O P JINDAL UNIVERSITY, RAIGARH (C.G.)

MID SEMESTER EXAMINATION, APRIL-2022

[CMT&RE E SUBJECT [SOE-D-EE601]

COURSE. – DIPLOMA 6th Semester TIME : **02 Hrs.**

BRANCH EE MAX MARKS : **60**

Q1 All Questions are compulsory [2 marks x 6]

a) **What I.E. Act is about?**

b) **Define the term "Safety Program"**

c) **Name the 4 types and scope of maintenance?**

d) **What do you mean by electric shock?**

e) **What are the main ddifference between Preventive and Corrective Maintenance?**

f) **How many no. of Acts. in Indian Electricity Act? give some examples of Acts / Rules.**

Q2 Answer any six questions [4 marks x 6]

a) **Describe the causes behind the severity of electric shock.**

b) **State any 6 safety precaution to be followed while working with an electrical equipment installation.**

c) **Write some points for precaution to be taken to avoid fire due to electric reasons.**

d) **What is the difference between type tests, routine tests and commissioning tests?**

e) **Procedure for rescuing the person who has received an electric shock.**

f) **Write down some ssafety precaution and practices in operation and maintenance in sub-station.**

g) **State the definition of terminology used in safety of the following**
(1) Hazard (2) Accident (3) Safety Policy (4) First aid

Q3 Answer any three questions [8 marks x 3]

a) **Explain four types of safety maintenance.**

b) **What are the recommended safety precautions while working on HV and LV installation of Electrical plant?**

c) **"Prevention is better than cure" justify the fact and describe some safety precaution to be fallowed while working with an electrical installation.**

d) **What do you mean by safety management? Write down various principle of safety management**

e) **Discus the any method of providing artificial respiration to a person who got electric shock**

O P JINDAL UNIVERSITY, RAIGARH (C.G.)

MID SEMESTER EXAMINATION, APRIL-2022

Renewable Energy Resources and Systems [SOE-D-EE602]

DIPLOMA – 6th Semester

Electrical

TIME : **02 Hrs**

MAX MARKS : **60**

Note: All parts are compulsory

6X2=12

Part A
Attempt all questions

1. Which process is responsible for production of energy in the sun?
   (a) Nuclear fission reaction
   (b) Nuclear fusion reaction
   (c) Exothermal chemical reaction
   (d) All of the above
2. Which one of the following statements is not true for solar energy?
   (a) It is a dilute form of energy.
   (b) Its availability is diurnal.
   (c) Availability at any instant of time is uncertain.
   (d) Its harnessing at large scale is easy.
3. What is the standard value of solar constant?
   (a) 1 kW/m2
   (b) 1.367 kW/m2
   (c) 1.5 kW/m2
   (d) 5 kW/m2
4. Why should energy conservation be encouraged?
   (a) To halt further growth of GDP.
   (b) To encourage use of manual labour.
   (c) To discourage people using luxuries.
   (d) To conserve non-renewable energy sources and environment.
5. Which sector consume maximum commercial energy in India?
   (a) Agriculture
   (b) Industry
   (c) Residential
   (d) Transport
6. Global warming is mainly caused due to:
   (a) emission of heat from engines
   (b) emission of CO2 due to burning of fossil fuels
   (c) use of nuclear energy
   (d) air pollution

6X4=24

Part B
Attempt any six questions

1. What is renewable energy?
2. How many different types of renewable energy are there?
3. What are greenhouse gases?
4. What do you understand by green power?
5. Which is the cleanest of all fuels and what is its heating value?
6. What is the potential in solar energy the world over? On average, how much solar power is received on the surface of the earth at noon during bright sun day?
7. What are the disadvantages of solar energy?
8. What are the basic features required in an ideal pyranometer?

8X3=24

Part C
Attempt any three questions

1. Discuss different renewable sources of energy with special reference to Indian context
2. Discuss the main features of renewable energy sources and explain the importance of renewable energy sources in the context of global warming.
3. What are the basis of classification of different energy resources available? Explain with suitable example.
4. With the help of a schematic diagram, explain the working of solar water heating.

O P JINDAL UNIVERSITY, RAIGARH (C.G.)

MID SEMESTER EXAMINATION, APRIL-2022

Energy Conversion-II [ME601]

DIPLOMA – 6th Semester
MECHANICAL

TIME: **02 Hrs**
MAX MARKS: **60**

Note: 1. Solve ***all*** from questions no 1.
2. Solve any ***six*** from questions no 2.
3. Solve any ***three*** from questions no 3.

(2 x 6 = 12 Marks)

Q 1 a. What is "energy sources".

b. Classify the energy sources.

c. What is fossil fuels. Define it.

d. Define the term "Solar Energy".

e. What is photovoltaic cell? Define it

f. What is Hour angle. Define it

(4 x 6 = 24 Marks)

Q 2 a. What is renewable energy sources. Enlist the various renewable energy sources.

b. Define the term primary and secondary energy sources. Enlist the various primary and secondary energy sources.

c. What is the commercial energy sources? Explain it.

d. What is direct, diffuse and total radiation? Define it.

e. Write the advantages and limitations of solar photovoltaic system.

f. With neat sketch define the term "solar radiation geometry".

g. What is solar energy collector? Classify it.

