ration Card<input type="checkbox"/> Adhar Card<input type="checkbox"/> Income Tax Returns <p>ii) Age proof-</p> <ul style="list-style-type: none"><input type="checkbox"/> Birth Certificate<input type="checkbox"/> School Certificate<input type="checkbox"/> Passport<input type="checkbox"/> PAN Card<input type="checkbox"/> Proof of Citizenship <p>iii) Form 1-A</p> <p>iv) 3 Passport size Photo</p> | 4 |
| | b) | What are the various factors to be considered while scheduling bus transport operation? | 4 |
| | | <p>Answer: (Any 4 points, 1 mark each)</p> <ol style="list-style-type: none">1. Traffic demand: Assessing the volume or traffic demand is essential in bus scheduling. Traffic survey should reveal traffic movement sector wise density, centripetal and centrifugal flow, peak and lean periods, competition from other modes of transport. Road survey helps to judge the feasibility of road operation. Route length, route condition, traffic points running time, fixation of bus stop.2. Run time: It is the time taken by a bus on a particular route. Depending upon the time taken for one trip, number of buses running on that route and their frequency can be decided.3. Stand time: It is called as layover time. It consist of time taken by passengers, to get in or get down the bus, to load or unload their luggage, time taken by the conductor to report to the controller, to give tickets to the passengers, cleaning of the bus etc.4. Maintenance time: It is time taken for the preventive maintenance of vehicle. It includes routine daily checks and greasing, washing, cleaning, topping up diesel etc. | 4 |



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| | <p>5. Vehicle Utilization: It is used to indicate the number of kilometers operated per vehicle per day.</p> <p>6. Requirement of buses: Calculate the number of buses required to be operated considering frequency of service for a maximum utilization of a bus.</p> <p>Service of Frequency</p> <p>No of Vehicles= $\frac{\text{Running time (Twice)} + \text{Stand Time (Twice)}}{\text{Frequency of Service}}$</p> | |
| c) | <p>Prepare checklist to buy a new motor vehicle.</p> | 4 |
| | <p>Answer (Any 4 points 1 mark each)</p> <p>Tips and points to be checked for buying new vehicle</p> <p>a) Features and quality of new vehicle: Checkout the features offered and additional optional fittings, which suits your lifestyle. Checkout the quality factors of new vehicle like mileage, fuel storage capacity, option of using alternative fuels like CNG/LPG, also safety features like airbags, antilock braking system etc.</p> <p>b) Ex-showroom price and on road price: There is huge difference between on-road price and ex-showroom price. Ex-showroom price is the basic price which does not include Insurance, RTO registration charges, extended warranty if any and sometimes the Municipality Road tax etc. After adding all these you will get on road price.</p> <p>c) Use of vehicle: Select the vehicle on basis of for what purpose you are buying a new vehicle (Personal use, Commercial use, expected seating capacity etc.)</p> <p>d) Inspecting the vehicle: Before purchasing the vehicle inspect the vehicle for whether the features are as per your demands or not.</p> <p>e) Gather expert reviews: Read expert comments and reviews on the vehicle, you are buying. Do the comparative study with other same class of vehicles to checkout for added benefits. Enquire about extended warranty as well as regular service contract.</p> <p>f) Test drive the vehicle: Analyze and be sure that the vehicle has characteristics that you are looking for. Inspect and feel carefully all the interior and exterior such as bonnet, of vehicle. Checkout your vehicle thoroughly including braking, electrical, steering system etc before driving at home.</p> <p>g) When and where to buy: Vehicles prices hike up and down often, Ex- Showroom price & tax applicable can also varied as per location hence it's important to decide when and where to buy a vehicle.</p> | 4 |



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| | h) Closing the deal: Vehicles prices hike up and down often, so negotiate the price of the vehicle. Remember the Actual price of the car may be far less than the Advertised price so bargain as much as possible. | |
| d) | Draw a neat sketch of sign STOP and NO PARKING. | 4 |
| | <p>Answer: (2 marks for each sign)</p> <p>NO PARKING</p>  <p>STOP</p>  <p>Stop</p> | 4 |
| e | List four manufacturers of automobiles in India with their two products list. | 4 |
| | <p>Answer: (Any 4 manufacturers 1 mark each)</p> <ol style="list-style-type: none"> Maruti Udyog Ltd., Gurgaon (Manesar) Products/Model: Passenger Cars: Swift - VDi & DZire, Ritz, off-road Gypsy, SUV Grand Vitara, SX4, ERTIGA Ashok Leyland Ltd., Chennai: Products/Model –Buses, Trucks, Defense vehicle, Light Commercial vehicle Mahindra & Mahindra Ltd., Nashik/Mumbai, Maharashtra. Products/Model – i) Passenger vehicles – Quanto, Bolero, Scropio, XUV 500 ii) Commercial vehicle – Maximo, Bolero Maxi Truck, Navistar Truck iii) Tractors: Arjun, Bhoomiputra, Sarpanch, Shaan, Yuvraj. Piaggio Vehicles Pvt. Ltd., Baramati Products/Models: i) Passenger Vehicle: ape Xtra DLS, ape city diesel. ii) Cargo: Porter 1000, Porter 600, ape Xtra LD TATA Motors Ltd., Pune, Maharashtra. Products/Models: <ol style="list-style-type: none"> Medium and heavy commercial vehicles: Prima, Rigid Trucks, Tractor Trailers, Tippers, construction mixer. Intermediate & commercial vehicles: LPT 1109 Turbo, Truck LP 1109 Turbo. Light commercial vehicles: Tata SFC 410 EX, Tata LPT 712 EX, Tata 207 DI - Single cab, Tata 207 DI - Crew cab, SFC 407 Turbo Truck, LPT 709 E Turbo Container truck , LPT 407 Turbo Truck. Small commercial vehicles: Tata ACE HT, Tata ACE EX, SUPER ACE. Passenger Vehicles: Tata Nano BS IV, Tata Indica Vista, Tata Indica eV2, Indica DLE, | 4 |



