Government College for Women (A)
GUNTUR

DEPARTMENT OF
PHYSICS & ELECTRONICS

Ability Enhancement Certificate Course
(AECC)

"Electrical Home Appliances-Service and Maintenance"

Academic Year-2023-24

Government College for Women (A) GUNTUR

DEPARTMENT OF PHYSICS & ELECTRONICS

DEPARTMENTAL MINUTES

(ACADEMIC YEAR 2023-2024)

The faculty members of the Physics & Electronics Department met in the Principal's chamber to discuss to conduct a Ability enhancement Certificate Course (AECC) in Physics, titled "Electrical Home Appliances- Service and Maintenance " under the chairmanship of the Principal and the faculty of the department on 03/11/23.

AGENDA:

Starting of Ability enhancement Certificate Course in Physics for Ist B.Sc (Honors) Physics Students.

RESOLUTIONS:

1) It is resolved to start the certificate course titled "Electrical Home Appliances- Service and Maintenance" from 03/11/23 to 22/11/23 (30 hours) for the Academic year 2023-2024.

2) It is also resolved to frame the syllabus, regulations for the successful completion of Ability enhancement Certificate Course in Physics, "Electrical Home Appliances- Service and Maintenance".

3) Resolved to Enroll Ist B.Sc (Honors) Physics Students to this course.

4) Resolved to conduct classes daily morning from 9:00 to 10:00 am and evening 5:00 to 6:00 pm

5) Resolved to conduct exam both theory and practical after completion of the course and issue certificates to the qualified candidates.

6) Qualifying Marks for this course is 40%.

V.R. Jno

PRINCIPAL
GOVT. COLLEGE FOR WOMEN (A)
GUNTUR.

30/10/23

Signature of the In-charge
In Charge
Department of Physics
Govt. College for Women (A)
GUNTUR. A.P.

Members Present:

1. Dr K Vijaya lakshmi Lecturer in Physics
2. G Sirisha, Lecturer in Physics
3. K Nikitha , Lecturer in Physics
4. G Sita
5. M Srikanth

Government College for Women (A) GUNTUR

DEPARTMENT OF PHYSICS& ELECTRONICS

From
The In-Charge
Department of Physics & Electronics
(A), Government College for Women (A),

To
The Principal,
Government College for Women
GUNTUR

Respected Madam,

Sub: Govt. College for Women (A)–Department of Physics-Request to start Ability enhancement Certificate Course in Physics for Ist B.Sc (Honors) Physics Students- reg.

*****

It is to submit to your consideration that we are going to conduct Ability enhancement Certificate Course in Physics **"Electrical Home Appliances- Service and Maintenance"** to I[st] B.Sc (Honors) Physics students for the benefit of students in our department. The course duration should be 30 hours. We are going to start this course in the academic year 2023-2024 i.e. from 03.11.2023 to 22.11.2023. Hence, I request you to permit us to organize the above course.

Thanking you Sir,

Yours sincerely,

30/10/23

(D Vijaya Sri)
In-Charge
Department of Physics & Electronics
Govt. College for Women (A)

In Charge
Department of Physics
Govt. College for Women (A)
GUNTUR, A.P.

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DEPARTMENT OF PHYSICS & ELECTRONICS

Ability Enhancement Certificate Course (AECC)

Circular

All the I[st] year B.Sc (Honors) Physics students are hereby informed that the Department of Physics & Electronics is going to organize 30 hours practical oriented Ability enhancement Certificate Course (AECC) namely, "Electrical Home Appliances- Service and Maintenance" to enhance the knowledge and skills in the subject. All the students are instructed to enroll their names with Dr K. Vijaya Lakshmi, Lecturer in Physics, Department of Physics on or before 01-11-2023. The classes will commence from 03-11-2023.

Signature of the In-charge
In Charge
Department of Physics
Govt. College for Women (A)
GUNTUR. A.P.

Signature of the Principal
PRINCIPAL
GOVT. COLLEGE FOR WOMEN (A)
GUNTUR.
Department of Physics
Govt. College for Women (A)
GUNTUR. A.P.

Government College for Women (A) GUNTUR

DEPARTMENT OF PHYSICS& ELECTRONICS

Ability Enhancement certificate course

"Electrical Home Appliances - Service and Maintenance"

INTRODUCTION:

Electrical Home appliances in Physics involves a deep understanding of fundamentals principles such as Electricity, Magnetism, Electromagnetic induction, Energy conversion, Thermo-dynamics and Heat transfer. These principles collectively enable the development, functioning and safe operation of diverse range of electrical appliances that become integral to modern homes.

OBJECTIVE OF THE COURSE:

The objective of this certificate course in **"Electrical Home Appliances-Service and Maintenance"** is to provide participants with a practical and theoretical foundation in the field of household appliances, enabling them to confidently operate, maintain, and troubleshoot various electrical devices while prioritizing safety and energy efficiency.

COURSE DURATION : 30 Hours (1 hour Theory and 1hour Practical daily)

LEVEL : UG

COURSE TYPE : Scheduled

CERTIFICATION : Certification will be given on the Continuous Comprehensive and Practical evaluation of student performance in the learning activities.

In Charge
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DEPARTMENT OF PHYSICS& ELECTRONICS

SYLLABUS

(ACADEMIC YEAR 2022-2023)

Unit-I Basic concepts

Voltage, Current, Resistance, Capacitance, Inductance, Electrical conductors and Insulators, Ohm's law, Series and parallel combinations of resistors, Galvanometer, Ammeter, Voltmeter, Multimeter, Transformers, Electrical energy, Power, Kilowatt hour (kWh), Consumption of electrical power

Unit-II Basic House wiring

Direct and Alternating current-RMS and Peak value-Single and three phase connections-Satr and Delta connections-Electric shock-First Aid for shock-Overloading-Earthling-Short circuiting- Fuses-MCB-ELCB-Insulation- Inverter-UPS

Unit-III Electrical Appliances Applications

Basic electrical practice and safety-Plug box or Extension box- One lamp controlled from different places- Tube light connection- Geyser installation- Washing Machine trouble shooting- Electric IRON BOX-Food mixer- Ceiling Fan-Wet grinder-Replacing Fuse and other protecting devices.

In Charge
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DEPARTMENT OF PHYSICS AND ELECTRONICS
TIME TABLE

DATE	NAME OF EXPERIMENT	TIME	
03-11-2023	Course Inauguration	5-00 pm	6-00 pm
04-11-2023	Basic concepts	9-00am	10-00am
		5-00pm	6-00pm
06-11-2023	Direct and Alternating current RMS and Peak value Single and three phase connections Star and Delta connections	9-00am	10-00am
		5-00pm	6-00pm
07-11-2023	Electric shock First Aid for shock Overloading Earthling	9-00am	10-00am
		5-00pm	6-00pm
08-11-2023	Short circuiting Fuses-MCB-ELCB Insulation Inverter-UPS	9-00am	10-00am
		5-00pm	6-00pm
09-11-2023	Basic electrical practice and safety Plug box or Extension box	9-00am	10-00am
		5-00pm	6-00pm
10-11-2023	One lamp controlled from different places	9-00am	10-00am
		5-00pm	6-00pm
14-11-2023	Tube light connection	9-00am	10-00am
		5-00pm	6-00pm
15-11-2023	Geyser installation	9-00am	10-00am
		5-00pm	6-00pm
16-11-2023	Washing Machine trouble shooting	9-00am	10-00am
		5-00pm	6-00pm
17-11-2023	Electric IRON BOX	9-00am	10-00am
		5-00pm	6-00pm
18-11-2023	Food mixer	9-00am	10-00am
		5-00pm	6-00pm
20-11-2023	Ceiling Fan	9-00am	10-00am
		5-00pm	6-00pm
21-11-2023	Wet grinder	9-00am	10-00am
		5-00pm	6-00pm
22-11-2023	Replacing Fuse and other protecting devices.	9-00am	10-00am

16	24-11-2023	Theory Examination	9-00am	10-00am
17	24-11-2023	Practical exam Total hours :30	5-00pm	6-00pm

Government College for Women (A) GUNTUR

DEPARTMENT OF PHYSICS& ELECTRONICS

REPORT

As a part of academic activity, the Department of Physics & Electronics has conducted ability enhancement certificate course, namely "Electrical Home appliances-service and maintenance" from 03-11-2023 to 22-11-2023 for the academic year 2023-2024. The important objective of the course is to improve basic knowledge in repairing of Home appliances among the Degree students. As per the instructions given by the Principal during the minutes of the meeting, 17 members of 1st B.Sc (Honors) Physics students are enrolled into the certificate course . To enrich the Basics in servicing of Home appliances, Resource person Sri Anil Kumar, faculty, ITI Technical College, GUNTUR, have engaged classes for 30 hours and dealt the root level concepts of the subject. At the end of the course, an external examination with multiple choice questions along with Practical exam has conducted for the assessment of learners understanding levels of knowledge. The minimum qualifying marks for the award of certification is 40%. All the Students completed the course successfully and got certificates during the academic year 2023-2024.

23/11/23

Signature of the In-charge
Department of Physics
Govt. College for Women (A)
GUNTUR. A.P.

Signature of the Principal

PRINCIPAL
GOVT. COLLEGE FOR WOMEN (A),
GUNTUR.

