



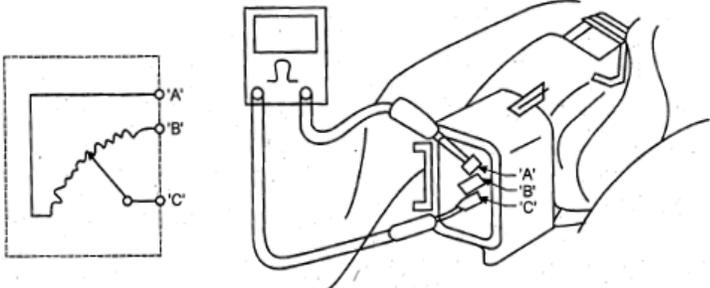
Important Instructions to examiners:

- 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) State the function of (1) Tyre changer (2) Head light aligner (3) wheel aligner (4) Arbor press.	04
Answer:	
1) Tyre changer: It is a device used for mounting and demounting of tyre from wheel rim with less effort. It reduces time for tyre changing.	01
2) Head Light aligner: It is a device used to check the aiming of head lights. With head light aligner Low beam, High beam is check as per manufacturer.	01
3) Wheel Aligner: This equipment checks and adjusts the misalignment of front wheels. It measures turning radius, camber, caster, king pin, toe in .It also helps to set these parameters.	01
4) Arbor press: It is used to apply the force on bent parts and straighten them. It is also used to press the bushings in or out and press out the rivets.	01
b) State necessity of maintenance.	04
Answer: (Any four points - 1 mark each)	04
Need: In order to ensure satisfactory operation of motor vehicle and freedom from troubles, it is necessary to provide maintenance attention towards certain specified items of the motor vehicle at regular intervals.	
1) Many possible troubles can be prevented from happening by taking proper care and maintenance of motor vehicle	
2) Regular maintenance increases life of vehicle and also it provide safety to passengers and other road users.	
3) Regular maintenance also improves the performance of vehicle, availability or maximum utilization of vehicle and improve economically operation.	
4) To keep vehicle in good running condition, reduce breakdown of vehicle and accidents.	
5) To reduce repair cost	



c) State four causes and remedies of vapor lock in fuel system.	04																				
Answer: Causes and remedies of vapor lock in fuel system (<i>Any four points- each 1 mark</i>):	04																				
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d) How is throttle position sensor tested?	04																				
<p>Answer: Testing of Throttle Position sensor: (<i>Note: Procedure-03marks, Figure- 01 marks</i>)</p> <p>Throttle position sensor detects the position of throttle valve and sending the signals to ECU for controlling the mixture of air fuel.</p> <p>Inspection:</p> <ol style="list-style-type: none"> 1) Disconnect negative cable at battery and coupler from TP sensor. 2) Using Ohm meter or multi meter, check resistance between terminals under each condition and compare to the specified value given by manufacturer as given below- 	03																				
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<ol style="list-style-type: none"> 3) There should be more than 1.5 ohm resistance difference between when throttle valve is an Idle position and when it is fully open. 4) If check result is not satisfactory, replace TP sensor. 																					
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<p>'A' - Ground Terminal, 'B' - Reference Voltage Terminal, 'C' - Output Voltage Terminal</p> <p>Figure: Inspection of TP Sensor</p>																					



B) Solve any one :	6
a) State the parts to be checked and their remedies in clutch.	
Answer: Clutch plate : 1. Clutch facing service limit: If facing is worn out replace with new one. 2. Loose holding down rivet: Replace with new one. 3. Checkup radial play in splines-it should not be more than 1 mm. If it is more, the clutch plate or shaft should be replaced whichever is worn out. 4. Check up the torque spring: If defective replace it. 5. Clutch plate should be checked for distortion or crack: If found, replace with new one. 6. Check the clutch plate for radial and lateral run out with dial gauge. The flat run out should not exceed 0.4 mm. if it is more, replace the same. The lateral run out should not exceed 0.7 mm, if it is more clutch plate should be disordered.	02
Pressure plate: 1. Check pressure plate facing for damage, cracked if found replace. 2. If surface is scored and glazed – machine the pressure plate surface. 3. Checkup pressure plate friction surface for flatness – If found bent, surface plate should be skimmed. 4. Checkup tension of pressure spring on a spring tester - If found weak, replace. 5. Inspect clutch fingers for height and wear - If worn out, replace.	02
Clutch Release Bearing and Release lever 1. Check release bearing for worn out : Worn out bearing should be replaced. 2. Check release lever for bent, wear, play in pivot : If loose they should be replaced. 3. For bend or wear and tear, if found repair or replace.	01
Clutch assembly cover: Check clutch assembly cover for torn apart – if found, repair it.	01



b) State any two troubles from steering system with their four causes and remedies of each trouble.	06																														
Answer : Troubles from steering system (<i>Note: Credit may be given to Any two proper troubles - 3marks each</i>) 1) Hard Steering: (<i>Any four causes and remedies</i>)	06																														
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<i>(Note: Causes and remedies of troubles like Front wheel shimmy, Excessive steering play, front wheel tramp may also be considered)</i>																															



