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|  | **MAHARASHTRA COSMOPOLITAN EDUCATION SOCIETY****Azam Campus, Pune – 411 001** |

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**Assignment 30 marks-to be submitted on 9-9-18**

**B. Sc. (Hospitality Studies) (Semester - III) Examination - 2018**

**HOTEL ENGINEERING**

**(New 2016 Pattern)**

**Time : 2 Hours] [Max. Marks : 40**

**Chapter-1 Maintenance & Replacement Policy**

Q.1) Answer the following : (Any Two) [2x10=20]

(a) State responsibilities of Maintenance Engineer related to :

• Energy Conservation and

• Stores of Maintenance Section

(d) Explain Maintenance Planning with an example from Hotel.

(a) Explain duties and responsibilities of Chief Engineer of a Hotel.

(a) Define Contract and give its advantages and disadvantages.

(a)Define Contract and give its advantages and disadvantages.

(b) Describe Swimming Pool Maintenance in details.

(a) Give types of Contract and its advantages and disadvantages

(b) Give Maintenance of Swimming Pool.

(b) State duties and responsibilities of maintenance engineer in a hotel.

(c) Explain types of maintenances with an example of each.

(d) State disadvantages of contract maintenance.

(a) What are the types of maintenance and give duties and responsibilities of maintenance engineering department in hotel.

(d) Draw organisational chart for 3 star hotel for maintenance.

(e) Give classification of contract maintenance and its advantages and disadvantages.

(a) Draw organisation structure for 200 guest room and explain responsibilities of Maintenance Engineer.

**Refrigeration**

 (b) Draw sketch and explain Household Refrigerator.

(a) Define Refrigerant and give any three names of Refrigerant with their chemical formula.

(a) Explain Vapour Compression Refrigeration Cycle with diagram

(b) Draw diagram for Window Air Conditioner.

(c) Name any five Refrigerant with their Chemical Formula.

(a) Define and explain in brief :

• Dehumidifier

• Ton of Refrigerator

(c) Compare : Window AC and Central AC with any five points and a block diagram.

(c) State factors controlled in an AC System.

(b) Differentiate between Central and Unitary Air Conditioning System and explain working of Room Air Conditioner

(a) Describe central AC system used in 5-star hotel.

(b) Define Unit of Refrigeration and explain Vapour Compression

(c) Describe types of Refrigerants and factors related to Human Comfort.

 d)Refrigeration System with block diagram.

(a) What is defrosting ? Why is it needed ?

(c) Draw only sketch of window AC

 (b) Give name of any five refrigerants with their chemical formula and chemical name with number and also give good properties of refrigerants.

(c) Define unit of refrigeration and give factors affecting comfort of airconditioning.

(b) Differentiate between unitary AC and central Ac.

 **Waste disposable Energy Consumption**

(b) Describe Incineration Method used for Pollution Control in a Hotel.

(c) State and explain any ten systems/devices in which energy can be conserved in a Hotel.

(b) Describe use of Solar Systems for a Hotel

(b) Give energy conservation tips in Kitchen and Front Office.

(c) What is fuse ? Explain its use.

(d) How can energy be saved in kitchen of a hotel

(c) Explain Solid Waste Management and describe bad effect of Noise Pollution to Human Health.

(e) Explain with diagram different collection systems for Solid Waste

(b) State importance of waste disposal in a hotel.

(c) Explain with diagram collection and disposal methods for solid waste.

(a) Give energy saving tips in kitchen.

**Chapter 6.Fuels and Electricity.**

 (b) What is Earthing ? State its importance. Explain any one type with sketch.

(b) Differentiate between liquid and gaseous fuel on the basis of calorific value, pollution cost and examples.

(c) Explain any one type of Fire Extinguisher with sketch.

(e) Explain the importance of earthing and give its types

(b) Compare Coal, Petrol, Biogas, LPG as fuels used in hotel.

(c) Give Classification of Fire and its symbols and draw diagram for flame detector.

(c) Name any five solid fuels with their calorific values and give importance of LPG in Hotel.

(b) Differentiate between Fuse and Circuit Breaker and give types of both.

(c) Write short notes :

(i) LPG

(ii) Biogas

(d) Give classification of Fire and explain Safety of Door

(c) Give importance of Earthing and explain with diagram Plate Type of Earthing.

(e) Draw diagram for Dry Chemical Powder Fire Extinguisher and where its is used

(b) Give classification of fire and explain any one fire detector with diagram.

(a) Define Fire and give its classification with symbols.