Ist B.Sc (Physics) Students Attendance 2022-2023

Name of the Student	Reg. No.	3	4	6	7	8	9	11	14	15	16	17	18	20	21	22
		[illegible]														
V.DIVYA		/	/	/	/	/	/	/	/	a	/	/	/	/	/	/
G.Hemavathi		/	/	/	/	/	/	a	/	/	/	/	/	/	/	/
K.Dharani		/	/	/	/	/	/	/	a	/	/	/	/	/	/	/
T.Gowri		/	/	/	/	/	/	/	/	a	/	/	/	/	/	/
Sk.Reshma		/	/	a	/	/	/	/	/	/	/	/	/	/	/	/
P.Suneetha		/	/	/	/	a	/	/	/	/	/	/	a	/	/	/
V.Smaily		/	a	/	/	/	/	/	/	/	/	/	/	/	/	/
K.Deepthi		/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
Kusha Sri		/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
P.Shahina		/	/	a	/	/	/	/	/	/	/	/	/	/	/	/
R.Anusha		/	/	/	/	/	/	/	a	/	/	/	/	/	/	/
N.Mounika		/	/	/	/	/	/	/	/	/	/	/	a	/	/	/
M.Pavitra		/	/	/	/	/	/	/	/	/	a	/	/	/	/	/
R.Deekshitha		/	/	/	/	a	/	/	/	/	/	/	/	/	/	/
K.Sindhura		/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
B.Naga Lakshmi		/	/	/	/	/	a	/	a	/	/	a	/	/	/	/
Sk.Afroz		a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
Signature of the Lecturer																

Signature of the In-charge
Department of Physics
Govt. College for Women (A)
GUNTUR, A.P.

Signature of the Principal

PRINCIPAL
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Ist B.Sc (Physics) Students Attendance- 2022-2023

Name of the Student	Reg.No.	Date:03/11/2023 to 22/11/2023															
		23	24	28	7 29	8 01	9 02	10 03	14	15	16	17	18	20	21	22
B. Deekshitha	23302001	X	X	X	X	X	X	a	X	X	X	a	X	L	X	X
Ch. Hemanjali	23302002	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
K. Dharani	23302003	X	X	X	X	X	X	X	X	X	a	X	X	X	X	X
K. Sindhura Mary	23302004	X	X	X	X	X	X	a	X	a	X	X	a	X	X	a
K. Ushasri	23302005	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
K. Deepthi	23302006	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
M. Pavitha	23302007	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
N. Mounika	23302008	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
P. Suneetha	23302009	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
P. Shahina	23302010	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
R. Anusha	23302011	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
SK. AFROZE	23302012	a	a	a	a	a	a	a	a	a	—	—	a	a	a	a
Sy. Reshma	23302013	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
T Gowri	23302014	X	X	X	X	X	X	X	X	a	X	X	a	X	X	X
U. Nagalakshmi	23302015	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
V. Smiley	23302016	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X
Y. Divya	23302017	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Signature of the Lecturer																

In Charge
Department of Physics
Govt. College for Women (A)
GUNTUR. A.P.

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Exercise 1.7.66

ire up PVC Conduit wiring to control one lamp from two different places

bjectives: At the end of this exercise you shall be able to
form the circuit using two-way switches to control one lamp from two different places
cut the profiles in a wooden board according to marking for flush-type accessories
wire up a circuit in PVC conduit pipe to control one lamp from two different places.

Requirements

Tools/Instruments

- Cross Peen hammer 250 gms - 1 No.
- Insulated screwdriver 200 mm width 5 mm blade - 1 No
- Insulated screwdriver 150 mm width 5 mm blade - 1 No.
- Electrician's knife (100 mm) - 1 No
- Connector screwdriver 100 mm - 1 No
- Mallet 5 cm dia. -500 gram - 1 No.
- Gimlet 5 mm dia. 200 mm long - 1 No.
- Hand drilling machine 6 mm capacity - 1 No
- Drill bit 3 mm to 5 mm - 1 each
- Try square 150 mm - 1 No.
- Bradawl 150 mm - 1 No.
- Insulated combination pliers 200 mm - 1 No.
- Hacksaw frame with blade (24 TPI) - 1 No.
- Steel rule (300 mm) - 1 No.

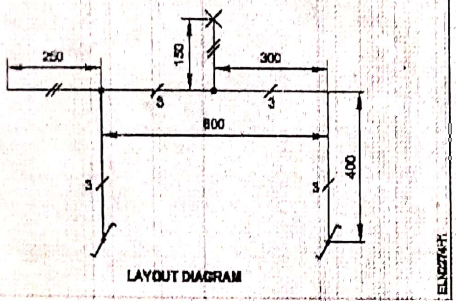
Materials

- PVC conduit pipe -19 mm dia. - 2 mtrs
- PVC terminal box - 1 No.
- Wood screws No.6x12 mm - 3 Nos.
- Wood screws No.6x20 mm - 4 Nos.
- PVC--Insulated aluminium cable 1,5 sq mm. 250V grade - 6 m
- Flush mounting two-way switch 6A, 250V - 2 Nos.
- Batten lamp-holder, 6A, 250V - 1 No.
- Terminal plate 3-way - 1 No.
- Bulb 40W, 250V, BC type - 1 No.
- PVC round block (90mm x 40 mm) - 1 No
- PVC box 100 mm x 100 mm - 2 No.
- PVC 'Tee' 19 mm - 2 Nos.
- Marking Pen/Pencil/Chalk - as reqd.
- Marking thread - as reqd
- PVC Insulation tape - 1 Roll
- Self tapping screw (20 mm) - as reqd.
- PVC bend 19mm - 2 mtrs

PROCEDURE

Estimate the tools and materials required for the job according to the layout (Fig 1) and the wiring diagram. (Fig 3) Compare the list with the given list. Discuss with your co-trainees/instructor about the variations between the two lists.

Fig 1



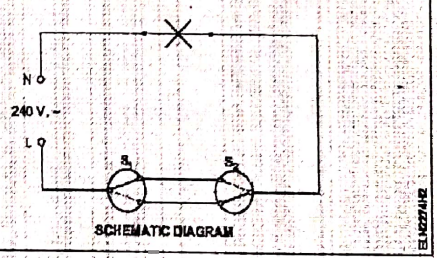
2 Collect materials as per the list.

3 Identify and confirm the switches received are two-way switches only.

4 Identify the terminal points, cable entry holes and fixing holes of the switches and batten lamp-holders.

5 Form the circuit as per the schematic diagram shown in Fig 2.

Fig 2



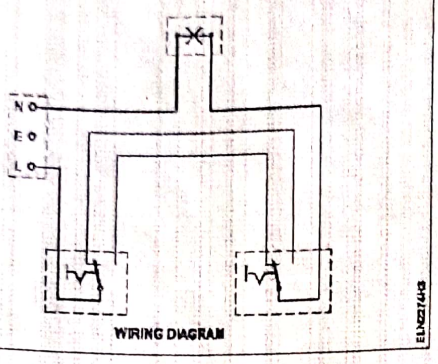
Get the approval of the instructor. If necessary, make alterations in the connections.

6 Connect the supply, check the function of the circuit and note the results in Table 1.

TABLE 1

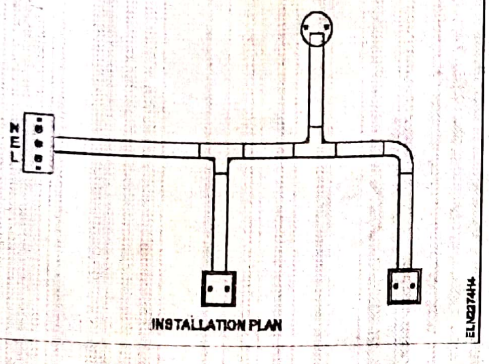
S_1, S_2 position up	
S_1, S_2 position down	
S_1 up and S_2 down	
S_1 down and S_2 up	

Fig 3



7 Mark the layout points on the building as per the installation plan (Fig 4)

Fig 4



8 Cut the required length of PVC pipes as per the layout marking.

Take into consideration the length of bends, tees and corners in appropriate places to reduce the measured length of the P V C conduits.

9 Mark the position of the saddles on the [illegible] fix them loosely on one side only.

Observe the N.E. Code for the distance between saddles. In the case of brick/concrete walls the wooden plugs (gutties) are to be fixed flush with the walls, cemented and cured.

10 Fix the PVC pipe and accessories in the saddles tighten the saddle screws. Cut the cables according the wiring diagram (Fig 2)

Keep an extra 200 to 300 mm for termination

11 Insert the cables in the pipes and fittings and draw the cables to the other end of the pipes according to the wiring diagram (Fig 3)

For longer lengths of PVC conduit runs, use fish wire/curtain spring to pull the cables through the conduits.

12 Mark the entry profile of the conduit in the round and boxes. Based on the conduit entry position the accessories on the round block, mark through holes for cable entry, and the pilot holes fixing the accessories.

13 Prepare the conduit entry profile, drill/make thro and pilot holes in the round block and boxes.

14 Insert the cables through the cable entry holes of round blocks and boxes and fix the round block boxes on the building.

15 Connect the cable ends to the accessories accord to the wiring diagram and fix the accessories on rou blocks and boxes.

The completed installation should look as per the installation plan shown in Fig 4

16 Test the circuit after getting the approval of the instruct

ctice installation of various lamps eg. fluorescent tube, HP mercury our, LP mercury vapour, HP Sodium vapour, LP Sodium vapour, Metal ide etc.

ctives: At the end of this exercise you shall be able to
nnect a flourescent tube with accessories, install and test it
nnect a H.P. M.V lamp with accessories, install and test it
nnect a H.P.S.V lamp with accessories install and test it
nnect a L.P.S.V lamp with accessories install and test it
nnect a metal halide lamp with accessories install and test it.