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| | <p>Indica DLS, Indica XETA, Indigo Manza.</p> <p>vi. Defense Vehicles: 2 Stretcher Ambulance, 4 Stretcher Ambulance, Short Wheelbase Bus, Long Wheelbase Bus, Staff Car, SFC 407 - 1.5 ton 4x4, LPTA 715 - 2.5 ton 4x4, GS role vehicle SA 1212 - 6 ton 4x4, LPTA 1413 - 7 ton 4x4, SAK 1212 - 4.5 cubic meter 4x4 tipper.</p> <p>6. Bajaj Auto Ltd., Pune, Maharashtra Products/ Models: i) Goods Carriers: GC Max Diesel, GC Max CNG, RE 60 ii) Passenger Carriers: RE Diesel, RE GDI, Mega Max</p> <p>7. Volkswagen Group India Private Limited - Chakan, Maharashtra. Products/ Models: i) Passenger vehicles: Polo(TL/CL/HL), Vento 1.5 TDI), Jetta ii) Station wagon - Touareg, Phaeton</p> <p>8. Hindustan Motors Ltd., Uttarpara, West Bengal. Products/ Models: i) Passenger vehicles – Ambassador, Pajero, Lancer, Outlander.</p> | |
| f) | State any four objectives of PCRA. | 4 |
| | <p>Answer: (Any 4 points 1 mark each)</p> <p>Objectives of Petroleum Conservation Research Association (PCRA):</p> <ol style="list-style-type: none">1) To formulate strategies and promote measures for accelerating conservation of petroleum products.2) To create awareness among masses about the importance, benefits and methods of conserving petroleum products and clean environment by enhancing information and capacity building.3) To promote research, development and deployment efforts aimed at petroleum adoption and dissemination of fuel efficient technologies and substitution of petroleum products with alternate fields and renewable.4) To establish synergetic institutional linkages at the national and international levels in the areas of petroleum conservation and environment protection.5) To provide training and technical advisory services, designed to achieve economy and efficiency in use of petroleum products for cleaner environment.6) To function as a “Think Tank” to the Government of India for proposing policies and strategies on petroleum conservation and environment protection aimed at reducing excessive dependence on oil | 4 |



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| 3 | | Attempt any <u>Four</u> of the following: | 16 |
| | a) | State four basic elements in transport management. | 4 |
| | | Answer: (Any four elements -1 mark for each element) Basic elements of transport Management: <ol style="list-style-type: none">1. Market potential: Type of goods/ passengers, Period of use, Probable competition.2. Selection of vehicle: Type of load, Class of passenger, Type of service.3. Organization setup: Govt., Semi Govt., Private.4. Legal compliance: Documents required as per MVA, Registration.5. Policies of transport organization: Policies towards passengers and employees. | 4 |
| | b) | Explain the characteristics of efficient goods transport system. | 4 |
| | | Answer: (Any 4 Characteristics 1 mark each) <ol style="list-style-type: none">1. Speed: The goods should be transported within the shortest possible time.2. Safety: The Physical damage to goods must be prevented by careful handling. The safety of the goods gives the customer faith in the organization.3. Capacity: An efficient transport system must have an adequate capacity for all sorts of demands.4. Frequency: The frequency of a service is related to speed and capacity.5. Regularity: Regularity of operation is obtained when the frequency of operation is evenly spread.6. Responsibility: The transport operator must take the responsibility of safe transport of consignment, should compensate for the loss or damage to the goods, if any when the goods are in his custody. | 4 |
| | c) | State the procedure of survey and valuation of vehicle by a surveyor. | 4 |
| | | 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 <ol style="list-style-type: none">1. Whenever an accident occurs all particulars have to be collected and ascertained as given below<ol style="list-style-type: none">a) General: Site, date and time of accidentb) Registration no. of vehicle involved in accidentc) Nature of Accidentsd) Primary Cause of accidente) Light conditionf) Road and traffic condition | 2 |



g) Responsibility of driver
h) Responsibility of Pedestrian
i) Particulars of motor vehicle

2. Assess the quantum of loss.
3. Determine the liability of the insurers within the framework of policy conditions.
4. Negotiate with the insurer/advise the insurers regarding the disposal of salvage.
5. Prepare the detail survey report and submit it to the insurer.

Procedure of Valuation: The process of determining the current worth of a vehicle is called as valuation.

- 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.