(d) Give importance of Earthing and describe any one type

(c) Explain factors which will be consider for selection of good Fuel.

(c) Calculate electricity bill for the month of May having the

following electricity load if cost of electricity is Rs. 5.00 per

unit :

(1) 110 W refrigerator 02 Nos. 12 hrs/day

(2) 40 W tube light 12 Nos. 10 hrs/day

(3) 3 kW heater 01 No. 03 hrs/day

(4) 15 W pointer 03 Nos. 15 min/day

(5) 1.5 kW oven 02 Nos. 04 hrs/day

(d) For a seminar organised in a hotel, a tea making machine (1 kW)

is used for 3 hours per day. An LCD is also used for 8 hours

per day, which has consumption of (0.7 kW). If both of them

are used for a five day seminar, what will be electricity charges

charged to Organiser ? (Assume Rate Rs. 5/kWH)

(a) Calculate electricity for the month of April having following

electricity load :

(i) 40W Bulb 20 Nos. 06 hrs./day

(ii) 750W Hair Dryer 02 Nos. 15 min./day

(iii) 3 kW Heater 02 Nos. 03 hrs./day

(iv) 1000W Oven 01 No. 01 hr./day

The Cost of Electricity is Rs. 3.50 per unit.

(c) Calculate electric bill for May 2009, for the following load with

rate Rs. 4/Unit.

(i) 5 fans, 80 W each, 4 hrs/day.

(ii) 2 kW Heater, one No., 1 hr/day.

(iii) 10 Bulbs, 10 W each, 10 hrs/day.

(iv) 1.5 kW oven, one No., 20 minutes/day.

(v) 5 tubes, 40 W each, 7 hrs/day.

(a) Calculate Electricity Bill for the month of March having following

Electricity Load and Cost of Electricity is Rs. 7.00 per unit :

(i) 36 W Tube Light 10 Nos. 12 hrs./day

(ii) 3 KW Oven 02 Nos. 04 hrs./day

(iii) 750 W Dryer 02 Nos. 25 min./day

(iv) 60 W Bulb 05 Nos. 06 hrs./day

(v) 12 W CFL Bulb 15 Nos. 10 hrs./day

(c) Calculate Electricity Bill for the month of May having the

following Electricity Load if cost of one unit is Rs. 7.50 :

(i) 120W Fan 12 Nos. 06 hrs./day

(ii) 1.5KW Oven 02 Nos. 25 min./day

(iii) 40W Tubelight 10 Nos. 12 hrs./day

(iv) 60W Bulb 08 Nos. 08 hrs./day

(v) 2KW Heater 03 Nos. 02 hrs./day

(a) Calculate electricity bill for the seminar having the following

electricity load and rate of electricity is Rs. 15 per unit :

(i) 150 W LCD 02 Nos. 04 hrs./day

(ii) 120 W PA system 01 No. 05 hrs./day

(iii) 1.5 kW Spot light 02 Nos. 02 hrs./day

(iv) 15 W Pointer 01 No. 20 minutes/day

(v) 100 W Fan 10 Nos. 08 hrs./day

**Chapter 5.Water and Sanitation**

1. Explain Trap, its use and types with neat sketches.

(b) Explain with diagram Demineralisation of Water.

(a) Give any five general tips for Energy Conservation in Hotel.

(b) Draw any one Water Closet any two Tarps.

. (c) Name any three Sanitary Traps and draw any one Water Closet.

1. Draw diagram for Softening of Water by Ion Exchange Process and give its advantages.
2. (a) Explain any one water softening method.
3. (b) Describe trap, its use and types.

(c) Draw the diagrams of :

(1) Water closets (any one)

(2) Sanitary trap (any one).

(d) Differentiate between soft and hard water. Give the disadvantages of hard water to hotel industry.

**Pollution & Control**

(d) Give different Sources of Noise and its adverse effect on human being and also give controlling steps.

 (a) What are the sources of noise pollution and its controlling measures.

**Energy conservation**

a)Explain the importance of energy conservation.

b)Give the points to followed for energy conservation in hotel

 c)Simple methods of Energy conservation in hotel

d) Use of solar energy in hotels.

**Safety in hotel Industry**

1. Explain Door and Valuable Security in Hotel.
2. (b) Explain Security System for Hotel i.e. Door, Guest
3. What are types of elevatots
4. What are the audio visual aids use in hotels
5. What are types of sensors used in hotels
6. List the care and maintainance of Computer , Laptop . Printer, OHP, LCD projector

.

(d) What are the sources of Air Pollution ? Give its bad effect on Human Being.