2. Solve any four :	16
a) State need and procedure of brake drum boring.	04
Answer: Need for Brake Drum Boring: After prolonged use, usually three types of defects and wear takes place in brake drum. These are: (a) Scored drum. (b) Barrel shaped drum. (c) Bell mouthed drum. Hence need of brake drum boring arises when- <ul style="list-style-type: none">• They get worn out and sometimes due to which brake linings are worn out completely,• The rivets rub against the brake drum and leave lining marks on drum surface.• If internal surface brake drum is corroded.• Because of heat damage brake drum surface undergo fouling. Under these circumstances, the brake drums should be skimmed on brake drum turning lathe; failing which, there will be poor braking. Brake drum Boring procedure: 1) Inspect brake drum for wear and if amount of wear is above the recommended value given by manufacturer then replace the drum. 2) Clean the brake drum thoroughly and mount on lathe. 3) Take a small amount of cut to remove any surface irregularity present on the surface of brake drum. Reface the drum surface. 4) Measure diameter of brake drum with caliper and compare it with recommended value by manufacturer.	02
b) State the general servicing procedure.	04
Answer: General servicing procedure for vehicle: 1) Park the vehicle on the servicing ramp. 2) Place the stopper at the front and rear of the wheel. 3) Drain the Engine oil from engine oil sump and fill up new recommended oil. 4) Check oil level in gear box and differential. If level found less top up to correct level by specified oil. 5) Clean air filter by blow of compressed air. If clogged replace with new one. 6) Check the water level, coolant level and Belt tension of the alternator. 7) Check battery electrolyte level. If necessary top up to correct level. 8) Perform engine tune up, if required. 9) Do the brake and clutch adjustments as required. 10) Check tyre condition and do tyre rotation if required. 11) Perform Wheel alignment and wheel balancing if necessary. 12) Wash the vehicle thoroughly and by using grease gun lubricate the points where grease lubricant required.	04
c) State the procedure of assembly and setting of carburettor.	04
Answer: Assembly procedure of a Carburetor – 1) Before assembling the carburettor, be sure that all the parts are cleaned properly. 2) Use compressed air for cleaning main jet nozzles and circuits. 3) Then assemble all the parts carefully as per manufacturer's guidelines. Use proper tools &	02



<p>equipments. Use new gaskets when assembling parts of carburetor.</p> <p>5) Make proper adjustment of needle valve and float.</p> <p>6) Make fuel pipe, throttle and choke linkages connection, intake manifold connection properly.</p> <p>Setting of carburetor: For carburetor setting, follow the steps given below-</p> <ol style="list-style-type: none">1) Start the engine and run it for at least five minutes to warm up.2) Allow the engine to idle. The idle is set with a "Volume Control" screw and a "Bypass" screw of the left side of the carburetor.3) Note the rpm. Adjust the screw on the top of throttle lever so that it just touches the fast idle cam. Then turn it in 1/4 turn.4) Turn off the engine momentarily.5) Slowly turn in the Volume Control screw until it bottoms lightly. Then back it out 2-1/2 to 3 turns. This is the starting point for this screw.6) Restart the engine and adjust the Bypass Screw until you obtain the desired idle speed as indicated on the dwell-tachometer. Turning the bypass screw out increases the rpm; turning it in decreases the rpm.7) Turn the Volume Control screw one way or the other to obtain the highest idle speed, then turn the screw clockwise (in) until the engine speed drops by about 25 rpm.8) Reset the idle to desired rpm using the Bypass Screw.	02
<p>d) State the factors to be considered to decide whether part is to be repaired or replaced.</p>	04
<p>Answer: Factors to be considered to decide whether part is repaired or replaced- (<i>Any four -01markeach</i>)</p> <ol style="list-style-type: none">1) Repairing cost of the spare-parts as compare to initial cost.2) Availability of part in the market.3) Performance after rework i.e. feasibility for retrieval or reclamation.4) Machinery set up and skilled workers required for repairing.5) Time require for repairing6) Life of repaired part as compare to original part.7) Consider effect of repaired part on sequential failure of other parts.8) Safety aspects.	04
<p>e) A complaint from car owner is engine oil seen in radiator. State fair suitable causes and remedies.</p>	04