Scan the QR Code to view the video for this exercise.

equirements

ools/Instruments

- Insulated combination plier - 150 mm - 1 No.
- Insulated screwdriver - 200 mm x 4mm - 1 No.
- Insulated connector screwdriver - 100 mm - 1 No.
- Long round nose plier - 150 mm - 1 No.
- D.B. Electrician's knife 100 mm - 1 No.
- Test lamp 100 W, 250 V - 1 No.

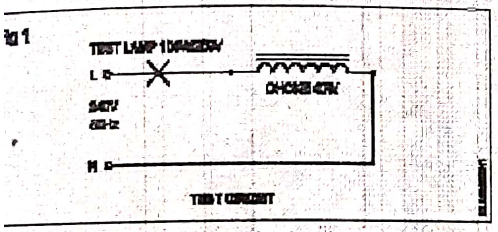
Materials

- Tube light fitting 1200 mm - single patti - 1 No.
- Choke 40w, 250V - 1 No.
- Tube light starter - 40W, 250V - 1 No.
- Tube light holder plain - 2 Nos.
- Starter holder - 2 Nos.
- MV lamp holder suitable for 240W, 250 V lamp (Goliath screwtype) single patti - 1 No. - 2 Nos.
- MV lamp choke - 240 Watts, 250 V - 1 No.
- Capacitor 4 MFD /380 U - 1 No.
- L.P.M.V lamp 40 W, 250 V - 1 No.
- MV lamp 240W, 250V - 1 No.

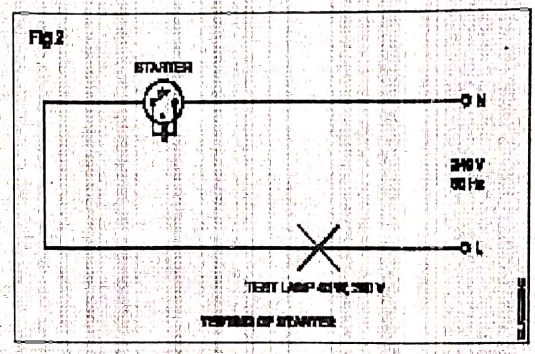
ROCEDURE

SK 1: Assembling of a fluorescent lamp (LP MV lamp) with its accessories

Check the choke for its short and open with a test lamp as shown in Fig 1.



Check the starter with a series test lamp as shown in Fig 2. Observe the flickering of the lamp which indicates good condition of the starter.



Assemble the following fluorescent tube accessories in the fitting base. Refer to the sketch. (Fig 3)

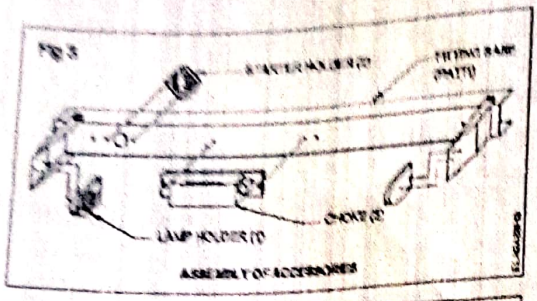
1) Holders for tube 2) Starter-holder 3) Choke.

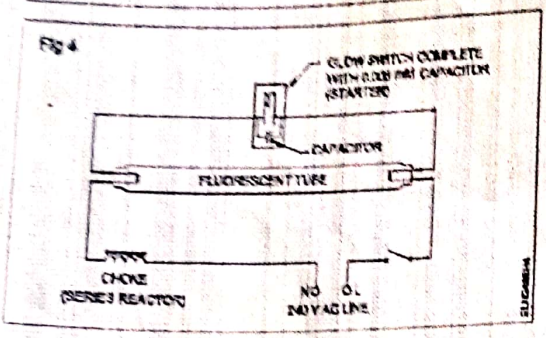
Connect the accessories as shown in Fig 4 (for a single tube light). Also install the tested starter.

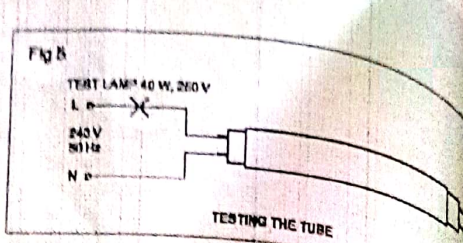
5 Test the filament on both sides of the fluorescent tube for its continuity as shown in Fig 5. Discard the fluorescent tube with open or fused filament in either side.

6 Fix the bulb in the holder.

Firstly, you have to make sure that the slot in the inner parts of the holder is turned to the proper position.







7 Test the tube light assembly for its working.

TASK 2 : **Installation of tube light fitting**

1 Follow the recommended method and procedure depending on the type of wiring

The fixing of the tube to the wall, ceiling or tubular post should be strong enough to support the weight of the fitting.

The installed fitting must be below the level of the ceiling fan to avoid the flickering effect of the shadow.

2 Connect the tube light fitting to the ceiling rose.

Check the supply at the ceiling rose. Switch o the supply before making any connection.

3 Fix the fluorescent tube in the fitting.

Use a stable ladder and a helper to hold th ladder while you are working on the ladder.

4 Switch 'ON' the supply and observe the glow o tube. If the tube is not glowing, check for pr housing of starter and tube.

TASK 3 : **Install and test the H.P.M.V (High Pressure Mercury Vapour) lamp with accessories**

1 Read the specification of the mercury vapour lamp and the choke from the markings. (Fig 5)

2 Connect the H.P.M.V. lamp in series with the 60W 240V bulb and test in 240V AC supply. Check whether the series test lamp glows.

3 Test the choke for its working condition.

4 Assemble the accessories (choke, holder and capacitor) in the fitting, following the manufacturer's instructions.

5 Connect the accessories as per circuit diagram, Fig 7 (Pictorial diagram Fig 8) using the recommended type of termination.

Choose the tapping of the choke suitable to the rated supply system voltage.

6 Fix the bulb in the holder and test the working of the lamp with the supply voltage.

Ensure the fitting is properly earthed at the earthing terminal provided, before testing.

7 A modern M.V. lamp with a built-in resistor needs external accessories to be connected as discuss above. It can be connected as we do an incandesc lamp.

Installation of the M V lamp fitting

8 Assemble, connect and test the M.V. lamp fitting on a ta for its working. Then remove the cover and bulb.

Mount at the location

9 Observe the recommended method and procedure specif by the manufacturer in the installation leaflet.

Do not alter the specifications recommended by the manufacturer because it should be strong enough to support the weight of the fitting.

Dismantle and assemble electrical parts of various electrical appliance e.g cooking range, geyser, washing machine and pump set

Objectives: At the end of this exercise you shall be able to
- dismantle the cooking range, geyser, washing machine and pump set
- assemble the dismantled electical appliances
- test them for their working
- replace the faulty parts with good ones where ever necessary.

Requirements

Tools / Instruments

- Electrician Tool Kit - 1 Set
- Spanner set 6 to 22 mm (6 Nos) - 1 Set
- Megger 500 V - 1 No.
- Multimeter - 1 No.
- Test lamp 60 w / 240 V - 1 No.
- Pulley puller 3 leg 150 mm - 1 No.

Equipment / Machines

- Cooking range 1500 W / 240 V - 1 No.
- Geyser 1500W/240 V - 15 liters - 1 No.
- Washing machine ordinary or semi automatic types 240 V / 50 Hz - 1 No.
- Pump set coupled with single phase motor 240V/50Hz - 1 No.

Materials

- Service manual - 1 No.
- Cleaning brush - 2.5 cm dia - 1 No.
- Cotton waste - as reqd.
- Kerosine - as reqd.
- Grease - 200 gms

PROCEDURE

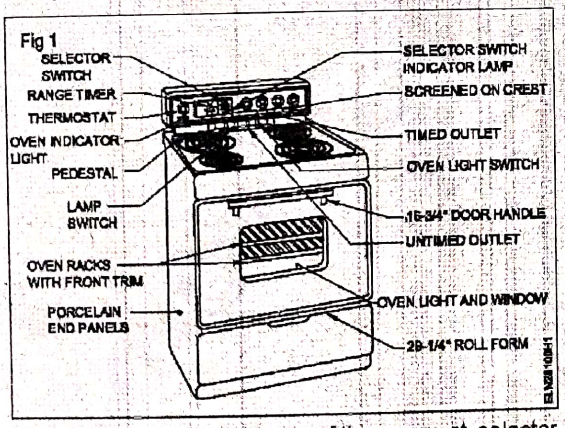
TASK 1 : **Dismantle and assemble the cooking range**

1 Note the name plate details of the electric cooking range in Table 1.

2 Disconnect the power supply from the cooking range

3 Open the terminal connection box (Refer Fig 1)

Fig 1



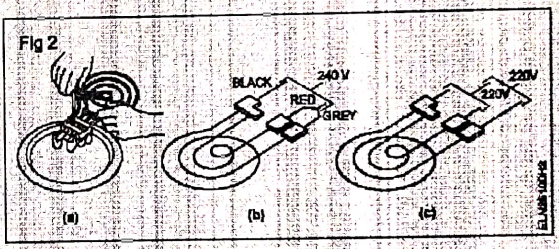
4 Check the proper tightness of the screw at selector switch, indicator lamp, range timmer and thermostat.

