

SUBJECT CODE:- 495
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(EEP/EE/EEE) Examination Nov/Dec 2015
Electrical Power Generation & its Economics
(Revised)

[Time: Three Hours]

[Max. Marks: 80]

“Please check whether you have got the right question paper.”

N.B

- i) Q.No.1 and Q.No.6 are compulsory.
- ii) Attempt any two questions from the remaining questions in each section.
- iii) Assume suitable data, if necessary.

Section A

- Q.1 Solve any five questions. 10
- a) Define steam generator and write the types of boiler.
 - b) What is the importance of coal crushing?
 - c) What is the function of pelton wheel turbine?
 - d) What are the main components of diesel power plant?
 - e) Write the function of nuclear reactor
 - f) What is the function of surge tank in hydroelectric power plant?
 - g) What are the factors considered while selecting a site for nuclear power plant?
 - h) What is the function of
 - i) Moderator ii) control rods.
- Q.2 a) Describe the schematic arrangement of a thermal power plant. Briefly explain the functions of each 10
b) With a neat diagram explain water tube boiler. 05
- Q.3 a) Explain the site selection factors of hydro electric power plant 05
b) With a neat diagram explain the operation of Kaplan turbine 05
c) The mean monthly discharge for 12 months at a particular site of a river is given below. 05
- | Month | Jan | Feb | March | April | May | June | July | Aug | Sep | Oct | Nov | Dec |
|--------------------------------------|------|-----|-------|-------|-----|------|------|------|------|-----|-----|------|
| Discharge
(M ³ /month) | 1000 | 800 | 600 | 400 | 400 | 1200 | 2400 | 2400 | 1000 | 400 | 400 | 1000 |
- Draw hydrograph, find the average in flow and power developed at an effective head of 150 meter & a turbine generator set efficiency of 0.85.
- Q.4 a) What are the different fields where use of diesel power plant is essential? 05
b) Draw a neat diagram of a diesel power plant showing all the systems. Briefly explain the function of each system. 10
- Q.5 Write a short notes on (any three) 15
- a) Selection of coal for thermal power plant
 - b) Nuclear reactor.
 - c) Choice & characteristics of diesel power plant
 - d) Water hammer.

Section-B

- Q.6 Solve any five questions. 10
- a) What is the principle of MHD power generation?
 - b) What is the function of regeneration?
 - c) What is the need of starting motor in gas power plant?
 - d) Write the components of gas turbine power plant
 - e) Define increment fuel cost curve
 - f) What is meant by base load plant?
 - g) What are the types of wind mills?
 - h) Define
 - i) Load factor ii) Diversity factor.
- Q.7 a) With a neat diagram explain open cycle gas turbine power plant 07
b) What are methods for improving thermal efficiency of gas turbine plant. Explain all methods in short? 08
- Q.8 a) Briefly explain horizontal axis wind turbine generator. 06
b) Explain base load and peak load plants? 04
c) Write the advantages of tidal power plant. 05
- Q.9 a) State limitations of using solar power 05
b) Explain the comparison of all power plants. 10
- Q.10 Write a short notes on (any three) 15
- a) MHD plant
 - b) Solar energy
 - c) Incremental fuel rate curve
 - d) Fuels for gas turbine plants.