Answer: (Any four causes and their suitable remedy- 01 mark each)

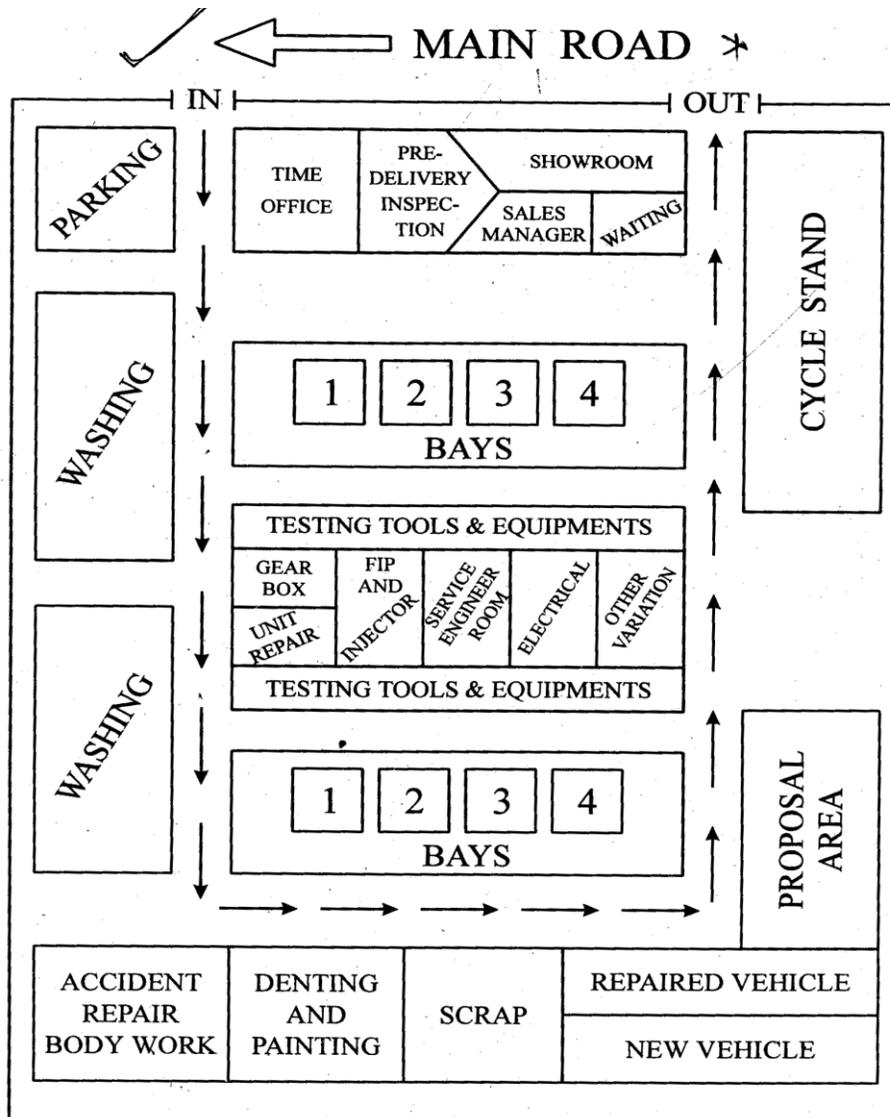
04

Sr. No.	Causes	Remedies
1	Leakage through cylinder head due to worn out gasket	Replace the worn gasket.
2	Loose cylinder head bolts.	Tighten it properly.
3	Leakage through cooling passages of cylinder block	Detect the cracks in cylinder and repair or replace.
4	Leakage from water pump due to worn oil seal	Check and replace.
5	Leakage or seepage in intake manifold	Check and repair.

f) Draw neat sketch of layout of four wheeler sales and service dealers showroom.