(c) What are the sources, control and bad effect of Noise Pollution to Human Being ?

(d) Differentiate between Unitary and Central Air Conditioning System.

 (a) Explain Ion Exchange Process for Softing of Hard Water with diagram.

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 (b) How will we save energy in House-keeping and Sanitation Department ?

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 (a) Differentiate between unitary and central air conditioning

system and describe the working of room air conditioner with

diagram.

(b) Define contract. Give its types and advantages and disadvantages.

(c) What are the sources, controlling methods and bad effect of air pollution on human being.

 (a) Define :

(i) DBT

(ii) WBT

(iii) Heat

(iv) Sensible heat

(v) Latent heat.

(b) Draw organization chart for maintenance department.

(c) Name any five refrigerants with their formula.

(d) Explain Global warming and its effect.

(b) Give general tips for energy saving in hotels with examples.

(c) Explain water purification methods in detail.

 (a) Explain any one automatic fire detection system.

(b) Draw any one water closet and trap.

(c) Explain importance of earthing.

(d) Define units of heat in SI and CGS systems and their

relations.

 (a) Draw swimming pool maintenance chart.

(b) How you will take care of domestic refrigerator ?

(c) Explain central AC and unitary AC system with block diagram.

(d) Describe waste disposal related to collection, separation, recycle,

and land filling.

 (a) State duties of Chief Engineer in a hotel.

(b) Define Specific heat, sensible heat, DBT, relative humidity, WBT.

(c) List various factors to be controlled in Air-conditioning Unit.

(d) List advantages of contract maintenance.

(e) What is defrosting ? Why is it needed ?

 (a) Draw sketch of hot water distribution system and explain.

(b) Calculate electric bill for 30 days with rate Rs. 5 / unit for

the following load :

(i) Tube lights, 20 nos, 40 W each, 6 hr/day

(ii) Bulbs, 10 nos, 10 W each, 8 hr/day.

(iii) Fans, 10 nos, 80 W each, 3 hr/day.

(iv) Heater, 1 no., 1 kW each, 1 hr/day.

(v) Toster, 2 nos, 500 W each, 2 hr/day.

(c) Explain how energy conservation programme can be developed

in the hotel.

(d) Describe any two types of fire extinguishers with block

diagrams.

 (a) Define Fire. How is it classified ?

(b) How solar energy can be useful for hotels ?

(c) Describe importance of earthing.

(d) Explain various traps used in plumbing.

(e) Describe various methods of lighting

 (a) Explain vapour absorption refrigeration system with diagram

and example.

(b) Describe functions and responsibilities of maintenance engineering

department in hotel.

(c) What are the properties of good refrigerant ? Name any five

refrigerants with their chemical name.

 (a) Explain waste handling equipments for solid waste.

(b) What are the factors which will affect comfort of air conditioning

(c) Define the following terms :

(i) Sensible heat

(ii) Latent heat

(iii) DBT

(iv) WBT

(v) Heat.

(d) Draw diagram for room (window) air-conditioner.

(e) Define contract and give its advantages and disadvantages.

 (a) A seminar has to be organise in a hall which require the

following equipments :

(1) 140 W PA system 04 hrs/day

(2) 750 W Flood light 03 hrs/day

(3) 12 W Pointer 10 min./day

(4) 180 W LCD 03 hrs/day

The cost of electricity is Rs. 15 per unit.

 (b) Explain fire detection system with diagram.

(c) Explain water softening method (any one) with diagram.

4. Answer any three : [3×5=15]

(a) Explain energy saving tips in guest room and sanitation.

(b) Write notes on :

(i) LPG

(ii) Biogas.

(c) Draw diagram for any one type of earthing method and give

its importance.

(d) What are the disadvantages of hard water to hotel industry ?

(e) Explain the importance of trap in sanitation with diagram.

SECTION - I

Q.1) Answer any two of the following : [20]

(a) Describe Ion Exchange Process for Water Softening with

diagram.

(b) A seminar has to be organised which has following requirements :

(i) 120W PA System – 03 hrs./day

(ii) 12W Pointer – 15 min./day

(iii) 1 KW Spot light – 02 Nos. 04 hrs./day

(iv) 450W LCD – 03 hrs./day

The Cost of Electric Energy is Rs. 40 per unit.

(c) Differentiate between Solid and Liquid Fuels and give importance

of LPG in Hotel Industry.

 (a) Give energy saving tips in Kitchen and House-keeping.

(b) Define Fire. Give its classification and symbols.

(c) Describe Oil Circuit Breaker with diagram.