2

d) Differentiate between direct tax and Indirect tax

4

Answer:- (Any 4 points, 1 mark each)

| | Direct Tax | Indirect Tax |
|---|--|---|
| 1 | Direct taxes are non-transferable taxes paid by the tax payer to the government | Indirect taxes are transferable taxes where the liability to pay can be shifted to others. |
| 2 | Direct tax is levied and paid for by individuals, Hindu undivided Families (HUF), firms, companies etc | Indirect tax is ultimately paid for by the end-consumer of goods and services. |
| 3 | Direct taxes are collected only from people in respective tax brackets. | Indirect taxes have a wider coverage as all members of the society are taxed through the sale of goods and services |
| 4 | Direct taxes have many exemptions and involve higher administrative costs. | Indirect taxes involve lesser administrative costs due to convenient and stable collections |
| 5 | Direct tax can help in reducing inflation | indirect tax may enhance inflation |
| 6 | Applicable to the taxpayer alone | Applicable to every stage of the production-distribution chain |

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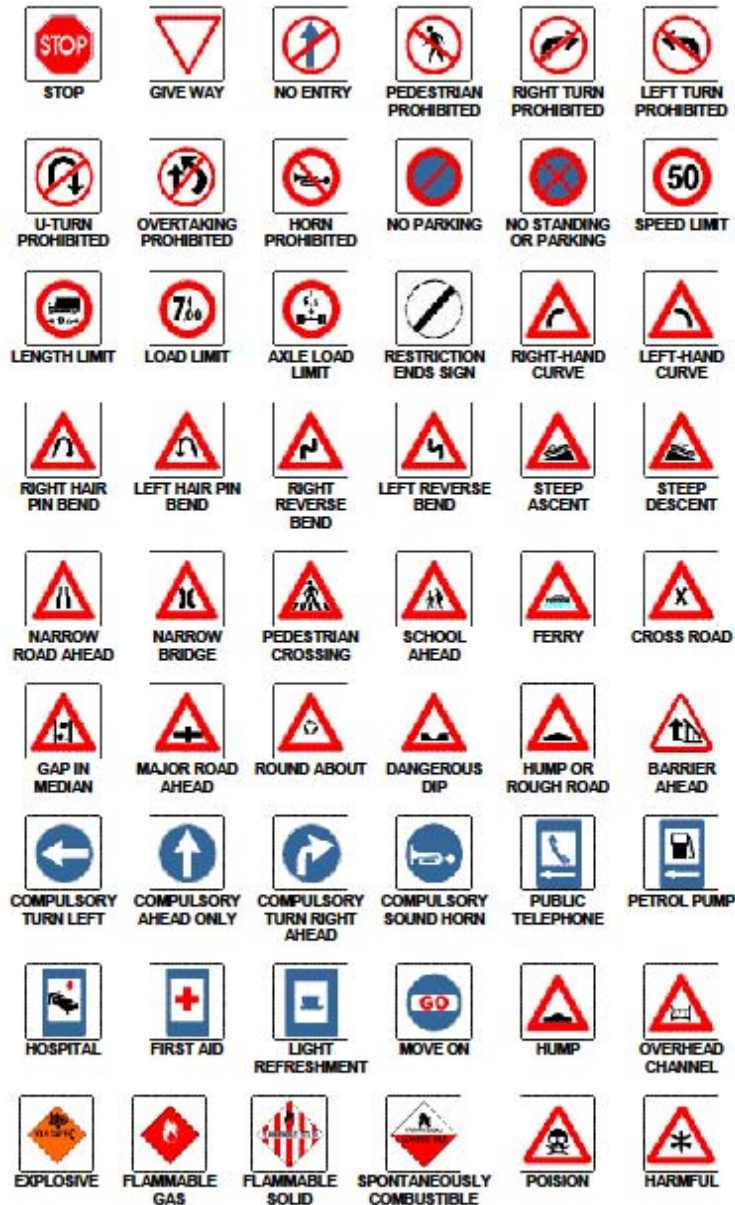


e) Name and sketch any four traffic signs.

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Answer: (Any 4 traffic signs one mark each may include other than below mentioned signs)

Road Traffic Signs Recognition Chart



4



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| | f) | How an automobile Engineer can improve the efficiency of any transport organization? | 4 |
| | | <p>Answer: (Any 4 points 1 mark each)</p> <p>An Automobile Engineer is the real technocrat in automobile as well as transport industry, so he is required to play an important role as a responsible person as follows:</p> <ol style="list-style-type: none">1. Automobile engineers as an authority have to perform different functions in the office of STA/RTA as licensing authority, registration authority, Taxation authority etc.2. In transport organizations, planning and scheduling various transport operations - Route Survey and trip planning, Scheduling of buses and Crews,3. To maintain different records and its analysis.4. Traffic analysis and control.5. To adopt new technology and to introduce various improvement programs in new generation vehicle.6. To try for different means of fuel economy.7. To try to make vehicle more attractive, more comfortable and more reliable.8. He is required to carry out the research and impart drivers training and road safety aspects. | 4 |
| 4. | | Attempt any <u>Four</u> of the following: | 16 |
| | a) | State the procedure and condition for obtaining a permanent license. | 4 |
| | | <p>Answer:</p> <p>Procedure required for permanent driving license</p> <p>To get permanent driving license, Applicant should have a valid learner license. He can apply after 30 days and within 180 days from the date of issuance of learner license. He should be conversant about the vehicle systems, driving, traffic rules & regulations. In order to apply for Permanent Driving License.</p> <p>After scrutiny of the documents, the applicant is put through the driving test. For driving test, The applicant has to bring his vehicle with him. He is tested for his driving skills, Familiarization with the vehicle, traffic rules & regulations. The applicant is asked about the vehicle system and safety.</p> <p>It means the license issued by a competent authority authorizing the person specified therein to drive, otherwise than as learner, a motor vehicle or a motor vehicle of any specified class or description. No person shall drive a motor vehicle in any public place unless he hold an effective driving license issued to him authorizing him to drive the vehicle. It is issued in form no. 6 or Form No.7 (Smart Card)</p> | 02 |



