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C09–EE–403

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BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2018
DEEE—FOURTH SEMESTER EXAMINATION

POWER SYSTEMS - I

Time : 3 hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State any three advantages of wind power plant.

2. State any six advantages of pulverisation of coal in thermal power plant.

3. Classify hydroelectric power plants based on location.

4. Define nuclear fision and nuclear fussion.

5. State any three merits of intergrated operation of power plant.

6. A power station has a maximum demand of 150 MW with annual load factor of 50%. Calculate average load.

7. Classify circuit breakers based on their arc quenching medium.

8. Classify realys based on their principle of operation.

9. State any three precautions for applying differential protection to transformers.

10. State various protection schemes used in alternator.

PART–B 10×5=50

Instructions : (1) Answer *any* **five** questions.
(2) Each questions carries **ten** marks.
(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. Draw a neat sketch of condensed type of thermal power plant and explain its working in detail.

12. (a) State the factors affecting the selection of site for hydroelectric power station.

(b) Explain the need of (i) Surge tank, (ii) Fore bay in hydel power plants.

13. Explain the working of moderated type of nuclear power station with neat block diagram.

14. (a) Explain the effect of load factor and diversity factor on the cost of generation of electric energy.

(b) Describe the overall maintenance of necular power plant.

15. A thermal station has a maximun demand of 100MW. Calculate the cost per unit generated from the following data :

Annual load factor	= 40%
Capital cost	= Rs. 1500 per kW installed
Interest and depreciation	= 15 %
Annual cost of fuel oil	= 10×10^6
Annual cost of Salaries, wages & taxes	= 11×10^6

What would be the cost of unit generated, if the load factor is increased to 60 %, other cost remaining same?

16. Explain the construction and working of minimum oil curcit breaker with neat diagram.

17. (a) State and explain the basic requirements of relays.

(b) Explain the operation of impedance relays.

18. *(a)* Explain the differential protection for atternator station.

(b) Explain the working of Buchholz relay with diagram.

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