(d) Draw any three Sanitary Traps and any one Water Closets.

 (a) Define Contract. Give its types, advantages and disadvantages.

(b) Explain Vapour Absorption Refrigeration System with block

diagram.

(c) How will you control Water Pollution in Hotel Industry ? Give controlling methods for Solid Waste.

Q.4) Answer any three of the following : [15]

(a) Draw diagram for Room Air Conditioner and explain its working.

(b) Draw organisational maintenance chart for 200 Room Guest ,House.

(c) Name any five refrigerations with their name and chemical formula.

(d) Give classification of Air Conditioning System on the basis of ,equipment, function and season

 (a) Explain with diagram zeolite process for softening of water.

(b) Calculate electricity bill for the month of June having the following electricity load :

(1) 60 W bulb 06 Nos. 03 hrs/day

(2) 3 kW heater 02 Nos. 02 hrs/day

(3) 1 kW oven 01 No. 25 min/day

(4) 40 W tubelight 04 Nos. 08 hrs/day.

The cost of electricity is Rs. 15 per unit.

 (c) Draw the diagram and explain :

(i) Any one earthing method

(ii) Cold and hot water distribution system.

2. Solve any three of the following : [15]

(a) Describe door and guest security in hotel.

(b) Explain with example use of solar energy for various activities

in hotel.

(c) Explain fire detection system in hotel with example.

(d) Draw any five plumbing fixtures.

SECTION II

3. Solve any two of the following : [20]

(a) Describe the role of Chief Engineer in hotel.

(b) Explain with diagram vapour compression refrigeration system

and its applications.

(c) What are the sources and bad effect of the following

pollution ?

(i) Noise pollution

(ii) Air pollution.

 (a) Differentiate between unitary and central air-conditioning system.

(b) Define the following terms :

(i) Sensible heat

(ii) Dry bulb temperature

(iii) Defrosting

(iv) Refrigerant

(v) Relative humidity.

(c) Explain swimming pool maintenance.

(d) Give the names of various types of maintenance

a) Explain with diagram maintenance of domestic refrigerator and give importance of defrosting.

b) Describe contract maintenance with its type and advantages and disadvantages.

c) What are the functions and responsibilities of maintenance engineering department in Hotel ?

a) What are the sources of air pollution and give its controlling methods ?

b) State the factors which will affect comfort of air conditioning.

d) Explain with diagram window air-conditioner.

e) Differentiate between unitary and central air conditioning system.

a) Explain zeolite process for water softening with diagram.

b) Describe working and construction of any two types of fire extinguishers.

c) Calculate electricity bill for 15 days. The electric load is as follows with rate Rs. 10 per kwh.

i) 100 W bulbs – 06 Nos – 10 hrs/day

ii) 10 W tubes – 10 Nos – 04 hrs/day

iii) 4 KW boiler – 02 Nos – 04 hrs/day

iv) 80 W refrigerator – 02 Nos – 03 hrs/day

v) 2 KW heater – 02 Nos – 02 hrs/day.

4. Answer any three : (3×5=15)

a) Give energy saving tips in Guest room and laundry.

b) Give classification of fuel with examples.

c) Explain importance of earthing with example.

d) Write note on i) LPG ii) Bio-gas.

e) Draw any five plumbing fixtures.

a) Explain vapour compression refrigeration system with diagram and example.

b) Give importance of Engineering Department in Hotel. Write duties and responsibilities of Chief Engineer.

c) What are the properties of good refrigerant ? Name any five refrigerants with their chemical formula.

2. Answer any three. (3×5=15)

a) Suggest methods of solid Waste disposal in the Hotel.

b) What are the factors which will affect comfort of air-conditioning ?

d) Draw diagram for room (window) air-conditioner.

e) Define contract and give its advantages and disadvantages.

SECTION – II

3. Answer any two : (2×10=20)

a) A seminar has to be organise in a hall which require the following equipments.

1) 140 W PA system 05 hrs/day.

2) 750 W Flood light 04 hrs/day

Seat

No.

P.T.O.

[4676] – 404

3) 12 W Printer 10 min/day

4) 180 W LCD 08 hrs/day

The cost of electricity is Rs. 17 per unit.

b) Explain methods and types of fire extinguishers.

c) Explain Ion-exchange method of water softening.

4. Answer any three. (3×5=15)

a) Explain energy saving tips in guest room and sanitation.

b) Write notes on

i) Biogas

ii) LPG.

c) Describe fuse as a safety device.

d) What are the disadvantages of hard water to hotel industry ?

e) Draw any five plumbing fixtures and state their applications.

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