5 Remove the cooking range and check the continuity of the surface heating unit element one by one.

6 Check the correct shape, wattage and voltage of the element (Refer Fig 2)

7 Open the porcelein end panel which is at bottom of the cooking range.

Fig 2

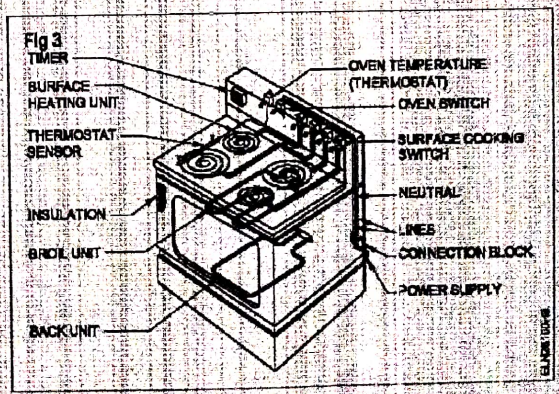


8 Check the condition of the oven racks (Fig 1)

9 Measure the insulation value between the all terminals to body of the cooking range.

10 Assemble and connect the electric cooking range to the supply (Fig 3)

Fig 3



TASK 2 **Dismantle and assemble the geyser**

1 Note down the name plate details of the geyser in a separate Table similar to table 1

2 Disconnect the power supply from the geyser

3 Open the inspection cover for Power terminals connections and thermostat installation (Refer Fig 4)

4 Check proper tightness of the screw at thermostat, pilot lamp and heating element

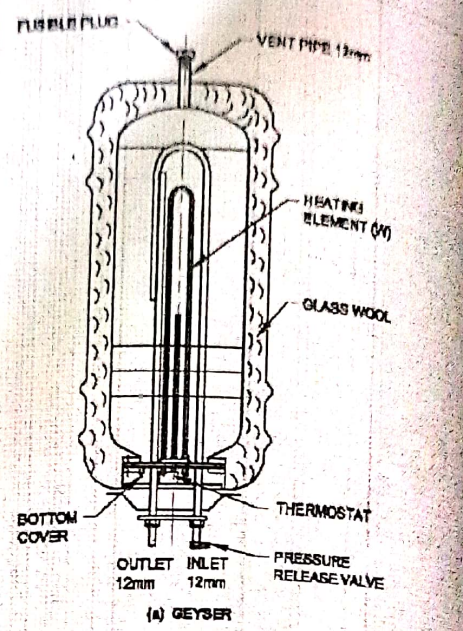
5 Conduct visual examination of the power cord pin terminals and termination of appliance.

6 Conduct insulation test between the leads, lead and earth and record in a separate Table

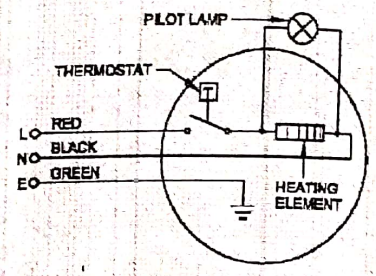
7 Measure the insulation resistance between element and body and record in a separate Table

8 Assemble and connect the geyser to the supply.

Fig 4



(a) GEYSER



(b) SCHEMATIC DIAGRAM OF A GEYSER

TASK 3 **Dismantle and assemble washing machine**

1 Note the name plate details of the washing machine in a separate Table (Fig 5)

Fig 5

2 Disconnect the power supply from the washing machine.

3 Open the terminal connection panel and check the proper tightness of the screws

4 Remove the washing drum from the washing machine

5 Check the inlet pipe and out let pipe

6 Check the outgoing valve

7 Check the tightness of shaft pulley / drum belt

8 Check the rubber bushings that are used is the machine for absorbing mechanical vibration

9 Conduct insulation test to the motor by using a megger

10 If every thing is ok, place the drum and close the inspection hatch/cover.

11 Connect the machine to the supply for its working

rvice and repair of electric iron, electric kettle, cooking range and yser

ctives: At the end of this exercise you shall be able to
nnect and test the given automatic iron for its working
smantle the automatic iron and reassemble it
ce and identify (or) locate the faults in an automatic iron
place the faulty parts with good one
st the electric kettle element and identify the defect
place the old element with a new one
ssemble the kettle and test for its working
ismantle the suspected parts of the cooking range
st the continuity of heating element
eplace the burn out heating element and worn out selector switch
eassemble, connect and test the cooking range
est the line cord for continuity
lismantle a geyser
race identify and locate faults in a geyser
eplace faulty parts with good ones
ssemble the geyser and test for its working.

Scan the QR Code to view the video for this exercise

Requirements

Tools/Instruments

Screwdriver 150mm	-1 No.
Spanner set 6 to 22mm (6 Nos)	- 1 Set
Megger 500 V	-1 No.
Multimeter	-1 No.
Electrician tool kit	-1 Set
Cutting plier 150mm	-1 No.
Tester 500 V	-1 No.
Nose piler 150 mm	-1 No.

Equipment/Machines

Automatic electric iron box 750W 250 V	-1 No.
kettle (sauce pan type) 500W/ 250V	-1 No.
Electric cooking range 1500W/250 V	- 1 No.
Geyser 1500W 250V 25 liters	-1 No.
Megger 500 V	-1 No.

Materials

Kettle Element 500W/250V	- 1 No.
Asbestos sheet and fibre washers	- as reqd.
Test lamp 100W/240V	- 1 No.
Element suitable for available Cooking range 1500W, 250 V	-1 No.
Geyser heating element 1500W, 240V	- 1 No.
Geyser thermostat	- 1 No.
3- core flexible cord (48/0.2 with 15A, 3 pin plug)	- 1 No.
Insulating material such as asbestos and mica sheets Suitable for electric Iron	- as reqd.

PROCEDURE

TASK 1 : **Service and repair of electric iron**

1 Conduct a visual examination of the power cord and plug, after interpreting the name plate details
2 Conduct preliminary test for
- short circuit, continuity & insulation
- earth fault
- defective element circuit

3 Replace the cord, if necessary
4 Check for the insulation resistance between line terminal of the iron and the body of the iron (Fig 1) and record in Table 1.

Disconnect the indicator bulb if any before the short, open and IR test.

Always disconnect the iron from supply while testing with insulation tester / Megger.

5 Check for insulation resistance between the neutral terminal and earth.
6 Connect the electric iron to the mains and check for its working

Fig 1

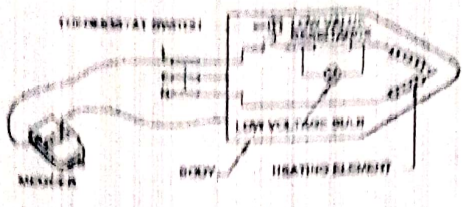


Table - 1

Terminals	Value in Megohms
L & Body	
N & Body	
E & Body	
Plug pin L & Body	
Plug pin N & Body	
Plug pin E & Body	

7 Check the presence of dangerous voltage existing between the body and earth of the supply with a neon tester or voltmeter.

In case of earth fault

8 Disconnect the electric iron from the supply, dismantle it. Visually inspect and test with a multi-meter/megger for any contact of live wire with the body

- insulation failure
- broken parts
- damaged thermostat/actuating leaf porcelain
- switch actuator.
- Check for continuity of thermostat and heating element.

9 Rectify the fault by replacing the defective part (element, thermostat etc) Fig 2 (A & B).

In case of open in element circuit

10 Remove the cover to check the thermostat, indicator bulb circuit and element

- Connect the series test lamp to the element circuit shorting the contacts of the thermostat indicated by 1 in Fig 3. If the test lamp glows the thermostat is defective.
- Connect the terminals of the indicating bulb by a piece of insulating wire, shown by 2 in Fig 3. If the test lamp glows the trouble is in this section.
- Short the terminals of the element shown by 3 in Fig 3. If the lamp glows the element is open. Replace the element.

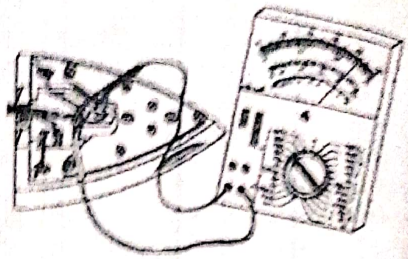
Failure of temperature setting controller

11 Check the adjusting knob for proper fixing and actuation of shaft. (Fig 4)

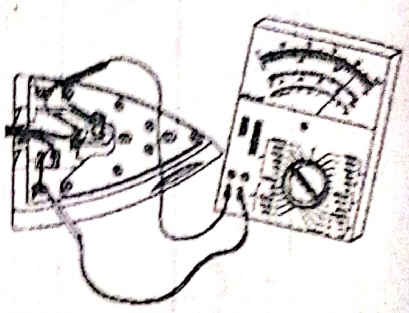
12 Open the contacts of the thermostat and inspect them visually.