04

Answer:



04

Layout of four wheeler sales and service dealers showroom



3. a) Solve any four :	16
a) State any four special machines be used in modern workshop along with their use.	04
Answer: (Any four special machines along with their use -1 mark each)	04
1) Brake testing machine – To measure brake efficiency.	
2) Engine analyzer – To locate engine troubles. It indicates air fuel mixture, pressure/ vacuum and exhaust gas analysis.	
3) Spark plug testing and cleaning machine – To clean the spark plug and testing its performance.	
4) Computerized wheel balancer - To find imbalance of wheel to locate the position of imbalance and amount of weight to added to balance the wheel.	
5) Valve grinder – To reface the valve face, valve stem, valve seat, valve angle.	
6) Tyre changer : It is device used for mount and demount tyre from rim automatically. It is reduce the time for tyre changing.	
7) Head Light aligner : It is device used for alignment of head light and its light intensity. It also checks the angle of head light beam.	
8) Wheel Aligner : This equipment checks and adjusts the misalignment of front wheels. It measures turning radius, camber, caster, king pin, toe in .It also helps to set these parameters.	
b) State the procedure of hydrostatic test to be conducted on cylinder block and defects to be remedied.	04
Answer:	
Procedure of hydrostatic test: A hydrostatic test on cylinder block is done to detect any leakage or crack present in the cylinder block.	04
1) Before testing it is necessary to clean the cylinder block thoroughly and inspect carefully.	
2) Mount the cylinder block on test bench, supply hydraulic fluid under pressure, usually water, which may be dyed to aid in visual leak detection, and pressurization of the cylinder block to the specified test pressure into passages of cylinder block.	
3) Note the pressure of fluid in cylinder block, if fluid pressure is drop it indicates the leakage in cylinder block.	
4) The location of a leak can be visually identified more easily if the water contains a colorant.	
5) If the crack is detected, it can be repaired but the usual practice is to replace the block.	
c) State procedure for checking thermostat.	04
Answer: Procedure for checking thermostat:	
Removal:	
1) Disconnect negative cable at battery.	
2) Drain the cooling system and tighten the drain plug.	
3) Disconnect thermostat cap from thermostat case and remove the thermostat.	
Inspection:	03
1) Make sure that air bleed valve of thermostat is clear. If it is clogged, engine tends to overheat.	
2) Check to make sure that valve seat is free from foreign matters which would prevent valve from seating tight.	
3) Check thermostatic movement of wax pallet as follows-	
• Immerse thermostat in water and heat water gradually as shown in figure.	
• Check that valve starts to open at specific temperature.	
• If valve starts to open at temperature substantially below or above specific temperature,	

thermostat unit should be replaced with a new one.

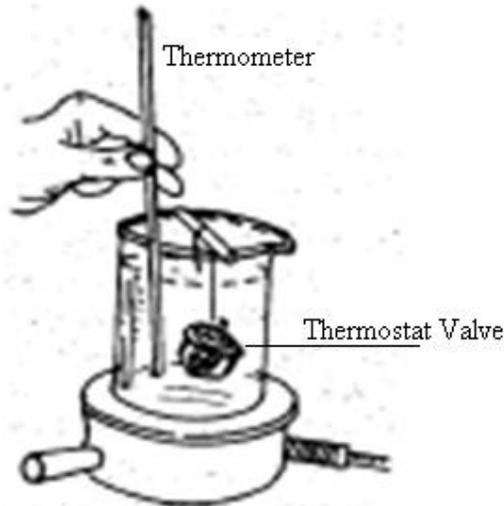


Figure: testing of Thermostat

01

d) State four causes and remedies of excessive oil consumption.

04

Answer: (Any four causes and remedies- 01 mark each)

Sr. No	Causes	Remedies
01	Loose main or connecting rod bearings.	Check and adjust or replace.
02	Tapered or out of round cylinders.	Repair.
03	Worn out piston rings, piston or scored liner.	Replace with new one.
04	Worn oil seals (front and rear main bearings).	Replace with new one.
05	Clogged oil return pipe.	Clean and refit.
06	Worn out rear camshaft oil seals.	Replace with new one.
07	Clogged air breather.	Clean it.
08	Leaky fuel pump vacuum booster.	Check and repair or replace.
09	Excessive clearance in intake valve guide.	Check and repair.
10	Improperly installed oil pan.	Install properly.

04

e) State the procedure for repairing and checking of brake shoe liners.

04

Answer:

Procedure for repairing and checking of brake shoe liners:

- 1) Check brake liner, if oil or grease is present, remove it
- 2) Glazed surface of the brake linings may be removed by a stiff wire brush.
- 3) Check thickness of linings by using vernier caliper. If it is less than service limit replace the lining
- 4) Relining of brake shoe: this can be done after scraping the old shoe lining and riveting the same after drilling holes in the shoe.
- 5) Before assembling brake shoe, check brake lining and drum for proper contact. If the contact between brake lining and drum is improper, dress the lining with the brake shoe grinder or replace the lining.

