



B.E DEGREE EXAMINATIONS: MAY 2017

(Regulation 2014)

Sixth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U14EETE12 : Power Plant Engineering

COURSE OUTCOMES

CO1: List the different types of power plants.

CO2: Outline the layout and working of various power plants

CO3: Develop tariff structure and to allocate sharing of loads to different types of power plants economically.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Pelton turbine is suitable for high head and CO1 [K₂]
 - a) Low discharge b) High discharge
 - c) Both low and high discharge d) Medium discharge
2. Assertion (A): Pulverized fuel is used for better burning CO1 [K₂]
Reason(R): Pulverized burning more coal used.
 - a) Both A and R are true and R is a correct explanation of A b) Both A and R are true and R is not correct explanation of A
 - c) A is true , R is false d) A is false, R is true
3. Which of the following coals has highest calorific value? CO2 [K₂]
 - a) Peat b) Lignite
 - c) Bituminous d) Anthracite coal
4. In a steam power plant water is used for cooling purposes in CO3 [K₂]
 - a) Boiler b) economizer
 - c) condenser d) Super heaters
5. Reflectors of a nuclear reactor are made up of CO2 [K₂]
 - a) Cast iron b) boron
 - c) steel d) Beryllium

6. Match the following

CO2 [K₂]

A. Pumped storage plant	1. Global Warming
B. Ash	2. Short duration
C. Chimney	3. Outlet
D. Thermal Plant	4. Cement Industry

- a) A=2,B=4,C=3,D=1 b) A=4,B=1,C=3,D=2
 c) A=2,B=3,C=1,D=4 d) A=4,B=3,C=1,D=2

7. A closed cycle gas turbine works on

CO2 [K₁]

- a) Carnot cycle b) Rankine cycle
 c) Joule cycle d) Atkinson cycle

8. Assertion(A): Regeneration used to improve the thermal efficiency in OCGT plant.

CO3 [K₂]

Reason(R): Exhaust gases used effectively in regeneration process.

- a) Both A & R are individually true and R is correct explanation of A b) Both A & R are individually true and R is not correct explanation of A
 c) A is true , R is false d) A is false, R is true

9. A consumer has to pay lesser fixed charges in

CO3 [K₂]

- a) Maximum demand tariff b) Power tariff
 c) Flat rate tariff d) Two part tariff

10. Match the following

CO3 [K₂]

A. Load curve	i. Natural uranium
B. Wheeling price	ii. Forecast study
C. Gas turbine blade	iii. IPP
D. CANDU	iv. High nickel alloy

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

PART B (10 x 2 = 20 Marks)
(Answer not more than 40 words)

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|---|-----------------------|
| 11. Write the limitations of carnot cycle. | CO1 [K ₂] |
| 12. List the types of boilers. | CO1 [K ₁] |
| 13. State the merits and demerits of reheating system. | CO3 [K ₂] |
| 14. Compare forced draft with induced draft cooling towers. | CO1 [K ₂] |
| 15. What are the types of reactors used in nuclear plant? | CO2 [K ₂] |
| 16. Name any four nuclear power plants located in India. | CO2 [K ₂] |
| 17. Classify the various types of diesel plants. | CO1 [K ₂] |
| 18. Mention the merits of gas turbine power plant. | CO2 [K ₂] |
| 19. List the importance of economic of load sharing. | CO3 [K ₂] |
| 20. Write the factors involved in the wheeling prices. | CO3 [K ₂] |

Answer any FIVE Questions:-
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No. 21 is Compulsory

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|---|---------------------------|
| 21. i) Explain the various steam plant cycles with relevant sketch. | (7) CO1 [K ₂] |
| ii) Summarize the merits of hydro plants. | (7) |
| 22. i) Describe about ash handling and storage. | (7) CO1 [K ₂] |
| ii) Write short notes about mechanical stockers. | (7) |
| 23. Discuss the various types of nuclear reactors with neat sketch. | CO2 [K ₂] |
| 24. i) Write short notes about various types of tariff. | (7) CO3 [K ₂] |
| ii) Compare the power plants based on economics. | (7) |
| 25. Explain the various components and its working in diesel power plant. | CO1 [K ₂] |
| 26. Describe the combustion chambers in gas turbine plants and explain inter-cooling process. | CO2 [K ₂] |
| 27. i) Summarize the role of load curve and its importance in power system economics. | (7) CO3 [K ₃] |
| ii) Briefly explain CANDU reactor. | (7) CO2 |