| | | |
|-----------|--|----------|
| | <p>Documents required to obtain driving license - (Any 4 documents, each document carry ½ mark)</p> <ol style="list-style-type: none">i. Application in form no 4ii. Effective learner's license.iii. Proof of age and address.iv. Medical certificate in form no. 1.v. Three copies of recent passport size photographs.vi. Driving school's certificate in form no.5 for all transport vehicles.vii. Appropriate fees.viii. All valid documents of the vehicle on which the test to be conducted. | 02 |
| b) | Describe how you will prepare for selling your old vehicle. | 4 |
| | <p>Answer: (Any 4 points 1 mark each)</p> <ol style="list-style-type: none">1. Give vehicle "Curb Appeal": When people come to buy car, they will probably make up their minds to buy it or not within the first few seconds. This is based on their first look at the car. So car should have "Curb Appeal".2. Before you advertise your car for sale, make sure it looks clean and attractive:3. Wash and vacuum the car.4. Make sure that vehicle is free from abnormal sounds, dents, scratches.5. If necessary, make low cost repair or replacement of parts.6. Wipe the brake dust off the wheel covers and treat the tyres with a tyre gloss product.7. Thoroughly clean the windows (inside and out) and all the mirrored surfaces.8. Wipe down the dashboard and empty the ashtrays.9. Keep all maintenance records ready to show prospective buyers.10. If necessary, do the servicing.11. Documentation: Following documents are required while selling the vehicle -<ol style="list-style-type: none">(i) Registration certificate(ii) Tax certificate(iii) Insurance certificate(iv) PUC certificate(v) NOC certificate12. Set your vehicle price: Keep the written estimate of repair on damage if any before selling. Take a copy of service record from the dealer to assure that the vehicle is | 4 |



maintained properly. Set the price of vehicle that will be best negotiable.

c) Draw a general layout of vehicle Bus Depot.

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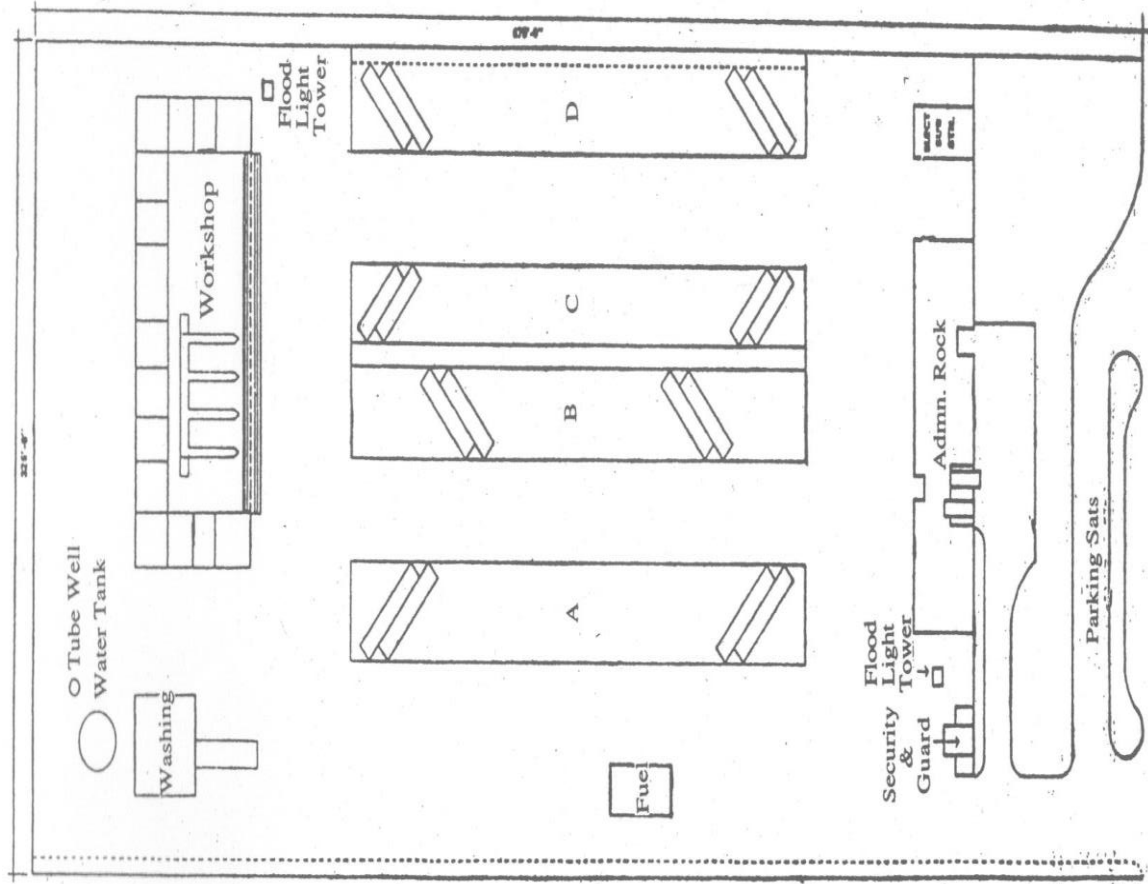


Fig. Layout of bus depot

4

d) State the factors to be considered while buying an old vehicle.

