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**B.E. (FULL TIME) DEGREE SEMESTER EXAMINATIONS – NOV/DEC 2012****ELECTRICAL AND ELECTRONICS ENGINEERING BRANCH****II SEMESTER****ME 9153 : POWER PLANT ENGINEERING****(REGULATIONS 2008)****Time : 3 Hours****Max.Marks : 100****Instructions : Follow standard practices of presentation.****Answer ALL Questions.****PART A (10 X 2 = 20 Marks)**

1. Indicate the type of nuclear power plant coming up at Koodankulam in Tamil Nadu.
2. Indicate a couple of important points for the current electricity crisis in the state as well as the country.
3. Indicate the type of boiler employed in thermal power plants.
4. Indicate the feature of pumped storage hydel power plants.
5. Give a simple layout of a gas-turbine power plant.
6. Despite the abundance of solar energy in our country, there are only a few power plants based on it. Give the reason.
7. Can a diesel power plant lend itself for cogeneration use?
8. List the fuel cells of choice for electric utility applications.
9. Indicate the object of cooling tower usage in thermal power plants.
10. What is cross- subsidy in electricity tariffs as is followed in Tamil Nadu?

**PART B (5 X 16 = 80 Marks)**

11. (i) How a diesel engine power plant is generally specified? (6)  
(ii) Discuss the working of a typical piston engine power plant with an illustration. (10)
12. (a)(i) Indicate the object of the fluidising the combustion chamber bed of a boiler. Give a brief illustration. (6)  
(ii) Give the layout of a modern steam power plant of rating 210 MWe and briefly discuss. (10)

**(Or)**

- (b) (i) Indicate the status of nuclear power plants post Fukushima – Daichi catastrophe. (6)  
(ii) Discuss the working of a nuclear fission reactor power plant typical of those operating in India right now. (10)

**P.T.O.**

13. (a)(i) Indicate the types of water dams being employed in power plant practice. (6)  
(ii) Name the types of water turbines being employed in power generation systems. Briefly discuss. (10)

(Or)

- (b)(i) Indicate the merits and demerits of hydroelectric power plants. (6)  
(ii) Discuss the features of Francis water turbine. (10)

14. (a) (i) Indicate the specialities of an IGCC power plant. (6)  
(ii) Outline the features of a gas - turbine power plant with an illustration or two. (10)

(Or)

- (b)(i) How does a gas- turbine CHP plant differ from an IGCC power plant? (6)  
(ii) Discuss the working of typical cogen plant with an illustration. (10)

15. (a)(i) How solar energy can be harnessed for power generation? (6)  
(ii) Explain the working of a typical OTEC power plant with a schematic. (10)

(Or)

- (b)(i) Indicate the status of wind power generation in India and the challenges being faced. (6)  
(ii) Discuss the features of a typical fuel – cell power plant system. (10)