Register Number:……..

KUMARAGURU
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B.E DEGREE EXAMINATIONS: MAY 2017

(Regulation 2015)

Fourth Semester

MECHANICAL ENGINEERING

U15METPE12**:** Power Plant Engineering

COURSE OUTCOMES

CO1: Explain the working principle of various power plants and High pressure boilers.
CO2: Illustrate the various circuits in steam power plant
CO3: Summarize the various nuclear reactors and waste disposal methods.
CO4: Outline the steps involved in site selection and working principle of hydroelectric power plants.
CO5: Discuss the working of diesel and gas turbine power plants.
CO6: Explain the working of renewable power plants and discuss the economics of powerplants.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match List I with List II CO1 [K_1]

List I	List II
A. Steam power plant	i. Kaplan turbine
B. Nuclear power plant	ii. Renewable
C. Tidel power plant	iii. Coal
D. Hydel power plant	iv. Safety

	A	B	C	D
a)	ii	i	iii	iv
b)	iii	iv	ii	i
c)	iv	iii	ii	i
d)	iii	i	ii	iv

2. Thermal, hydel and nuclear are called…….sources of energy CO1 [K_1]

a) Non -conventional b) Conventional
c) Renewable d) Non -renewable

3. Mechanical ash handling system requires CO2 [K_1]

a) Air b) Conveyers

c) Cooling towers d) Boilers

4. The BWR uses CO3 [K_1]

a) enriched uranium b) plutonium

c) Thorium d) Uranium

5. Assertion(A): Kaplan turbine is used for low head applications CO4 [K_2]

Reason (R): viscous forces in fluids are due to cohesive forces and molecular momentum transfer

a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A

c) A is true but R is false d) A is false but R is true

6. The ideal fuel for gas turbine is CO5 [K_1]

a) Natural gas b) Pulverized coal

c) Producer gas d) Diesel

7. The correct sequence of processes in internal combustion engine is CO5 [K_1]

1. Compression 2. Expansion 3. Suction 4. Exhaust

a) 4-1-2-3 b) 4-3-2-1

c) 1-3-2-4 d) 3-1-2-4

8. MSL refers to CO6 [K_1]

a) Mean Sea Level b) Mean spring Level

c) Median Sea Level d) Mean Sea neap Level

9. Assertion (A):CANDU uses Deuterium as moderator CO3 [K_2]

Reason (R): CANDU reactor was developed in CANADA

a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A

c) A is true but R is false d) A is false but R is true

10. …….. occur as a result of gravitational attraction of the sun and the moon CO2 [K_1]

a) Tide b) Volcanic eruption

c) Earthquake d) Cyclone

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11.	There is no generation of steam bubbles in super critical boilers. Why?	CO1	[K_1]
12.	What is LDC?	CO1	[K_1]
13.	Where diesel power plants are used?	CO5	[K_1]
14.	What are the advantages of diesel power plants?	CO5	[K_2]
15.	List the types of ashes	CO2	[K_1]
16.	Write short notes on stokers	CO2	[K_2]
17.	What is the major difference between PWR and other reactors?.	CO3	[K_1]
18.	List the types of governing used in hydraulic turbines	CO4	[K_1]
19.	Why reheater is used in gas turbine power plants?	CO5	[K_1]
20.	Classify solar thermal power generation based on power cycle	CO6	[K_1]

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

21.	Explain Fluidized bed boilers with neat sketches.	CO1	[K_2]
22.	Explain the different types of draught with neat sketches	CO2	[K_2]
23.	Briefly discuss about LMFBF.	CO3	[K_2]
24.	Discuss the selection and governing of hydraulic turbines in detail	CO4	[K_2]
25.	State the advantages and disadvantages of diesel power plant and explain the working	CO5	[K_2]
26.	Differentiate between open and closed cycle gas turbine plants with neat sketches	CO5	[K_2]
27.	Discuss the different tariffs and economics involved in the various power plants	CO6	[K_2]

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