

## Second Year

**MECHANICAL ENGINEERING TECHNICIAN****Second Year (P.C. 314/71)****Subject : Energy Sources Lab****Paper - I**

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**Time : 3 Hours****Max. Marks : 50****Section - I****1 x 40 = 40 Marks**

1. Study the Solar Radiation by using Pyranometer and Tabulate the Data.
2. Prepare distilled water with the solar distillation unit and record the data.
3. Observe and identify the parts of solar pumping system.
4. Prepare the stuff by using solar cooker ( Box type) and tabulate the data.
5. Dismantle the Box type solar cooker and reassemble it.
6. Make Hot water by using solar water Heater (Thermosyphon) and record the data.
7. Observe the making hot water by using forced circulation solar water heater.
8. Install a Solar street light and give the connections to glow a bulb.
9. Observe the production of Bio-gas with the KVIC Bio-gas plant and tabulate the data.
10. Observe the production of Bio-gas with the fixed dome (Janata) Bio-gas plant.
11. Observe the production of Bio-gas with Deenabandhu Bio-gas plant.
12. Observe the Production of Bio-gas with Pragathi Bio-gas plant.
13. Identify the parts of horizontal wind mill and explain them.
14. Study the charging and discharging of Fuel cell.
15. Identify the various parts of Bobeock and Wilcox Boiler and explain them.

16. Identify the parts and explain the functions of Cochran steam Boiler.
17. Explain the working of Nozzles with flow diagram.
18. Study the working of steam Condenser.
19. Identify the parts of Impulse turbine and explain them with line diagram..
20. Identify the parts of Reaction Turbine and explain them with line diagram.

**Section - II**

Record	<b>5 Marks</b>
Viva	<b>5 Marks</b>

**MECHANICAL ENGINEERING TECHNICIAN****Second Year**

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**MODEL QUESTION PAPER**

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**Subject : Energy Sources Lab****Paper - I**

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**Time : 3 hours****Max. Marks : 50**

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**Section - I****(1 x 40 = 40 Marks)**

2. Prepare distilled water with the solar distillation unit and record the data.

**Section - II**

Record

**5 Marks**

Viva

**5 Marks**

**Note :** The serial numbers of the questions mentioned in are the serial numbers in question bank. In practical examination only the serial number of the questions will given, the examiner shall decode it with question bank and give the questions.

**MECHANICAL ENGINEERING TECHNICIAN****Second Year****PRACTICAL SCHEME OF VALUATION KEY****Subject : Energy Sources Lab****Paper - I****Time : 3 hours****Max. Marks : 50****Section - I****1 x 40 = 40 Marks**

Aim	}	:	5 Marks
Requirement / Total / Materials / Apparatus			
Diagram	:		10 Marks
Procedure / Job / Experiment / Observations / Performance	:		20 Marks
Result / Conclusion	:		5 Marks

**Section - II**

Record	:	5 Marks
Viva	:	5 Marks

**MECHANICAL ENGINEERING TECHNICIAN****Second Year (P.C. 314/72)****Subject : Light Motor Vehicle Servicing Lab****Paper - II****Time : 3 Hours****Max. Marks : 50****Section - I****1 x 40 = 40 Marks**

1. Servicing the given vehicle (Washing, Cleaning, and Greasing).
2. Removing wheel from vehicle Refit the punctured tube and tyre.
3. Remove the steering Linkages, Dismantling, Cleaning, and reassembling.
4. Remove the steering assembly, dismantling it cleaning and refit the assembly.
5. Overhauling the Rack and Pinion type steering assembly.
6. Overhauling the continuous ball chain type steering system.
7. Overhauling the mechanical Brakes of vehicle.
8. Overhauling the Hydraulic brake system.
9. Adjusting the Clutch's Brake pedal free play .
10. Remove the single plate clutch and overhauling it.
11. Overhauling a Diaphragm type single plate clutch.
13. Overhauling the 4-Speed synchromesh gear box.
14. Dismantle and reassemble the constant mesh type gear box.
15. Remove the simple carburetor, check, clean, and reassemble it.
16. Overhauling the solex carburetor.
17. Dismantle the S.U carburetor check, clean and reassemble it.
18. Remove the oil filter, dismantle, clean, replace filter element, and reassemble it.
19. Dismantling and assemble the in line fuel injection pump.