13 Clean the pitted or burnt out contacts

Fig 2

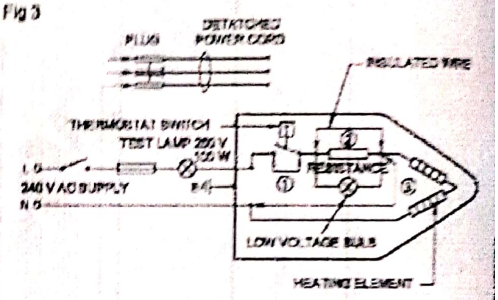


(A) TESTING THE THERMOSTAT FOR CONTINUITY



(B) TESTING THE HEATING ELEMENT FOR CONTINUITY

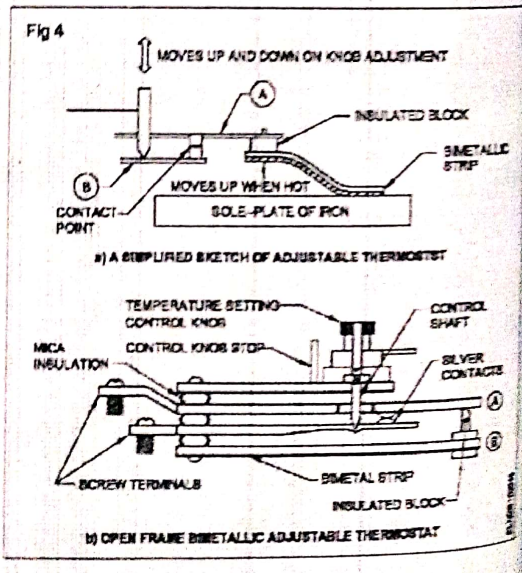
Fig 3



14 Check for the actuating mechanism. (Heat the thermostat by a suitable external heating device)

15 Assemble the iron and test for good working.

Fig 4



a) A SIMPLIFIED SKETCH OF ADJUSTABLE THERMOSTAT

b) OPEN FRAME BIMETALLIC ADJUSTABLE THERMOSTAT

2 : Service and repair of a Kettle

ecord the name-plate details of the appliance.

Name-plate Details

sconnect the power cord and check the power cord or continuity of the cable, soundness of the terminal onnection and insulation resistance between the line, eutral and earth terminals

f found defective, either repair or replace he power cord.

Check the continuity of the kettle heating element either by using a test lamp or a Megger without opening he kettle.

If there is no continuity, the element is assumed to be open and it has to be replaced

Check the insulation resistance between the appliance socket terminals and the body of the kettle

If the insulation resistance is less than one Megohm, the kettle element needs to be replaced.

Read the assembly diagram in the instruction book of the kettle and dismantle the parts in the sequence recommended by the manufacturer

In the absence of the manufacturer's recommended sequence diagram of the assembly, the following parts may be removed observing the correct procedure as shown in the exploded Fig 5

Bottom cover

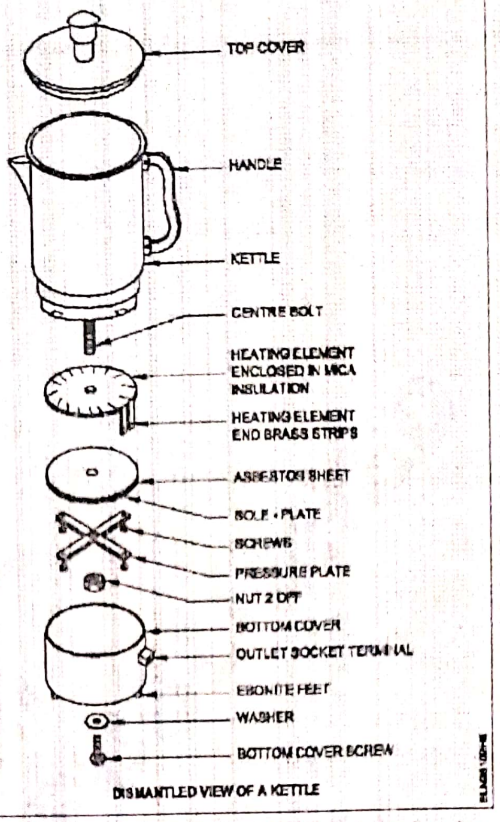
Pressure plate

Sole-plate with asbestos insulation

Element

Obtain a suitable element of the right shape, wattage and voltage and necessary mica and asbestos sheets of the same type and quality

Fig 5



DISMANTLED VIEW OF A KETTLE

8 Check the element for its continuity and ohmic value

9 Replace the new element in position.

10 Assemble the parts in proper order and connect the appliance.

Take care to fit the asbestos sheet and the sole plate at the sole plate housing in the correct order.

11 Measure the insulation resistance between the body of the appliance and its terminals before and after connecting the power cord.

Switch 'ON' the kettle only after filling water in it.

12 Test the appliance with supply for its working

ASK 3 : Service and repair of a cooking range

Note the name plate details of the electric cooking range.

2 Disconnect the power supply from the appliance.

3 Study the connection diagram, given by the manufacturer or trace the connections of the cooking range (Fig 6).

4 Check the continuity of the surface unit element one by one.

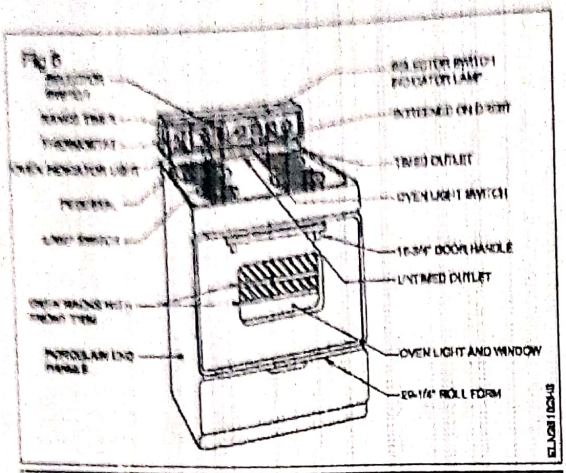
5 Replace the burnt out surface unit element as shown in Fig 7.

Before replace the coil check the correct shape, wattage and voltage of the element. Do not attempt to open parts whcih are not notified as defective.

6 Assemble and connect the electric cooking range.

7 Measure the insulation value between the terminal to body of the appliance at various positions of all the switches.

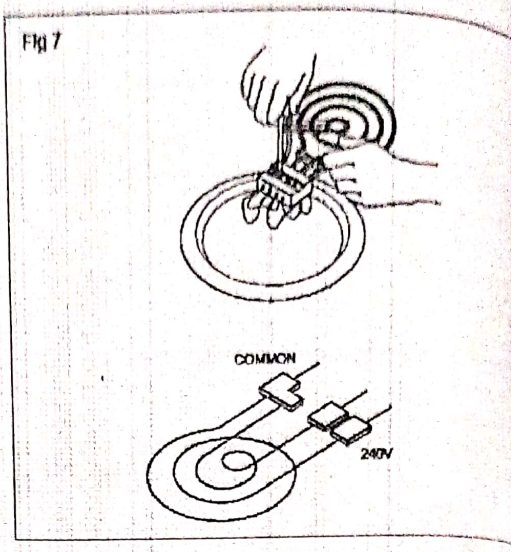
Fig 6



Insulation resistance value should be more than one Megohm.

8 Check the appliance with the supply for its working condition.

Fig 7



TASK 4 : **Replace the wornout selector switch of cooking range**

1 Open the cover of the defective switch, trace the connections and note down the position and column of cables

2 Open the connections of the switch from the terminals.

3 Check the continuity of input and output of the selector switch

4 Confirm the condition of the contacts. If found wornout, then remove the switch from the appliance, (as shown in Fig 8).

Take care to fix the screws, washers at the complete housing of the selector switch.

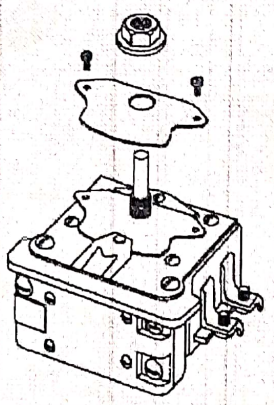
5 Replace the new selector switch in position.

6 Connect the cables as per made in step 1.

7 Measure the insulation resistance between line terminals and the body of the cooking range at various positions of all the switches. Measured insulation resistance should be above one megohms.

8 Test the assembled switch with the supply f working.

Fig 8



TASK 5 : **Service and repair of a geyser**

1 Record the details of the appliances in Table 2

2 Open the inspection cover for Power terminals connection and thermostat installation in the geyser after removing the power plug (Fig 9)

Check and ensure that the switch is off before removing the power plug.

3 Conduct a visual examination of the i) power cord ii) plug pin termination and iii) termination at appliance.

4 Check for proper tightness and good Power contact at terminations. Replace the plug pin if found pitted.

5 Conduct the insulation test on the cord - between leads, lead and earth. Enter in Table 1

6 Measure the insulation resistance between the eleme and the earth/body and record in Table 1. T minimum value of the insulation resistance should one megohm. If it is less than one megohm, send t geyser for repair and rectification.

7 Connect the geyser to the supply and switch on t appliance, keeping the inspection/bottom cover of th Power connections open.

The geyser should be switched on only with water in the container.

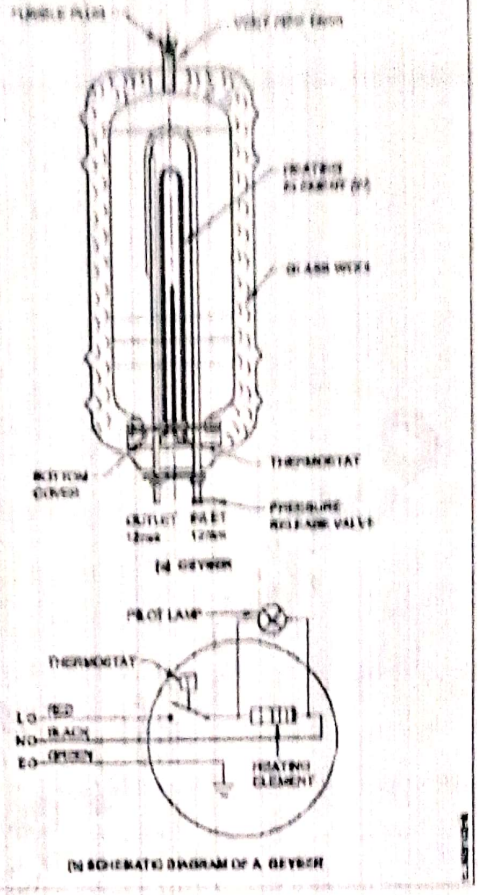
Observe that the heating process is cut off by the operation of the thermostat. (The time depends on the capacity of the geyser and the thermostat setting).