4

Answer: (Any 4 Points 1mark each)

1. **Tyres:** the condition of tyres its life and nature of wear must be noted.
2. **Body:** The condition of the body and paint must be checked.
3. **Battery:** The condition of battery is also essential before valuation because its cost is also high.
4. **Rattling noise:** Check noise level and its origin or source.
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.
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.
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

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| | <p>insurance, expiry date can also be seen.</p> <p>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.</p> <p>9. Number of Owners: From R.C. book it is possible to know the number of owners and type of persons who owned.</p> <p>10. Popularity of the make depending upon the public opinion market rates of the vehicles goes up and down.</p> | |
| e) | Describe advance Traffic Control Devices used recently in Controlling traffic. | 4 |
| | <p>Answer: (Any 4 Devices 1 mark each)</p> <ol style="list-style-type: none">Traffic camera: A traffic enforcement camera system, consisting of a camera and a vehicle-monitoring device, is used to detect and identify vehicles disobeying a speed limit or some other road legal requirement.Ramp meter: A ramp meter, ramp signal or metering light is a device, usually a basic traffic light or a two-section signal (red and green only, no yellow) light together with a signal controller that regulates the flow of traffic entering freeways according to current traffic conditions.Highway advisory radio: The Highway Advisory Radio System (HARS) is a low power radio station designed to provide current information to motorists about local road conditions, closures, and delays. Motorists could obtain HAR information by tuning their FM car radios to a predefined frequency.Roadside traffic sensors: These sensors send available traffic information to develop optimal traffic control strategies addressing traffic needs at a single intersection, along an arterial or freeway, along a given corridor, or throughout a given area to the advance traffic management system.Variable speed limits: Variable speed limits that change with road congestion and other factorsSmart card: Smart cards can provide identity documentation, authentication, data storage, and application processing. Smart cards may provide strong security authentication for single sign-on (SSO) within large organizations.Bluetooth- Bluetooth is a wireless standard used to communicate between electronic devices like mobile phones, smart phones, headsets, navigation systems, computers etc. Bluetooth road sensors are able to detect Bluetooth MAC addresses from Bluetooth devices in passing vehicles. If these sensors are interconnected they are able to calculate travel time and provide data for origin and destination matricesTraffic signal: These signals are used to control traffic flow at temporary traffic control | 4 |



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| | zones. 9. Dynamic message sign: This is an electronic traffic sign often used on roadways to give travelers information about special events. Such signs warn of traffic congestion, accidents, incidents, roadwork zones, or speed limits on a specific highway segment. In urban areas, VMS are used within parking guidance and information systems to guide drivers to available car parking spaces. | |
| f) | Explain the role of CIRT in Transport management | 4 |
| | Answer: (Any 4 roles 1 mark each) Role of CIRT in transport management: The central Institute of road transport (CIRT) was established in 1967 on the joint initiative of the association of State Road Transport Undertakings (ASRTU) and the ministry of shipping and Transport, Government of India. It plays an important role in transport management as follows- 1. By promotion and provision for the study of the principles and practices of organization and management in various spheres of public transport. 2. It conducts research on critical issues in transport development and to undertake consultancy assignments to improve organizational effectiveness and operational efficiency. 3. It impart training and education to all categories of managers and professionals engaged in furthering the cause of public transport. 4. It helps the government and its agencies in evolving integrating policies and legislative framework to enable a balanced growth of the transport sector. 5. It is the clearing house of ideas, information and data pertaining to transport industry with specific reference to satisfy, environment and productivity. 6. Lay down standards, specifications and norms for various materials used in heavy vehicles through performance evaluation, material analysis and quality monitoring. 7. It undertakes research for improvement and technological up gradation of vehicles used for passenger transportation together with their components and assemblies. | 4 |
| 5 | Attempt any <u>FOUR</u> of the following: | 16 |
| a) | Write down the procedure for transfer of ownership of a vehicle. | 4 |
| | Answer: (State 4 cases of transfer of ownership of a vehicle and explanation of any 1 case) 1. Procedure for the transfer of ownership on death of owner of the vehicle: i. When the owner of a motor vehicle dies, the person succeeding to the possession of the vehicle may inform the registering authority about occurrence of the death of the owner and of his own intention to use the vehicle | 4 |



- ii. Time Limit -within thirty days of the death of the owner.
- iii. Successor can use the vehicle for a period of three months
- iv. Documents Required-
 - i. **Form 31** - Application for the transfer of ownership in the name of person succeeding to the possession of the vehicle.
 - ii. **Form 30 TCA / TCR** 
 - iii. The **death certificate** in relation to the registered owner;
 - iv. Succession certificate
 - v. Affidavit from the successor
 - vi. Address proof
 - vii. All valid documents of the vehicle (PUC certificate, Insurance region/state certificate, Registration Certificate, Tax Certificate etc.)
 - viii. The **appropriate fee** (*Half of the fee for Registration*)