20. Remove the air cleaner from the engine clean, the filter element, and fit the air cleaner on the engine.
21. Remove the Radiator, clean the radiator, and fit the radiator to vehicle.
22. Overhaul the water pump and refit to the vehicle.
23. Remove the oil pump dismantle, and assemble the oil pump.
24. Remove the fuel filter from the fuel line, fit a new fuel filter element and connect in fuel line.

**Section - II**

Record

**5 Marks**

Viva

**5 Marks**

**MECHANICAL ENGINEERING TECHNICIAN****Second Year**

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**MODEL QUESTION PAPER**

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**Subject : Light Motor Vehicle Servicing Lab****Paper - II**

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**Time : 3 hours****Max. Marks : 50**

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**Section - I****(1 x 40 = 40 Marks)**

18. Remove the oil filter, dismantle, clean, replace filter element, and reassemble it.

**Section - II**

Record

**5 Marks**

Viva

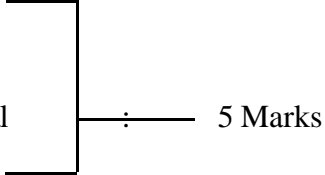
**5 Marks**

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**MECHANICAL ENGINEERING TECHNICIAN****Second Year****PRACTICAL SCHEME OF VALUATION KEY****Subject : Light Motor Vehicle Servicing Lab****Paper - II****Time : 3 hours****Max. Marks : 50****Section I****( 1 x 40 = 40 Marks)**

Aim  
Requirement  
Tools/Material  
Apparatus



: 5 Marks

Diagram / Procedure : 10 Marks

Job / Experiment/ : 20 Marks

Observations / Performance

Result / Conclusion : 5 Marks

**Section - II**

Record : 5 Marks

Viva : 5 Marks

**MECHANICAL ENGINEERING TECHNICIAN****Second Year (P.C. 314/73)****Subject : Refrigeration and Air Conditioning Lab****Paper - III****Time : 3 Hours****Max. Marks : 50****Section - I****1 x 40 = 40 Marks**

1. Transfer the given quantity of Refrigerant from supply cylinder to service cylinder.
2. Remove the air from domestic refrigerator .
3. Locate and rectify the leaks in the given refrigerator.
4. Charge the required quantity refrigerant in the domestic refrigerator.
5. Servicing “The Water Cooler “.
6. Identify the parts of Ice plant and draw the line diagram.
7. Cut the given copper tube and join by Brazing after swaging.
8. Identify the problems in given compressor and repair it.
9. Start and stop operational maintenance in the Cold storage plant.
10. Trouble shoot and repair the domestic refrigerator for the complaint of “No Cooling”.
11. Trouble shoot and repair the domestic refrigerator for the complaint of “Noisy”.
12. Servicing of Cooling tower.
13. Servicing of given Air cooler.
14. Servicing of given Window type Air-Conditioner.
15. Servicing of given Package Air-Conditioner.
16. Servicing of given split Air-conditioner.
17. Charging the refrigerant into window type Air - Conditioner.

18. Troubleshoot and repair the complaint of “Poor cooling” of window Air conditioner.
19. Trouble shoot and repair for the complaint of window Air conditioner working but “Noisy”.
20. Trouble shoot and repair for the complain of water leakage in in-door unit of split Air-Conditioner.

**Section - II**

Record

**5 Marks**

Viva

**5 Marks**

**MECHANICAL ENGINEERING TECHNICIAN****Second Year**

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**MODEL QUESTION PAPER**

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**Subject : Refrigeration and Air Conditioning Lab****Paper - III**

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**Time : 3 hours****Max. Marks : 50**

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**Section - I****(1 x 40 = 40 Marks)**

11. Trouble shoot and repair the domestic refrigerator for the complaint of "Noisy".

**Section - II**

Record

**5 Marks**

Viva

**5 Marks**

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**MECHANICAL ENGINEERING TECHNICIAN****Second Year****PRACTICAL SCHEME OF VALUATION****Subject : Refrigeration and Air Conditioning Lab****Paper - III****Time : 3 hours****Max. Marks : 50****Section - I**

Aim	}	:	5 Marks
Requirement			
Tools / Materials			
Apparatus			
Diagram	:	10 Marks	
Procedure / Job / Experiment	:	20 Marks	
Result / Conclusion	:	5 Marks	

**Section - II**

Record	:	5 Marks
Viva	:	5 Marks