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BME-058

DIPLOMA IN MECHANICAL ENGINEERING (DME)

Term-End Examination

December, 2012

BME-058 : POWER PLANT ENGINEERING

Time : 3 hours *Maximum Marks : 70*

Note : *Answer **any seven** questions.*

1. Sketch and explain the following auxiliary systems in gas turbine plants. **10**
   (a) Air intake system
   (b) Fuel system
   (c) Starting system

2. What is the function of governor? Outline speed sensing and speed droop governors in detail. **10**

3. Discuss the following methods of superheat temperature control : **10**
   (a) Gas by-pass Control
   (b) Adjustable Burner Control
   (c) Excess Air Control

4. (a) What are the losses to be considered in the determination of boiler efficiency by indirect method ? Discuss. 8

(b) List the features of an efficient furnace. 2

5. (a) Why are condensers in thermal plants maintained under vacuum pressure ? What are the problems associated with maintaining such low pressure in condensers ? 6

(b) List the advantages and limitations of high pressure boilers. 4

6. (a) What are the problems associated with solar power generation ? 2

(b) State fixed and operating costs. Also explain their significance. 8

7. (a) What are the different types of nuclear reactions that take place ? Explain. Discuss briefly the significance of each in nuclear power generation. 6

(b) What are controlled and spontaneous nuclear fission processes ? 4

8. (a) Why is starting of diesel plant more difficult ? 3

(b) What is the objective of performance testing in diesel engine plants ? Outline the testing procedure. 7

9. Sketch and explain the operation of a hydro plant. Discuss in detail its advantages. **10**

10. (a) Outline the method of performance analysis in steam turbines. **7**

(b) What are the requirements of a good condensing system ? **3**