

Roll No _____

Script No. _____



SINDH BOARD OF TECHNICAL EDUCATION KARACHI

DIPLOMA OF ASSOCIATE ENGINEER 3rd YEAR

MODEL PAPER

ANNUAL EXAMINATION 2021

Technologies: ELECTRICAL

SUBJECT: ET 322 POWER PLANT & ENERGY CONVERSATION

SECTION "A" OBJECTIVE

Instructions:

- Attempt all questions.
- All questions carry equal marks.
- Question paper must be returned back to invigilator within the scheduled time.

TIME: 40 Minutes
MAX. MARKS: 50

Q1.(a) Fill In the Blanks

Max Marks 30

1. Load factor of a power station is defined as _____.
2. It is generally seen that factor of domestic load is _____.
3. A steam power station requires space _____.
4. For the safety of a steam boiler the number of safety valves fitted are _____.
5. Natural draught in a steam power plant is produced by _____.
6. Steam turbine commonly used in steam power station are _____.
7. The temperature of the combustion gas at the gas turbine inlet is about _____.
8. The maximum length of a screw conveyor is about _____.
9. Mechanical efficiency of a diesel engine is defined as _____.
10. Francis turbine is usually used for _____.
11. Belt conveyor can be used to transport coal at inclination up to _____.
12. Pipes carrying steam are generally made up to _____.
13. Two types of boilers are water tube and _____ boiler.
14. Heavy water is used in nuclear reactors to _____ neutrons.
15. Chimney cannot be seen in case of _____ power plant

Q.1(b) Encircle "T" for true and "F" for false:

Max Marks 10

1. Electric current is a measure of flow of electric charge (T / F).
2. In nuclear power plant, nuclear reaction are used for converting water into steam (T / F).
3. Solar cells are made of silicon (T / F).
4. A venturimeter is generally used to measure rate of flow of oil (T / F).
5. Water having PH value 7 is called neutral water (T / F).
6. The air fuel ratio used in gas turbines is **50:1** (T / F).
7. Steam generated in boilers of power plants is in variably dry and saturated (T / F).
8. Electricity can be generated by using a magnetic field (T / F).
9. Steam power plant basically works on Otto cycle (T / F).
10. The average ash content in coals is about 20 % (T / F).

Q1.(c) Multiple choice questions:

Max Marks 10

1. The overall efficiency of a boiler in a thermal power plant is of the order of.
(a) 25 to 30% (b) 70 to 80 % (c) 100 to 150% (d) 10%
2. What is maximum value of power factor
(a) 0.5 (b) 1 (c) 1.5 (d) 0.95
3. The cheapest plant in operation and maintenance is _____ in plant.
(a) Steam (b) Nuclear (c) Hydroelectric (d) Fossil fuels
4. The main source of production of biogas is.
(a) Wet livestock waste (b) Wet cow dung (c) Human waste (d) All of these
5. Economizer is used to heat.
(a) Feed water (b) Air (c) Flue gas (d) Gases
6. The boiling water reactors uses.
(a) Enriched uranium as fuel (b)Plutonium (c) Thorium (d) General fuel
7. Pelton turbines are mostly.
(a) Horizontal (b) Vertical (c) Inclined (d) Squire
8. The thermal power plant, dust of flue gases is trapped by.
(a) Precipitator (b) Economizer (c) hydroelectric (d) Super heater
9. The temperature of cooling water leaving the diesel engine should not be more than.
(a) 80 C ° (b) 60 C ° (c) 30 C ° (d) 50 C °
10. PH value of a neutral solution.
(a) 1 (b) 7 (c) 14 (d) Non of above

Signature of Candidate

Seal of Examination Centre

Signature of Invigilator



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MODEL PAPER FOR
ANNUAL EXAMINATION 2019
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SECTION "B" & "C"

TIME: 2.40 HOURS

MAX. MARKS: 50

Section "B"

(Short Answer Questions)

Max. Marks: 30

Q2: Attempt any six questions from the following. All questions carry equal marks.

1. Give the applications of condenser in steam power plant.
2. Describe hydro power station.
3. Define flat rate and two parts tariff.
4. Shortly explain methods of power factor improvement.
5. Power generation is an energy conversion process state.
6. State renewable sources of power generation.
7. Describe fission and fusion.
8. Enlist advantages & disadvantages of thermal power plant.
9. Define load factor & demand factor.
10. List the fuels used in thermal power station.

Section "C"

(Descriptive Answer Questions)

Max. Marks: 20

Q3: Attempt any two questions from the following. All questions carry equal marks.

1. Explain diesel power station with the help of block diagram.

OR

Explain in detail the working of hydro power station with the sketch.

2. Enlist the types of steam turbine and explain any one with diagram.

OR

Write short notes on the following:-

- (a) Water circulation system of thermal power station.
- (b) Energy conservation equipment.
- (c) Function of condenser in power plant.
- (d) Benefits of solar power generation.