04



4 a) Solve any three	12
a) State tuning procedure of 1) Battery 2) Distributor	04
Answer: 1) Tune up of Battery a. With help of battery terminal puller, remove the terminal from the post. b. While removing the battery, first disconnect the ground strap. While removing the battery from the cradle care should be taken not to spill the electrolyte on body. It is injurious. c. Check battery voltage with voltmeter. d. Keep electrolyte level up to the mark, top up if necessary with distilled water. e. Check specific gravity of electrolyte by hydrometer syringe. For checking specific gravity, press the rubber bulb and insert the suction pipe in the vent hole of a cell. Remove pressure on rubber bulb. Due to vacuum in the spring, electrolyte will get filled up in the tube, making the float to lift with electrolyte level. This float has markings provided on it. Lift the syringe parallel to eyes and note the reading. f. Clean the terminal off sulphation. Use hot water for this purpose. Sulphated terminals do not allow the current to pass. 2) Tune up of Distributor: a. The distributor cap should be inspected carefully to see how the sparks are arcing. No erosion should be on the surface and the firing points. It should be free of rust or corrosion. b. The rotor should be checked for burns, traces of carbon and should have a secure fit. c. Look for a slight buildup of carbon inside the distributor, if present remove it. d. Inspect the condenser. If the condenser is open, make proper connection e. There should be no play in bushes of distributor shaft f. Check the gap between contact breaker points. Set Contact Point at proper gap, as specified by the manufacturer g. Check the spring tension of contact breaker.	02
b) Write daily and monthly schedule of two wheeler with four stroke petrol engine	04
Answer: Maintenance Schedule of Two Wheeler: Daily schedule 1) Check fuel level in fuel tank. 2) Check tyre pressure. 3) Check braking system. 4) Check electrical system. 5) Check clutch setting. Monthly schedule 1) Change engine oil. 2) Clutch play and brake pedal play adjustment. 3) Cleaning and washing of carburetor. 4) Cleaning of air filter, fuel filter. 5) Cleaning and gap adjustment of spark plug. 6) Battery electrolyte level.	02
	02



- 7) Tightening of loose nut bolts.
- 8) Greasing of wheel bearing.
- 9) Check tyres.
- 10) Washing and lubrication of vehicle.

c) State procedure for checking of cylinder liners.

04

Answer:

Inspection procedure of cylinder liners:

1) Check Cylinder Liner Ridge Protrusion:

0.01 mm to 0.10 mm

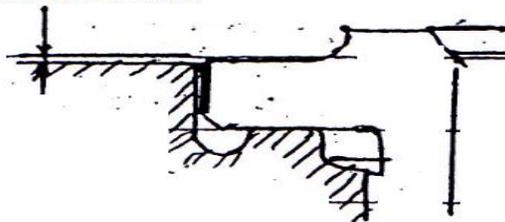


Figure: Checking ridge formed at liner.

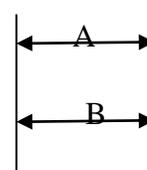
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- Using a dial indicator, measure the ridge protrusion of the cylinder liner.
- Ridge protrusion = 0.01 mm to 0.10 mm
- If the protrusion is not within specifications, adjust it with a cylinder liner shim.
- Cylinder liner shim thickness = 0.05 mm to 0.10 mm.

2) Check cylinder liner for Taper and Ovality:

Taper:

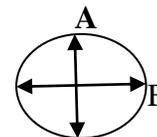
- Move the bore dial gauge top to bottom.
- Note the maximum and minimum reading.
- The difference in the reading is taper.
- Taper = A - B



02

Ovality:

- Take the measurement at A and B with bore dial gauge.
 - The difference in the reading is ovality.
- Ovality = A - B



3) Inspect cylinder Liner for Vertical scratches:

- Visually check the cylinder liner for vertical scratches.
- If deep scratches are present, replace the cylinder liner.