2. Procedure for the transfer of ownership on Sell and delivered the vehicle to other person:

1. The purchaser of the vehicle may inform the registering authority about notice of Transfer of Ownership on purchase.
2. Time Limit -
 - i. Within the same office area - 14 days
 - ii. In the jurisdiction of other authority - 30 days
3. Documents Required
 - i. **Form 29** - Declaration of seller.
 - ii. **Form 30** -Declaration of purchaser.
 - iii. **Form 28** -NOC in case vehicle coming from other region or from other state
 - iv. Address proof
 - v. Income tax declaration from seller & purchaser in form 60 (except 2 wheelers)
 - vi. All valid documents of the vehicle (PUC certificate, Insurance region/state certificate, Registration Certificate, Tax Certificate etc.)
 - vii. Prescribed fees (*Half of the fee for Registration*)

3. Procedure for the transfer of ownership of vehicle purchased in public auction:

1. The person who has purchased a motor vehicle at a public auction conducted by the Central / State Government shall make an application in **Form 32** of taking **possession** of the vehicle to the registering authority accompanied by necessary documents.



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| | <p>2. Time Limit - within thirty days</p> <p>3. Documents Required -</p> <ul style="list-style-type: none">i. Form 32 - application of purchased a motor vehicle.ii. Form 30 - Declaration of purchaser.iii. Form 28 - NOC in case vehicle coming from other region or from other stateiv. The certified copy of the order of the Central or State Government authorizing the auction of the vehicle.v. Order / sale certificate of the vehicle in purchaser's favour duly signed by the person authorized to conduct the auction,vi. Address proofvii. All valid documents of the vehicle (PUC certificate, Insurance region/state certificate, Registration Certificate, Tax Certificate etc.)viii. Prescribed fees (<i>Half of the fee for Registration</i>) <p>4. Procedure for the transfer of ownership of vehicle in the name of financier:</p> <ul style="list-style-type: none">1. In case of hire-purchase, lease or hypothecation agreement; if the registered owner becomes defaulter, the financier can apply for the transfer of ownership in his own name. He should satisfy the registering authority that he has taken possession of vehicle from the defaulter owner.2. Documents to be submitted – Application in form no. 30 and 36, appropriate fees.3. The registering authority after receiving such application gives an opportunity to defaulter owner to make any representation by sending him a notice.4. After verifying the documents and particulars authority may cancel the previous RC and issue the new one in the name of financier. | |
| b) | <p>Define the following terms:</p> <ul style="list-style-type: none">(i) Log book(ii) Trip operational Sheet (TOS)(iii) Monthly Operational Performance Sheet (MOPS)(iv) Vehicle Ledger. | 4 |
| | <p>Answer</p> <p>1) Log Book: Each vehicle has a log book which contains the details about the running time for a trip and allied factors. The driver of motor vehicle fills or updates log book regularly. The data like the station, date, start time, stop time, idle time due to rest, maintenance, fuelling, loading and unloading of goods etc and total distance covered, are written in the log book by the driver. At the end of trip, the driver produces the log book along with other documents.</p> | 1 |



The log book gives the clear picture about a trip. The log book records play an important role in deciding the routes, scheduling time-table and economy of goods transport. The format of log book is given below-

| | | | | |
|-------------------|------|------------|-----------|--------------|
| Truck No: | | | | |
| Driver Name: | | | | |
| Station | Date | Start Time | Stop Time | Running Time |
| Distance covered | | | | |
| Total Time | | Rest Time | | |
| Ideal Time | | | | |
| Drivers Signature | | | | |

Fig. Log Book

2) Trip Operational sheet (TOS): Trip operation sheet gives detailed information about a trip like loading (Dispatching) and unloading (destination) points, distance between stations, number of days taken for journey, Number of idle days, Fuel consumption, lubrication consumption, Repairs and spares, miscellaneous accessories, Fines and expenses incurred in journey, Commissions and general expenses and Government and municipal charges etc.

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3) Monthly Operational Performance Statement (MOPS): The Performance of vehicle during a month is revealed by the monthly operational performance statement. The actual working of the vehicle is tabulated in the M.O.P.S. and is compared with standard that have been laid down for it performance. The variations in performance are noted and the reasons for are given. The owner can give attention to those fields where the performance is very poor and immediate corrective action is taken. Thus M.O.P.S. gives the retrospective effect and point out the reasons inefficiency.

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| | <p>4) 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 known as 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.</p> | <p>1</p> |
| <p>c)</p> | <p>State the functions and role of: (i) ARAI (ii) VRDE</p> | <p>4</p> |
| | <p>Answer</p> <p>Functions of ARAI:</p> <ol style="list-style-type: none">1. The Automotive Research Association of India (ARAI) has been playing a crucial role in assuring safe, less polluting and more efficient vehicles. ARAI provides technical expertise in R & D, testing, certification, homologation and framing of vehicle regulations.2. 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.3. 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.4. 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>Functions and role of VRDE:</p> <ol style="list-style-type: none">1. Its primary function is to help the defense and automotive industry regarding design, development, testing and certification of vehicle components.2. To evaluate requirements of defense services as well as automotive industry.3. 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).4. Development of specialist vehicles and systems for various roles including road mobile | <p>2</p> <p>2</p> |