Switch off the supply. Remove the plug. Measure the insulation resistance value between the terminals and the body of the heater/thermostat while it is hot and record the value in Table 1

Replace the thermostat if unit in the insulation value is less than one megohm.

Refit the inspection cover. If the insulation value is normal (i.e. above one megohm) apply grease over the screw before fitting.

Fig 8



(a) GEYSER

(b) SCHEMATIC DIAGRAM OF A GEYSER

Table 2

Name of the appliance		Serial No	
Voltage		Current	
Supply		Wattage	
Capacity		Make	
Cord insulation	Between lines	Between line/body	Date of servicing
	..... Megohm	..... Megohm	
Element insulation	Between terminal and body / thermostat		Recommended Repair Replacement if any
	Cold		
	Hot		

vice and repair of mixer and grinder

ctives: At the end of this exercise you shall be able to
d and interpret the data of the given mixer
ntify the area of problem in the mixer by visual inspection and tests
mantle the mixer
ce, identify and locate faults in the mixer
lace faulty parts with good ones
an and lubricate the bearings
mble mixer and test for its working
d and interpret data of wet grinder
t the line cord for continuity
easure insulation resistance between the terminals
ce, identify and locate faults in a wet grinder
lace faculty parts with good ones.

Requirements

Tools and Instruments

- Electrician Tool kit - 1 Set
- Test lamp 100 W, 240 V - 1 No.
- D.E. spanner set of six 6 mm to 22 mm - 1 Set
- Plastic spanner for opening the jar screw - 1 No.
- Box spanner set of 6mm to 22 mm - 1 No.
- Multimeter - 1 No.
- Megger 500 V - 1 No.
- Pnilips screwdriver 4 mm blade dia - 1 No.
- Pulley puller 3leg 200 mm - 1 No.

Equipment / Machines

- Mixer 250 V 50 Hz, 400 watts - 1 No.
- Grinder 250 V 50 Hz 0,25 HP - 1 No.
- AC Ceiling Fan 60 W, 250V - 1 No.

Materials

- Grease/lubricating oil - as reqd.
- Kerosene - as reqd.
- Cleaning brush - 1 No.
- Sandpaper smooth - as reqd.
- Soldering lead, 40:60, soldering flux - as reqd.
- Service manual (if available) - 1 No.

ROCEDURE

ASK 1 : Service a mixer

Note down the name-plate details in the maintenance cards. (Table 1)

Enter the details of the complaint from the customer in the maintenance card.

Switch on the mixer and check for its functioning.

Isolate the mixer from the supply.

Open the bottom cover and conduct visual inspection for :

- damages in the supply cord and loose terminal connections
- good condition of switches
- proper mounting of the motor.

Check whether the nyon/rubber coupling of the jar and motor are properly seated, if not replace.

Sometimes the retaining spring and washer might have got spoiled and need to be replaced.

Table 1

Maintenance Card

Name of the customer _____ Address _____

Name of the appliance _____ Serial No _____

Wattage _____ Current _____ Voltage _____

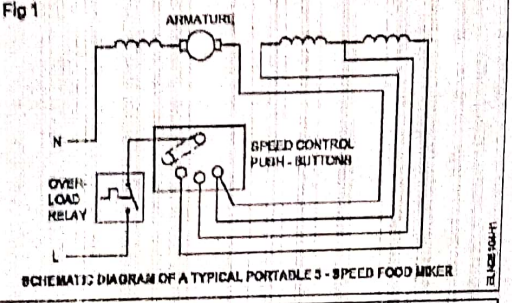
Supply _____ Make _____

Date of servicing	Consumer's complaint	Defects noticed by visual inspection	Details of repair and replacement

Enter the mixer details in the maintenace card (Table 1)

6 Conduct an insulation test of the motor and record in the maintenance card (Table 2). The schematic digaram of a mixer circuit is given in Fig 1

Fig 1



SCHEMATIC DIAGRAM OF A TYPICAL PORTABLE 5 - SPEED FOOD MIXER

The insulation resistance value should not be less than one megohm.

7 Improve the insulation value by heating or varnishing, if the insulation value is less than one megohm and enter the test results in the maintenance card. (Table 2)

8 If the motor is opened for varnishing, clean thoroughly the stator and armature and bush bearings. (Fig 2)

9 Conduct the insulation test after varnishing and enter the results in the maintenance card (Table 2).

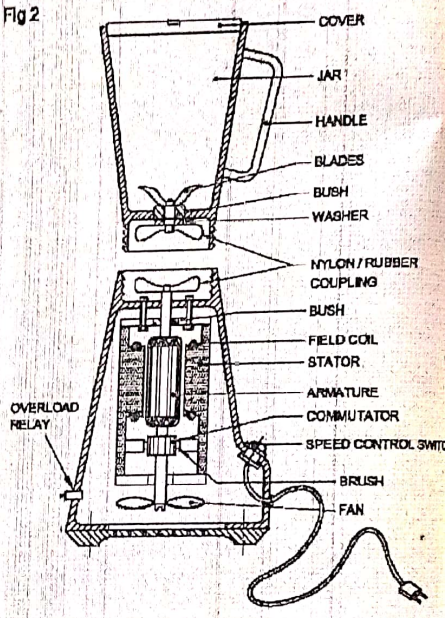
Remember that the nuts at the blades and the centre shaft holding nut are to be loosened by clockwise movement and tightened by anti-clockwise movement in most of the mixers.

10 Lubricate the bearing as recommended by the manufacturer before assembly.

Most of the bearings need no lubrication. If required,a drop of light oil like 3-in-1 oil could be used.

11 Clean the commutator surface. A black carbon deposit could be removed by CTC. Seat the bushes pro over the commutator. Check for adequate leng brushes to exert spring pressure.

Fig 2



PARTS OF A FOOD MIXER

If the brush length is shorter by 1/3 of its origina length it is better to replace with the brushes of the same grade and size. The new brush has to be bedded on the commutator properly.

12 Assemble the motor and tighten the terminal scre

13 Assemble the blade with the jar and nylon coupling the bottom.

14 Connect the motor to the supply and start the mixe

15 Observe the working of the mixer for smooth runnin

Table 2

Date of servicing	Insulation resistance before varnishing/heating		Insulation resistance after varnishing/heating		Details for repair and replacment
	Between terminal and body	Between Armature and field	Between terminal and body	Between Armature and field	

SK 2 : Repairing of mixer

Listen to the complaints of the customer/user and enter in the maintenance card (Table 1).

Common complaints are listed in the troubleshooting chart along with reasons for the possible cause and the corrective action to be taken.

2 Inspect visually the following parts for trouble.

- Power cord and plug
- Terminal connections at the switch (back cover to)
- Couplings
- Freeness of the shaft
- Burnt smell or discolouring of windings.

ASK 3 : Service a grinder

Switch on the grinder and check for its functioning

Isolate the grinder from the supply.

Open the inspection cover. Note down the name-plate details in Table 3

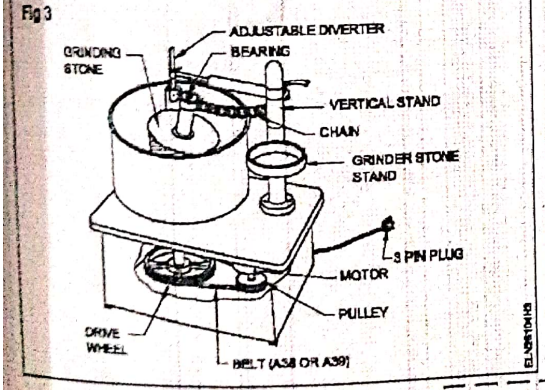
Table 3

Name of appliance_____	r.p.m _____
Serial No. _____	Volt _____
Capacity H.P_____	Current _____
Phase _____	Frequency _____

4 Conduct visual inspection:

- for supply cord
- for good condition of switches
- for proper mounting of motor and drive alignment (Fig 3)

Fig 3



5 Conduct an insulation test of the motor and record in Table 4. If the insulation value is above 1 megohm, switch on the grinder and observe its function.

6 If the insulation resistance is less than 0.5 megohm, improve the insulation value by heating or varnishing, provided the motor is opened for varnishing

Table 4

Insulation resistance	Between terminals and body	Between winding
Date of servicing		
Recommended repair		
Replacement if any		

7 Clean thoroughly the motor and the bearing of the grinder.

8 Lubricate the bearing as recommended by the manufacturer before assembly

9 Assemble the motor and tighten the terminal screws, pulley screws, flywheel nuts, motor fixing bolts etc (After adjusting belt tension)

10 Connect the motor to the supply and start the grinder Observe the working of the motor and the grinder for smooth running.