01



d) State four causes and remedies of low oil pressure in engine.		04
Answer: (Any four causes and remedies -1 mark each)		04
Sr. No	Causes	Remedies
1	Less oil in crank case.	Top up to correct level.
2	Use of low viscosity oil or diluted oil in sump.	Change the oil.
3	Low grade of oil or poor quality of oil.	Use specified oil stated by manufacturer.
4	Worn out main and big end bearing.	Replace bearing.
5	Leaky filter, oil pipe or oil pump.	Replace.
6	Bypass valve spring defective.	Replace.
7	Maladjustment of regulating valve spring.	Make correct adjustment.
8	Defective oil pressure gauge.	Repair or replace.
9	Too much play in oil pump gears.	Adjust play or replace gears.
10	Choked suction strainer of oil pump.	Clean the strainer.
11	Choked oil gallery or suction pipe.	Clean properly.
b)Solve any one :		
a) State checking and adjusting procedure. 1) Backlash in ring gear 2) Tooth contact between ring gear and pinion.		06
Answer:		
1) Backlash in ring gear and pinion: To check backlash, fix up the dial gauge on differential housing and its pointer resting on one teeth of ring gear. Set the gauge at zero. Now move the wheel on both sides without moving the pinion and read the gauge. The play should be 0.15 to 0.18 mm.		02
2) Tooth contact between ring gear and pinion: Apply red lead paste on 3 teeth of ring gear as shown in figure. Now rotate the ring gear in the direction of its rotation 4 to 5 times. When these marked teeth pass over the teeth of pinion, it leaves a contact mark as shown in fig. In case correct contact mark is not coming, i.e. it is coming at top or bottom, right or left or in one corner adjust as stated under the caption.		
		02
(a) Proper adjustment (b) Incorrect adjustment (c) Incorrect adjustment		



Adjustments.

There are two adjustments. (1) Shifting pinion in or out in the housing. (2) Shifting the ring gear right or left to pinion.

The pinion and ring gear are so adjusted to a point where the pitch of crown wheel and pinion gear should be same as shown in fig.

Suppose crown wheel and pinion ratio is 4:1, bring crown wheel closer to pinion 4 times and bring pinion down by one time. By this method we get identical pitch at desired point.

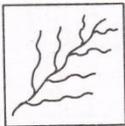
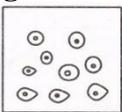
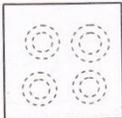
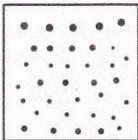
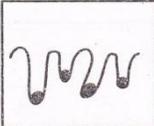
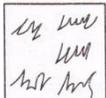
02

b) State any six painting defects alongwith causes

06

Answer: (Any six defects along with causes - 1 mark each, either name or sketch of defect may considered)

06

Sr no	Defects	Causes
1	Cracking 	Too heavy film of lacquer, top-coat or by sudden temperature changes.
2	Shrinking and splitting 	Heavy coats of paint or insufficient dry time between coats.
3	Createring and crawling 	Oil and moisture in spray lines or silicon contamination from products used in some surface operations.
4	Blistering 	Oil and moisture in spray lines or temperature variation between shop material and surface to be painted or by high humidity conditions.
5	Pin holes 	Oil or moisture in equipment or material applied to a cold surface or by using too fast evaporating solvent.
6	Runs and sags 	Too heavy application of paint
7	Rub through 	Not applying enough material to allow proper compounding or excessive rubbing and compounding