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| | <p>launchers and support vehicles for strategic missile programmes.</p> <ol style="list-style-type: none">5. Development of engines for unmanned aerial vehicles.6. Development of light battle tank and systems for various combat roles.7. Development of armored wheeled vehicles and variants for various roles.8. Development of systems and unmanned vehicles for nuclear, biological and chemical recycle and after-treatment.9. Development of light unmanned aerial vehicles for low intensity conflict operations.10. Development of multi feed gasification with poly generation technology.11. Testing of military and commercial vehicles and engines for design validation and performance evaluation including emission tests. | |
| d) | Explain Onetime Tax. State the effects of Non-payment of tax. | 4 |
| | <p>Answer:</p> <p>Onetime Tax:</p> <p>With effect from 1 December 1997, onetime tax (OTT) is leviable in respect of two, three and four wheeler vehicles as a percentage of cost at the time of registration of the vehicle and in respect of Light Motor Vehicles (LMVs) and other transport vehicles the registered owner was given the option to pay annual tax or OTT equivalent to seven times the annual rate of tax. Payment of OTT was made compulsory for LMVs (RLW up to 7,500 kg).</p> <p>Effects of non-payment of tax:</p> <p>When the person in possession of the vehicle or the registered owner of the vehicle makes default in making payment of Road tax, then the Taxation authority may direct such person to pay the arrears of tax along with an amount not exceeding the annual tax payable with respect to such vehicle. This amount will be recovered as penalty from such person.</p> | <p>2</p> <p>2</p> |
| e) | What do you mean by insurance? Describe third party insurance. | 4 |
| | <p>Answer:</p> <p> Meaning of Insurance</p> <p>Insurance is a contract between you and the insurance company that protects you against financial loss in the event of an accident or theft. In exchange for your paying a premium, the insurance company agrees to pay your losses as outlined in your policy.</p> <p> Third Party insurance</p> <p>It means the person or property other than the vehicle and vehicle owner are safeguarded</p> | <p>2</p> |



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| | <p>under this insurance. It is compulsory to all vehicles to safeguard the interest of pedestrians. Personal injuries and personal vehicle damages will not be covered by this policy. For two wheelers, we can take this policy for life time. For other vehicles this policy has to be renewed annually.</p> | 2 |
| f) | <p>Explain the procedure for the change of registration mark.</p> | 4 |
| | <p>Answer: (2 Marks for NOC procedure and 2 Marks for Re registration procedure)</p> <p>Step 1: Get the No Objection Certificate From The RTO Where Vehicle Is Originally Registered</p> <p>For Example if you wish to transfer your vehicle from Chandigarh to Mumbai, the first step would be to submit an application to the RTO in Chandigarh along with duly filled up Form 27 and Form 28. If you have purchased your vehicle on EMI, you will also need to submit the photocopy of the NOC from the bank and other vehicle documents mentioned below:</p> <p>Vehicle insurance policy Emission test/ Pollution Under Control Certificate Registration Certificate Chassis imprint of the vehicle 4 photocopies of Form 28 Application requesting the NOC</p> <p>Additionally, you may obtain the NOCs from the police department and traffic police in the city where your vehicle is registered. This would speed up the process of vehicle re-registration.</p> <p>Step 2: Re-Register Your Two-Wheeler In The New Location</p> <p>Apply for the re-registration of the vehicle in the local RTO. For instance, if you have moved from Chandigarh to Mumbai, you will need to submit the re-registration application to the RTO office in Mumbai along with the following documents:</p> <p>Duly filled up Form 29 and Form 30 Existing Registration Certificate (RC) of the vehicle Copy of the insurance policy document of the vehicle Copy of the NOC received from the old RTO Emission Test Certificate/ Pollution Under Control Certificate (PUC) Chassis Imprint of the vehicle. residential proof and id proof of the applicant</p> <p>The re-registration of the vehicle will involve certain charges. Where Octroi will be</p> | 2 |



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| | | calculated based on the current value of your two-wheeler after deducting depreciation. After submission of all the necessary documents, you will receive a new registration number for your two-wheeler within a few weeks. | |
| 6 | | Attempt any <u>Four</u> of the following: | 16 |
| | a) | State the following forms: (i) Form No. 8 (ii) Form No. 13 (iii) Form No. 20 (iv) Form No. 25 (v) Form No. 38 (vi) Form No. 45 (vii) Form No. 48 (viii) Form No. L-CON-A | 4 |
| | | Answer: (1/2 marks for each form statement) (i) Form No. 8 Application for the addition of new class of vehicle to a driving license (ii) Form No. 13 Form of application for renewing la license to engage in the business of Importing instructions in the driving of motor vehicles (iii) Form No. 20 Register to be maintained by the holder of trade certificate (iv) Form No. 25 Renewal Of Certificate Of Registration (v) Form No. 38 Certificate Of Fitness (vi) Form No. 45 Application for grant of permit in respect of Tourist Vehicle (vii) Form No. 48 Application for the grant of National Permit (viii) Form No. L-CON-A Form application for the conductor's licence | |
| | b) | In case of accident what duties are performed by driver? | 4 |
| | | Answer: Duty of driver in case of accident and injury to a person. When any person is injured or any property of a third party is damaged, as a result of an accident in which a motor vehicle is involved, the driver of the vehicle or other person in charge of the vehicle shall— 1. Unless it is not practicable to do so on account of mob fury or any other reason beyond his control, take all reasonable steps to secure medical attention for the injured person, and, if necessary, convey him to the nearest hospital, unless the injured person or his guardian, in case he is a minor, desires otherwise; 2. Give on demand by a police officer any information required by him, or, if no police | 4 |



