No. of Printed Pages : 3

BIMEE-029

DIPLOMA – VIEP – MECHANICAL ENGINEERING (DMEVI)

Term-End Examination

00791 **December, 2017**

BIMEE-029 : POWER PLANT ENGINEERING

Time : 2 hours *Maximum Marks : 70*

Note : *Answer any **five** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. (a) Discuss the different criteria for selection of a site and also discuss the points of consideration of a layout of a thermal power plant. 7

(b) What do you understand by Proximate and Ultimate analysis of coal ? What are the uses of these analyses when coal is to be used as fuel in a thermal power plant ? 7

2. (a) What are the essential requirements of a steam power unit design ? 7

(b) What are the different methods used for reheating of steam ? Discuss their merits and demerits. 7

3. (a) What are the various types of coals ? Discuss the important properties of a good coal. 7

(b) What is an Evaporator ? How are evaporators classified ? 7

4. (a) During a trial of a two-stroke diesel engine, the following observations were recorded :

Engine speed = 1500 r.p.m.

Load on brakes = 120 kg

Length of brake arm = 875 mm

Determine : 7

(i) Brake power

(ii) Brake torque

(b) Explain the effect of air leakage in a condenser. What are the reasons for inefficiency in a surface condenser ? 7

5. (a) What are the requirements of a steam piping system ? Explain. 7

(b) Explain the working of a nuclear reactor with a neat sketch. 7

6. (a) Why is shielding of a nuclear reactor necessary ? What do you understand by thermal shielding ? 7

(b) List out the safety measures to be considered for nuclear power plants. 7

7. (a) List the essential components of a diesel power plant and explain them briefly. 7

(b) How are turbines classified ? Explain clearly, the difference between impulse and reaction turbines. 7

8. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) Stage Efficiency

(b) Supersonic Nozzle

(c) Velocity Coefficient

(d) Boiler Draught

(e) Superheater

(f) Indian Hydro Power Plants