(8 x 3 = 24 Marks)

Q 3 a. Define the term conventional and non-conventional energy sources? List the various conventional and non-conventional energy sources.

b. Write short notes on Indian energy scenario.

c. Describe in detail a solar flat plate collector with neat sketch.

d. Explain solar photovoltaic system with neat sketch.

e. Explain the photovoltaic cell with schematic diagram.

O P JINDAL UNIVERSITY, RAIGARH (C.G.)

MID SEMESTER EXAMINATION, APRIL-2022

Computer Aided Design & Manufacturing [SOE-D-ME602]

DIPLOMA – 6th Semester TIME : **02 Hrs**

MECHANICAL MAX MARKS : **60**

Q1 Answer any 8 of the following (5M each)

a. What are the benefits of CAD/CAM over the conventional manufacturing techniques?

b. What is the role of CAD expert in an industry?

c. Explain the Mirror operation and discuss its benefits.

d. What do you understand by the word Primitives?

e. How can you make a 3D model without using solid primitives?

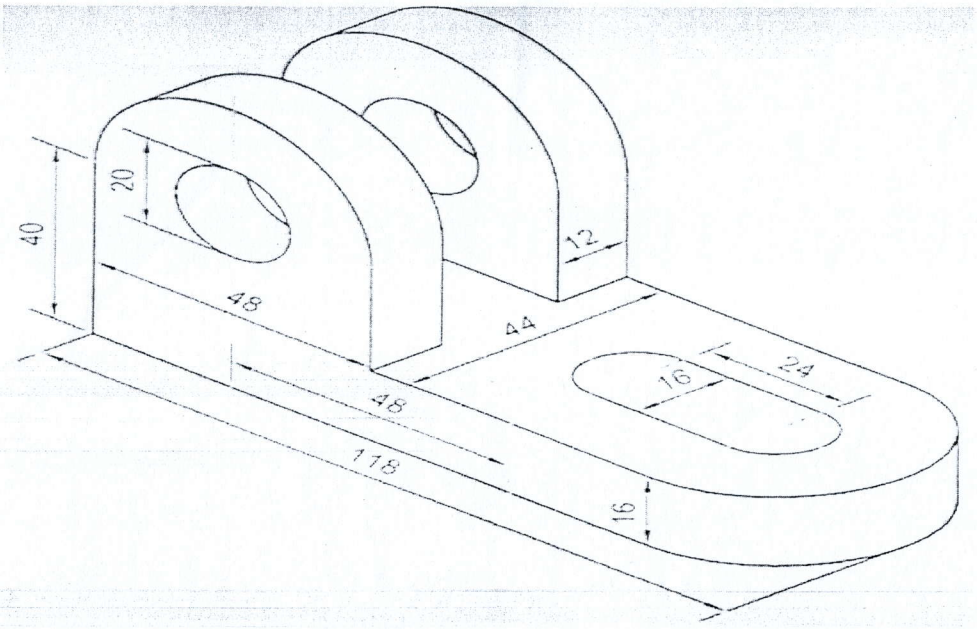
f. Write a note on reasons for implementation of CAD/CAM.

g. What do you understand by the word Automation? and how do you relate it with CAD/CAM?

h. What do you understand by the word CRT?

i. Compare between CAD and CAM.

Q2) Write steps/tools/commands that you would follow to draw the below mentioned model (20M)



O P JINDAL UNIVERSITY, RAIGARH (C.G.)

MID SEMESTER EXAMINATION, APRIL-2022

POWER PLANT ENGINEERING[SOE-D-ME603(2)]

COURSE–Diploma 6th semester TIME: **02 Hrs.**

BRANCH– Mechanical MAX MARKS: **60**

Note: Attempt all questions compulsory. And read carefully.

Q1 All Questions are compulsory [2 marks x 6=12]

Q1) What are the general sources of energy for generation of electricity?
Q2) What are the Conventional and un-conventional energy sources?
Q3) Draw the P-V and T-S diagram of Rankine Cycle?
Q4) What is mean by coal handling?
Q5) Define hydrograph and hydrology?
Q6) What are the future trends of power industries.

Q2 Answer any six questions [4 marks x 6=24]

Q1) Discuss briefly the possibilities of utilizing the following methods of power generation:
a) Solar Energy b) Wind Energy
Q2) What factor are considered while selecting the site for a Steam Power Plant.
Q3) Name the various methods of ash handling.
Q4) Classify the cooling tower and their working.
Q5) What are the different methods of firing coal? Discuss the advantages of mechanical methods of firing coal.
Q6) Name various draught systems. Describe the operation of a balanced draught system.
Q7) Discuss any four element of Steam Power Plant with neat sketches along with five applications each.

Q3 Answer any three questions [8 marks x 3=24]

Q1) What is fluidized bed combustion. Sketch and describe a fluidized bed combustion system. State the advantages of F.B.C?
Q2) Draw brief layout of hydroelectric power plant. Write in one or two sentence function of each component.
Q3) What are the different factors to be considered while selecting the site for hydroelectric power plant.
Q4) At a particular site the mean monthly discharge is as follows: -

Month	**Discharge, m^3/s**	**Month**	**Discharge, m^3/s**
January	100	July	1000
February	225	August	1200
March	300	September	900
April	600	October	600
May	750	November	400
June	800	December	200

Draw the following:

(1) Hydrograph (2) Flow duration curve.

Q5) Explain the governing of impulse turbine with neat sketch.