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| | <p>officer is present, report the circumstances of the occurrence, including the circumstances, if any, for not taking reasonable steps to secure medical attention as required under clause (a), at the nearest police station as soon as possible, and in any case within twenty-four hours of the occurrence.</p> <p>3. Give the following information in writing to the insurer, who has issued the certificate of insurance, about the occurrence of the accident, namely-</p> <ul style="list-style-type: none"> (i) Insurance policy number and period of its validity; (ii) Date, time and place of accident; (iii) Particulars of the persons injured or killed in the accident; (iv) Name of the driver and the particulars of his driving license. | |
| c) | <p>What is meant by global Positioning System? State its importance in traffic management.</p> | 4 |
| | <p>Answer:</p> <p>Global positioning system:</p> <p>The Global Positioning System (GPS) is a satellite-based navigation system made up of a network of satellites placed into orbit. The GPS is owned and operated by the U.S. Department of Defense but is available for general use around the world. GPS works in any weather conditions, anywhere in the world, 24 hours a day. GPS receivers can be used in cars to relate the driver's location with traffic and weather information.</p> <p>Importance of vehicle navigation system</p> <ol style="list-style-type: none"> 1. To locate vehicle –A vehicle tracking system enables the fleet operator to find out the location of the vehicle Throughout the journey of the vehicle, against time. Most transporters use GPS to locate their vehicle. 2. Fleet Management -GPS vehicle tracking system also helps the fleet owners to see the vehicle’s current data like its mileage, speed, engine capacity, direction of travel etc. for the fleet owners to manage their fleets and improve their business strategies 3. Vehicle Security-Vehicle tracking system can be used to protect their vehicles from theft. The system shows the location of the vehicle and hence helps to recover your stolen vehicle. It is even possible to stop the vehicle's engine remotely 4. Teens Safety -Vehicle Tracking System can also be used by the parents to ensure the safety of their teen-agers driving the vehicle. System gives you the report of where the vehicle went, its speed, how long it stopped and etc 5. School Buses -Vehicle Tracking System proves beneficial for schools to track the bus locations. This system will be helpful to keep an eye on the movement of school buses. | 2 |



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| | <p>6. Apart from utilizing the data generated by the vehicle tracking system for enforcing the schedule of the bus, this data also provides important inputs for decision making.</p> <p>7. The system facilitates computation of exact distance travelled in a given time span, computation of the speed of the bus at a given location, analysis of the time taken by the bus to cover certain distance.</p> <p>8. It becomes a very powerful tool in case the Transport Corporations are hiring private buses, as computation of the distance travelled, based on which payments are made becomes totally objective.</p> | |
| d) | Which motor vehicles are exempted from Tax? | 04 |
| | <p>Answer: (Any 4 points 1 mark each)</p> <p>Vehicles exempted from Tax Payment</p> <ol style="list-style-type: none">1) Vehicles belong to state government, local self-government, Municipal Corporation etc.2) Ambulance working on no loss no profit basis.3) Invalid carriage.4) Vehicles solely used for transportation of school children and owned by school or private person.5) Vehicles belong to Orchestra, Tamasha Mandal, Drama Theatre, etc.6) Vehicles under non use.7) Tractors and trailers used for agriculture purpose. | 4 |
| e) | Name the particulars to be furnished by the owner of the vehicle, if the vehicle is involved in an accident. | 4 |
| | <p>Answer: (Any 4 points, 1 mark each)</p> <p>In case of accident particulars to be furnished by the owner of vehicle are:</p> <ol style="list-style-type: none">i) Person who alleges that he is entitled to claim compensation in respect of an accident arising out of the use of a motor vehicleii) An insurer against whom a claim has been made in respect of any motor vehicleiii) Furnish to that person or to that insureriv) The person who was using the vehicle at the time of the accident or was injured by it.v) Property, if any damaged in such form and within such time as the Central Government may prescribe. | 4 |
| f) | What factors are considered in preparing accident survey report? | 4 |
| | <p>Answer: (Any 4 factors 1 mark each)</p> <ol style="list-style-type: none">1) General: Site, date and time of accident2) Registration no. of vehicle involved in accident. | |



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| | <ol style="list-style-type: none">3) Nature of Accidents: Collision with or avoidance of overturning or any other kind of accident.4) Primary Cause of accident: Fault of driver or pedestrian, defective road surface, other cause, unknown.5) Light conditions: Daylight, dusk, dark with good street light, dark with no street light.6) Road condition: Straight, bend, intersection, flat, dry, wet, hill, concrete, earth road.7) Traffic condition: Dense/light/moderate traffic, controlled junction, uncontrolled junction.8) Responsibility of driver: Sex, age, driving experience, intoxicated, asleep or inattentive, speeding.9) Responsibility of Pedestrian: Age, deaf, blind or otherwise walking on road, crossing or running into road, intoxicated, confused by traffic, talking in roadways. | 4 |
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