5 Solve any two :		16																					
a) State any two complaints of propeller shaft alongwith four causes and remedies of each complaint.		08																					
<p>Answer:</p> <p>1) Propeller shaft shakes.</p> <table border="1"> <thead> <tr> <th>Causes</th> <th>Remedies</th> </tr> </thead> <tbody> <tr> <td>Improperly connected propeller shaft and splined yoke coupling.</td> <td>Assemble splined yoke and yoke on rear end of the propeller shaft such that they are in same plane.</td> </tr> <tr> <td>Bent Propeller shaft</td> <td>Straighten it on press, check run out of shaft on lathe machine or v block. If the shaft is badly bent then replace it.</td> </tr> <tr> <td>Worn out needle bearing of Universal Joint.</td> <td>If needle bearing is slightly worn out, replace it.</td> </tr> <tr> <td>Misaligned Propeller shaft at front and rear end.</td> <td>Align it properly.</td> </tr> </tbody> </table>		Causes	Remedies	Improperly connected propeller shaft and splined yoke coupling.	Assemble splined yoke and yoke on rear end of the propeller shaft such that they are in same plane.	Bent Propeller shaft	Straighten it on press, check run out of shaft on lathe machine or v block. If the shaft is badly bent then replace it.	Worn out needle bearing of Universal Joint.	If needle bearing is slightly worn out, replace it.	Misaligned Propeller shaft at front and rear end.	Align it properly.	04											
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2) Noisy running of propeller shaft: <i>(Any four causes)</i>		04																					
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b) State any two complaints of rear axle with four causes and remedies of each complaint.		08																					
<p>Answer: Complaints of live rear axle:<i>(Any two relevant complaints - each 4 marks)</i></p> <table border="1"> <thead> <tr> <th>Complaints</th> <th>Cause</th> <th>Remedies</th> </tr> </thead> <tbody> <tr> <td rowspan="4">1) Axle noisy on acceleration</td> <td>Heavy heel contact on ring gear teeth.</td> <td>Move the ring gear nearer to the drive pinion.</td> </tr> <tr> <td>Improper adjustment of pinion and ring gear.</td> <td>Adjust it properly.</td> </tr> <tr> <td>Rough pinion bearings.</td> <td>Replace the bearings.</td> </tr> <tr> <td>Loose pinion bearings.</td> <td>Adjust it properly.</td> </tr> <tr> <td rowspan="4">2) Axle noisy on coast</td> <td>Excessive backlash in ring gear and pinion.</td> <td>Adjust the backlash.</td> </tr> <tr> <td>End play in pinion shaft.</td> <td>Provide proper end play.</td> </tr> <tr> <td>Heavy toe contact on ring gear.</td> <td>Ensure proper toe contact.</td> </tr> <tr> <td>Rough bearing.</td> <td>Adjust or replace bearings.</td> </tr> </tbody> </table>		Complaints	Cause	Remedies	1) Axle noisy on acceleration	Heavy heel contact on ring gear teeth.	Move the ring gear nearer to the drive pinion.	Improper adjustment of pinion and ring gear.	Adjust it properly.	Rough pinion bearings.	Replace the bearings.	Loose pinion bearings.	Adjust it properly.	2) Axle noisy on coast	Excessive backlash in ring gear and pinion.	Adjust the backlash.	End play in pinion shaft.	Provide proper end play.	Heavy toe contact on ring gear.	Ensure proper toe contact.	Rough bearing.	Adjust or replace bearings.	08
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3) Noisy differential	Less lubricating oil in differential housing.	Fill it at proper level.	
	Improper adjustment of pinion and ring gear.	Adjust it properly.	
	Improper backlash in differential gears.	Provide proper backlash as per recommendation.	
	Worn differential bearings.	Replace with new one	
	Worn differential side gear thrust washers.	Replace the washers.	
c) State procedure of (1) Hot retreading (2) Cold retreading			08
<p>Answer: Procedure of hot Retreading:</p> <p>1. Inspection: The surface of the tyre must be intact; both the sidewall of tyres should not have oversize mangled.</p> <p>2. Drying: Cleaning the tyre, then dry it.</p> <p>3. Buffing: After drying, the tyre's old tread is mechanically removed on high speed buffers. Then make second polishing and section repairs, including the sidewall of the tyre.</p> <p>4. Building- hot retreading tread: The buffed tyre needs a thin layer of cushion gum to be wrapped around its crown area. The hot retreading tread is then applied with the Tyre building Machine.</p> <p>5. Rubberizing -sidewall glue: After building the tyre tread, then worker filling glue on the sidewall of the tyre .Then all of the tyre are decorated with the glue .</p> <p>6. Fixing inner tube: The built tyres are then mounted with curing inner tube to prepare them for vulcanizing.</p> <p>7. Curing by segmented mould: The tyre is then placed in the hot retreading machine-segmented mould retreading machine. During this processing, the tyre tread are to be printed by the flower patterns of machine mould .After vulcanization, the new retreaded tyre is taking shape. It is new tyre and have own brand.</p> <p>8. Final inspection: The retreaded tyre is subjected to a final inspection. This inspection insures that only tyres which meet the industry quality standards are allowed to leave the retread plant.</p>			04
<p>Procedure of cold retreading:</p> <p>1. Inspection: The surface of the tyre must be intact; both the sides should not have oversize mangled</p> <p>2. Drying: Clean the tyre, and then dry it.</p> <p>3. Buffing: After drying, the tyre's old tread is mechanically removed on high speed buffers. Then people make second polishing and section repairs.</p> <p>4. Building-tread rubber: The buffed tyre needs a thin layer of cushion gum to be wrapped around its crown area. The pre-cured tread rubber is then applied with the Tire Surface Press Fit Machine.</p> <p>5. Enveloping: The built tyres are then mounted with envelops and rims to prepare them for curing.</p> <p>6. Fixing steel ring: After enveloping the tyre, fix them on the felly on the working platform. And they are ready for being made vacuum and vulcanization.</p> <p>7. Curing by pre-cure pots: The tyre is then placed in a pre-cure pot and pre-cured tread becomes adhered to the tyre through a vulcanizing process.</p> <p>8. Final inspection: The retreaded tyre is subjected to a final inspection. This inspection insures that only tyres that meet industry quality standards are allowed to leave the retread plant.</p>			04