TASK 4 : Repairing of grinder

1 Listen to the complaints of the customer/user complaints may be:

i) Grinder not working

ii) fails to start but runs in either direction, when started manually

iii) starts but heats rapidly

iv) reduction in speed - motor gets too hot

v) grinder is noisy

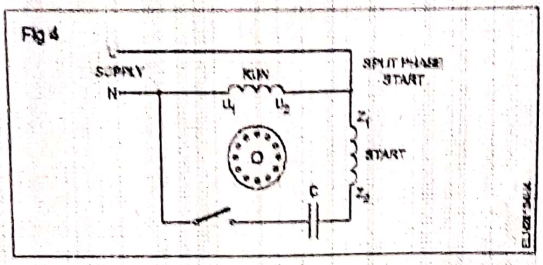
vi) grinder gives shock

Grinder not working

Check whether there is open connection in line. Rectify the fault if observed.

Check for any open circuit in motor winding (starting and running winding). Send it for repairs, if open circuited. (Fig 4)

Fig 4



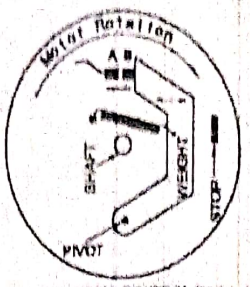
Check tightness of the belt. Adjust the belt for proper tension as recommended by the manufaturer. (Fig 3)

Check whether it is due to tight bearings. Test by turning the shaft by hand. If lubrication does not help, the bearing must be replaced.

Fails to start, but runs in either direction when started manually.

Check the contact of the centrifugal switch. If the contact of the centrifugal switch is not closed, repair it or replace it. (Fig 5)

Fig 6



THE CENTRIFUGAL SPEED-CONTROL MECHANISM USED ON SOME ELECTRIC MOTORS.

Check the capacitor. Replace it if defective.

Starts but heats rapidly.

Check the centrifugal switch. If it is not opening replace.

Reduction in speed - motor gets too hot.

Check the winding for its short circuiting and (earthing).

Check the bearing to know whether it is sticky replace, if found defective

Grinder is noisy

Check for worn out bearings - replace the bea inspect the shaft for scoring.

Check the end play, add additional end for p washers, if the play is too much.

Check the loose parts (that is loose hold-down b fan, pulleys etc). Tighten them.

Check whether there is misalignment. Align th correctly. (Fig 3)

Check the belt. Replace if it is worn out. (Fig 3)

Check the shaft of the motor. Replace or send t for repair, if found bent.

Grinder gives shock

Open the inspection cover and check for any line with the metallic body. Also ensure earthing is pr

Rectify the accidental contact, if any, and insula properly.

Exercise 1.11.97

rvice and repair of washing machine

ctives: At the end of this exercise you shall be able to
- ad the name plate details of the wahing machine
- ten to the complaint of the customer and identify the type of fault
- ntify the fault in the washing machine
- rvice the washing machine through general checks and visual inspection
- ndrict insulation resistance test on a wahing machine
- cord the details of maintenance in the service card.

Scan the QR Code to view the video for this exercise

Requirements

Tools and Instruments

Megger 500 V	- 1 No.
Test lamp 60W,240V	- 1 No.
Combination plier 150 mm	- 1 No.
D.E spanner set 6 of 22mm set of 8	- 1 Set
Philips screwdriver 150 mm	- 1 Set
Grease gun 1.2 litre cap	- 1 No.
Oil cane 1/2 litre cap	- 1 No.
Geal pulley puller 3 leg 150 mm	- 1 No.
Multimeter	- 1 No.

Equipment/Machines

- Washing machine ordinary or semi automatic type 240V, 50Hz - 1 No.

Materials

- Washing machine spares - as reqd.
- Oil/grease - as reqd.
- Oil/grease - as reqd.
- Water proofing kit - 1 No.
- Teflon tape/m seal - as reqd.

ROCEDURE

ASK 1 : Repair washing machine

Record the details of the washing machine (Fig 1) in Table-1.

Fig 1

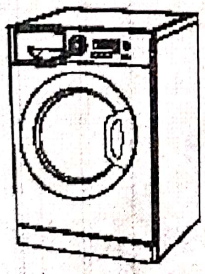


Table 1

Name-plate details

Manufacturer

Sl.No. _____ Phase _____

Capacity _____ R.P.M _____

H.P /K.W _____ Voltage _____Hz

Max.weight of clothes/ _____ Current _____

drum capacity_____

2 Listen to the complaints of the customer/user. The complaints may be anyone listed in the left side column of the table 2 The causes and remedies are given in the right side column of the table 2

Table - 2

Troubleshooting chart for washing machine

Sl.No.	Complaints	Causes and remedies
1	Machine not Switching "ON"	I Check for open connection and rectify the same II Check the incoming supply III Check the fuse on the machine IV Check the motor windings and repair of minor repairs c carried out, if needed send it for repairs/rewinding for i open circuit. V Check the speed governing starting switch, repair or re with a new switch.
2	Water not filling up in the washing drum	I The inlet pipe is chocked. Open the inlet valve, clean reconnect it using water proofing teflon tape II Check incoming water supply and replace the same.
3	Water does not drain out of the wash drum	I Check the outgoing valve, clean and reconnect it with p water proofing II Check the outgoing pipe for any kinks - repair or repla same.
4	Machine becomes 'ON only for a very short duration and then switches off	I The timer setting may be incorrect,set the timer prope II The speed governor switch may be faulty; dismantle the and repair the same, If possible, or replace the starting governor swivel mechanism. III The running winding impedance could have increased open circuit and insulation failure. Check the running wi impedance and rewind the motor, if necessary.
5	The machine is noisy	I Check the balancing of the drum and correct the same if off balance. II The motor shaft pulley/drum driver pulley may be loose,tig the same. Iii The belt of the machine drive might have loosened thus g play. IV Check the bearings of the motor, replace the worn out or gr the same using the recommended grease. V Check all rubber bushings that are used in the machin absorbing mechanical vibration, and replace, if found spo missing.
6	When power is swiched 'ON' motor is not working	I Check if the motor shaft is rotating; the pulley to the hun heard but the wash agitator does motor shaft may be loo tighten the same. II Check the belt tension. If the belt has become loose tigh the same by the tension adjustor or replace the belt wi new one. III Check if the agitator of the machine is sufficiently loose, the bearing if free and not tight; carry out lubrication of bearing if necessary.
7	When the machine control switch is switched 'ON' the fuse blows	I Isolate the machine from the supply, isolate the motor termin and check if there is an insulation failure/short circuit in t motor or in the wiring of the machine. II If short circuit/insulation failure in the motor, rewind the mot III If short circuit/insulation failure is present in the rest of t machine, trace the same and remove the short circuit.

Servicing of washing machine

ad the instruction manual of the washing machine.

onnect the machine to the supply and switch on the achine in steps as indicated by the operating/ struction manual.

heck the water flow at the inlet to the machine. If und incorrect clean the inlet and reconnect the water pply using proper waterproofing method. If leakage present at the connecting point between the machine d the water pipe, use teflon tape between the ttings to prevent leakage.

heck the water flow at the outlet and check whether the water is drained out of the wash drum. If it does ot, disconnect the machine from the supply then level he machine on the floor and let the water is drained ut.

solate the machine from the supply. Open the nspection cover of the machine and carry out visual nspection of :

- the supply cord and its terminations i.e. between plug and machine terminals
- condition of the motor pulley-belt and drive alignment
- all internal connections between the control panel and the machine motors, timer and switches, shown in Fig 2.

6 Lubricate the bearings of the motor with a suitable grease as recommended by the manufacturer with the help of the grease pump.

7 and especially where maximum vibration of the machines is felt, use a dot of grease or oil in the threads.

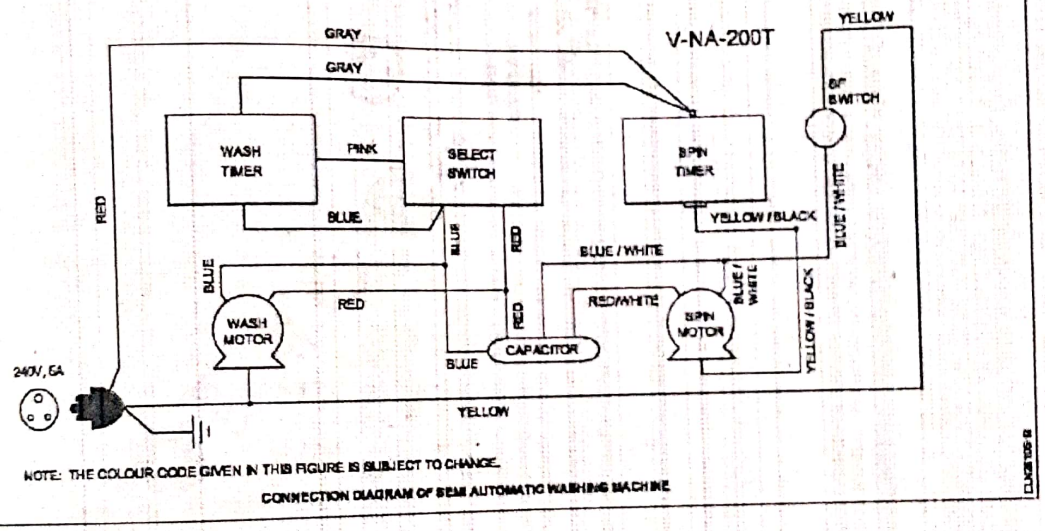
8 Conduct an insulation test of the motor and record it in Table 3, using a 500V Megger. Insulation resistance should be around 1 megohm, if found less then check the wiring and internal accessories and all Powerly live parts for moisture and weak insulation. Remove the moisture and prevent any water leakage near the Power parts suitably. Reconduct the insulation test.

