

**SUBJECT CODE NO:- P-109**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**S.E.(EEP/EE/EEE) Examination May/June 2017**  
**Electrical Power Generation & its Economics**  
**(Revised)**

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- 1)Q.No.1 and 6 are compulsory
  - 2) Attempt any two question from remaining four question from each section
  - 3) Assume suitable data if necessary
  - 4) figure to the right indicates full marks

Section A

- Q.1 Solve any five question 10
- a) what is water hammer
  - b) what is function of penstock and surge tank
  - c) What is hydrograph
  - d) How does air pre heating save fuel
  - e) what is the function of condenser in steam power plant
  - f) why thermal power stations are situated by the side of river or lake
  - g) what is meant by chain reaction & nuclear fission
  - h) what are advantages of diesel power plant
- Q.2 a) state essential element of hydroelectric power plant in a sketch & explain function of important parts 5
- b) what do you mean by 5
- i) hydrology
  - ii) spill way
  - iii) storage
  - iv) pondage
  - v) trash rack
- c) Write short note on nuclear waste disposal 5
- Q.3 a) What is function of 5
- i) superheater
  - ii) deaerator
  - iii) Economizer
  - iv) chimney

- v) steam nozzle in thermal power plant
- b) explain ash handling stages in thermal power plant 5
- c) Explain ash handling system any one in details in thermal power plant 5
- Q.4 a) Explain with diagram various components of nuclear reactor 5
- b) write main components of diesel power plant with functions 5
- c) draw & explain Pelton wheel 5
- Q.5 a) Draw the hydrograph & find average monthly flow 5
- | Month | Discharge m <sup>3</sup> /s | Month | Discharge m <sup>3</sup> /s |
|-------|-----------------------------|-------|-----------------------------|
| Jan   | 1000                        | July  | 2500                        |
| Feb   | 800                         | Aug   | 3000                        |
| Mar   | 600                         | Sept  | 2400                        |
| Apr   | 500                         | Oct   | 2000                        |
| May   | 200                         | Nov   | 1500                        |
| June  | 1500                        | Dec   | 1500                        |
- b) Which factors are considered for nuclear power plant site selection 5
- c) Explain with diagram any one element of thermal power plant 5
- Section B
- Q.6 Solve any five 10
- a) Explain gas plant fuel
- b) Applications where solar energy used
- c) forms of geothermal energy
- d) Draw sketch of wind power mill
- e) Draw VI characteristics of photo voltaic cell
- f) List method of finding depreciation cost
- g) Differentiate between fixed cost & operating cost
- h) Draw input output curve of thermal power plant
- Q.7 a) Which methods are adopted for increasing efficiency of gas power plant 5
- b) which are components of gas power plant explain with their function operation 5
- c) why gas plant used as peak load power plants 5
- Q.8 a) explain MHD power generation 5
- b) write Advantages & disadvantages of tidal power plant 5
- c) Explain solar power 5
- Q.9 a) Describe in brief cost of electrical energy 5
- b) comparison of All power plant 5

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- Q10
- c) write down benefits of inter connected system 5
  - a) Explain base load & peak load power plant 5
  - b) which are constrains of economic power generation 5
  - c) The input output characteristics of a 70 MW thermal power station is  $I = 5 \times 10^6 (10 + 8L + 0.4L^2)$  5  
 where I is in KJ / m & 'L' is in mw. find load at which plant runs at maximum efficiency