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**BTECH**  
**(SEM VII) THEORY EXAMINATION 2024-25**  
**POWER PLANT ENGINEERING**

TIME: 3 HRS

M.MARKS: 100

**Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.

## SECTION A

**1. Attempt all questions in brief. 2 x 10 = 20**

Q no.	Question	CO	Level
a.	Describe the term "energy".	1	K1
b.	Describe the conventional and non-conventional energy resources.	1	K2
c.	What is the purpose of governing in steam power plants? Enlist various methods used for governing the steam power plant	2	K2
d.	List the advantage and disadvantage of diesel power plant.	2	K1
e.	Define nuclear reactor.	3	K1
f.	What is function of Superheater?	3	K2
g.	What is the basic principle of wind energy conversion?	4	K1
h.	What are the advantages of MHD power generation?	4	K1
i.	What is particulate emission? How the concentration of gaseous pollutants expressed?	5	K2
j.	Define generator	5	K1

## SECTION B

**2. Attempt any three of the following: 3 x 10 = 30**

a.	Why is electrical energy the most convenient form of energy? Give reasons.	1	K2
b.	What do you mean by hydroelectric power plant? Also write its applications.	2	K2
c.	Explain radioactive decay and half-life of nuclear fuels. and moderating power and moderating ratio.	3	K2
d.	Define the working principle of geothermal power plant. Explain it with help suitable diagram.	4	K2
e.	Explain the different methods of cooling the transformers.	5	K2

## SECTION C

**3. Attempt any one part of the following: 1 x 10 = 10**

a.	Discuss the various types of power plants. Explain in brief about the present status and future trends of energy.	1	K2
b.	Give the general layout of modern thermal power plant and explain it briefly.	1	K2

**4. Attempt any one part of the following: 1 x 10 = 10**

a.	Discuss in details the significance of reheating, inter cooling and regeneration on the performance of gas turbine by making suitable layout and T-s diagram.	2	K2
b.	Discuss combined steam and gas turbine power plants.	2	K2

**5. Attempt any one part of the following: 1 x 10 = 10**

a.	Draw a neat diagram of nuclear reactor and show different components. Discuss the function of moderator. Why lighter materials are used as moderator?	3	K2
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b.	What do you mean by solar thermal energy? Also write down its advantages, disadvantages and application.	3	K2
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**6. Attempt any one part of the following: 1 x 10 = 10**

a.	Explain the components of a wind electric generating system with neat sketch.	4	K2
b.	Explain the spring tides and neap tides. Discuss the different tidal power schemes and configurations with neat	4	K2

**7. Attempt any one part of the following: 1 x 10 = 10**

a.	With the help of a sketch, discuss the constructional detail of a generator. Why is there a need of generator cooling?	5	K2
b.	What are the various power plant pollutants? Give their effects on human health.	5	K2

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