9 Close the inspection hatch/cover and connect the machine to the supply and load the machine with the number of clothes recommended by the manufacturer for the smooth running of the washig machine.

Table 3

Insulation resistance between terminal & body windings	
Date of servicing	
Recommended repair	
Replacement of parts	

Fig 2



NOTE: THE COLOUR CODE GIVEN IN THIS FIGURE IS SUBJECT TO CHANGE.

CONNECTION DIAGRAM OF SEMI AUTOMATIC WASHING MACHINE

GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: Y. Divya

Group/course: I. B.Sc (Physics)

Hall ticket no: 23308017

Design of course: Electrical (certificate course)

1. Is the objectives of the course was clear. ✓Y/N

2. Is 30 days period of the course is sufficient. Y/N✗

3. Is this course useful for entrepreneur. ✓Y/N

4. Is this course helped to develop your skill. ✓Y/N

5. The contents of the course is,

(1) too theoretical (2) too practical ✓

6. The course exposed you to new knowledge and practices.

(1) strongly agree (2) strongly disagree

7. The level of course was.

(1) too low (2) too high ✓

8. The contents were illustrated with

(1) few examples (2) adequate examples ✓

9. Is the lecture sequence was well planned

(1) strongly agree (2) strongly disagree

10. Will you recommend this course to your friends

(1) very strongly (2) Not at all

Conduct of course and resource person:

11. The lectures were clear and easy to understand

(1) strongly agree (2) strongly disagree

12. The course material handed out was adequate

(1) strongly agree (2) strongly disagree

13. The interactions of the resource person is helpful

(1) strongly agree (2) strongly disagree

14. Is the objective of the course reached to your knowledge. ✓Y/N

GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: K. Dhavani

Group/course: B.Sc physics

Hall ticket no: 2330003

Design of course: Electrical (Certificate course)

1. Is the objectives of the course was clear, ✓ Y/N
2. Is 30 days period of the course is sufficient, ✓ Y/N
3. Is this course useful for entrepreneur, ✓ Y/N
4. Is this course helped to develop your skill. ✓ Y/N
5. The contents of the course is,

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13. The interactions of the resource person is helpful

    (1) ✓ strongly agree (2) strongly disagree

14. Is the objective of the course reached to your knowledge. ✓ Y/N

GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: P Shahina

Group/course: I. B.Sc Physics

Hall ticket no: 23302010

Design of course:

1. Is the objectives of the course was clear. Y/N
2. Is 30 days period of the course is sufficient. Y/N
3. Is this course useful for entrepreneur. Y/N
4. Is this course helped to develop your skill. Y/N
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14. Is the objective of the course reached to your knowledge. Y/N

GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: K. Usha Sri

Group/course: Bsc (physics)

Hall ticket no: 2330200S

Design of course: Electric Course)

1. Is the objectives of the course was clear. ✓ Y/N
2. Is 30 days period of the course is sufficient. ✓ Y/N
3. Is this course useful for entrepreneur. ✓ Y/N
4. Is this course helped to develop your skill. ✓ Y/N
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14. Is the objective of the course reached to your knowledge. ✓ Y/N

GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: T. Gowri

Group/course: 1st B.Sc physics

Hall ticket no: 233020114

Design of course: Electrical (certificate course)

1. Is the objectives of the course was clear. Y/N

2. Is 30 days period of the course is sufficient. Y/N

3. Is this course useful for entrepreneur. Y/N

4. Is this course helped to develop your skill. Y/N

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14. Is the objective of the course reached to your knowledge. Y/N

GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: R. Anusha

Group/course: B.Sc(physics)

Hall ticket no: 2330201(

Design of course:

1. Is the objectives of the course was clear. ✓ Y/N
2. Is 30 days period of the course is sufficient. ✓ Y/N
3. Is this course useful for entrepreneur. ✓ Y/N
4. Is this course helped to develop your skill. ✓ Y/N
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14. Is the objective of the course reached to your knowledge. ✓ Y/N

GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: U. Nagalakshmi

Group/course: B.Sc Physics

Hall ticket no: 8330 2015

Design of course:

1. Is the objectives of the course was clear. Y/N
2. Is 30 days period of the course is sufficient. Y/N
3. Is this course useful for entrepreneur. Y/N
4. Is this course helped to develop your skill. Y/N
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14. Is the objective of the course reached to your knowledge. Y/N

GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: K. Deepthi

Group/course: BSC (physics)

Hall ticket no: 2330 2006

Design of course: Electrical (Course)

1. Is the objectives of the course was clear. Y/N
2. Is 30 days period of the course is sufficient. Y/N
3. Is this course useful for entrepreneur. Y/N
4. Is this course helped to develop your skill. Y/N
5. The contents of the course is,

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6. The course exposed you to new knowledge and practices.

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    (1) strongly agree (2) strongly disagree

14. Is the objective of the course reached to your knowledge. Y/N

GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: K. Sindhusa Maxy

Group/course: B.Sc Physics

Hall ticket no: 23302004

Design of course: Electrical (course)

1. Is the objectives of the course was clear. ✓Y/N
2. Is 30 days period of the course is sufficient. ✓Y/N
3. Is this course useful for entrepreneur. ✓Y/N
4. Is this course helped to develop your skill. ✓Y/N
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GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: V. Emily

Group/course: 1.B.Sc (Physics)

Hall ticket no: 23302016

Design of course: electrical (course).

1. Is the objectives of the course was clear. Y/N
2. Is 30 days period of the course is sufficient. Y/N
3. Is this course useful for entrepreneur. Y/N
4. Is this course helped to develop your skill. Y/N
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14. Is the objective of the course reached to your knowledge. Y/N

GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name: B. Deekshitha

Group/course: Ist BSC - Physics

Hall ticket no: 2230200 1

Design of course: electrical (course)

1. Is the objectives of the course was clear. ✓Y/N
2. Is 30 days period of the course is sufficient. ✓Y/N
3. Is this course useful for entrepreneur. ✓Y/N
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GOVERNMENT COLLEGE FOR WOMEN (A) GUNTUR

Certificate course: Electrical Home Appliances

COURSE FEED BACK FORM

Student name:

Group/course:

Hall ticket no:

Design of course:

1. Is the objectives of the course was clear. Y/N
2. Is 30 days period of the course is sufficient. Y/N
3. Is this course useful for entrepreneur. Y/N
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14. Is the objective of the course reached to your knowledge. Y/N

Which material is used to make heating element? 1M

ilver B) copper C)nichrome D) aluminum

hich material is used to make fuse wire

n b)copper C)iron D)tungsten

Which type of A.C single phase motor is used in food mixer?

Jniversal motor B) repulsion motor C) capacitor motor D) Shaded pole motor

Vhat is the function of neutral path in AC supply system for appliances?

Provides current return path B) Provides voltage constant

Provides voltage different D) none of the above

Which type of motor is used in the wet grinder?

niversal motor B)repulsion motor c)capacitor start motor D)3Phase motor

Which device converts sunlight into electrical energy?

hoto voltaic cell B Liquid crystal diode

ight emitting diode D Light dependent resistor

Which device converts sunlight into electrical energy? |

Photo voltaic cell B)Liquid crystal diode C) Light emitting diode D) Light dependent resistor

which material is used as a filament in incandescent lamp?

Nichrome B)Tungstone C)copper D)Aluminium

which instrument is used to find phase supply is available or not by the electrician

neon tester B)screw driver C)cutting pliers D)none othe above

. which one is the good conductor of electricity

copper B)silver C)iron D)gold

.which instrument is used to find continuity of the conductor?

) Tester B)continuity tester C)earth tester D)megger

.no of diodes required in full wave rectifier?

) 1 B) 3 C)4 d)2

3.cpacitance units in ----------?

) henry B)ohms D)farads D)none

14 A.C single phase voltage is _____ volts?

A)110v B)240V C)415v D)12v

15 red color wire is used for _____?

A)neutral B)earth C)Phase D)ground

16 Earth symbol:_____

17 Indian electrical frequency _____

18 LED full form _____

19 Earth or ground wire color _____

20 Earth potential _____

21. Write fault finding procedure for Food mixer?

Name : Y. Divya

Group : IV. B.Sc (Physics) 1M

Hr No :

20/25

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apacitance units in ---farads-----?

henry B)ohms D)farads D)none

14 A C single phase voltage is ______ volts? 1-2v
A)110v B)230v C)415v D)12v

15 red color wire is used for ______ phase
A)neutral B)earth C)Phase D)ground

16 Earth symbol ⏚

17 Indian electrical frequency 50Hz

18 LED full form light Emitted Dayod.

19 Earth or ground wire color Black

20 Earth potential Green 0V

21 Write fault finding procedure for Food mixer? 5M

Step 2:- Check the ... on the switch to ... the wires from the appliance ... fully attached to the switch.

Step 3:- Mark the terminal position and disconnect them.

Step 4:- use a continuity tester or multitester to determine switch is faulty. If it is, replace and reconnect the terminal wiring.

write fault finding procedure for Food mixer?

Ans:- 1) Is supply Available or not.

2) Food mixer can be found in nearly every kitchen.

3) They blend ingredients to make cookies, cakes, muffins, breads, desserts, and other foods.

4) Food mixer are motorized small appliances.

5) That is, rather than heating something, they move something, In this case they move or mix food ingredients.

6) Easy repairs to food mixer include servicing a switch, repairing speed controls, and servicing gears.

7) Carefully remove the housing around the switch to expose the back side of the switch.