6. Solve any four .	16																
a) State four causes and remedies of external oil leakage.	04																
Answer: Causes and remedies of External oil leakage: (Any four -1 mark each)																	
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b) State checking procedure of piston and crankshaft.	04																
Answer: Checking procedure of piston : a) Clean the piston to remove dirt, carbon depositions etc. b) Check piston diameter and oil clearance. c) Check the piston ring groove clearance with the help of feeler gauge. d) Inspect the condition of piston skirt for wear. e) Check the oil holes in the oil ring grove.	02																
Checking procedure of Crankshaft : a) Check the cracked or worn out front hub key slot. b) Check oil holes for clogging and damage. c) Check crank shaft for straightness with the help of dial gauge. d) Checkout of round and taper wear of crankshaft main journal and crankpins. e) Check static and dynamic balancing of crankshaft. f) Check end play of crank shaft when fitted in block.	02																
c) State alignment procedure of frame.	04																
Answer: Procedure of frame alignment: a) Place the vehicle on plane leveled ground. b) Mark the markings on the floor from all the points from which measurements should be taken by dropping the plumb bob directly underneath the point. c) Move the vehicle away from the layout on floor. d) Check frame width at front and rear end. If width is corresponds to specification, draw a centre line up to full length of the vehicle half way between marks indicating front and rear width. If frame width is not correct draw centre line through intersections of any two pairs of equal diagonals. e) With the centre line properly laid out, measure the distance from it to points opposite over the entire length of chassis. If frame is in proper alignment measurement should not be vary.	03																



f) To locate the points at which the frame is sprung measure the diagonals marked in pairs A-B, B-C, C-D. If the diagonals in each pair are within 3.17mm, that part of the frame between the points of measurements is considered as in satisfactory alignment. These diagonals should intersect at centre line.

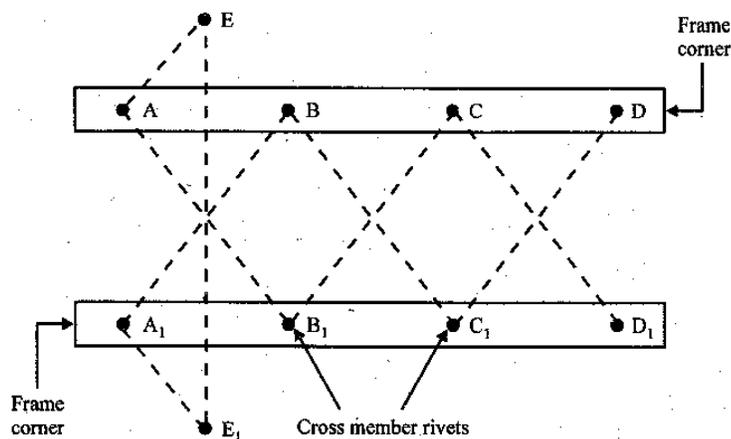


Figure: Checking alignment of frame.

01

d) Write procedure for adjustment of door and lock.

04

Answer:

Procedure for adjustment of door and lock:

Adjustment of door and lock is necessary for smooth operation of door and security of vehicle.

- In door adjustment, handles of the door, locks children's safety lock, striker joints are lubricated. When replacing locks, care should be taken to locate the position of the striker which is secured to body by two self tapping screws. If the door does not close well, relocate the striker.
- Check hinges of doors for loose rivets, noise, corrosion etc.
- Check rubber weather strip for broken or damage. If weather strip is found damaged or broken, replace with new one.
- Check rubber pads for any damage, replace if required.
- If window regulator becomes in-operative then check gear for wear or damage, check spring for weakened condition and adjust linkage and lubricate it with oil.

04

e) State four causes and remedies of steering wobbling.

04



Answer:

Causes and remedies of steering wobbling (*Any four causes with suitable remedies - 1 each mark*)

04

Sr. No	Causes	Remedies
1	Unbalanced wheel.	Check and perform wheel balancing.
2	Defective shock absorber.	Replace.
3	Incorrect toe in.	Adjust it properly.
4	Loose or worn steering linkage	Tight, repair or replace.
5	Loose or worn out steering gears	Adjust it or replace.
6	Too loose or worn out front wheel bearing	Replace bearings.
7	Loose king pin or ball joints	Replace worn parts.
8	Too much wheel run out.	Balance, remount tyre, straighten or replace wheel
9	Uneven or incorrect tyre pressure	Inflate to correct pressure.