C09-M-**405**

3505

BOARD DIPLOMA EXAMINATION, (C-09)
OCTOBER/NOVEMBER-2018
DME- FOURTH SEMESTER EXAMINATION

THERMAL ENGINEERING-II

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

_____

PART-A

3X10=30

Instructions   :   1. Answer **All** questions.

2. Each question carries **three** marks.

3. Answer should be brief and straight to the point and shall not exceed five simple sentences.

1. Define "Indicated Thermal Efficiency" and " Brake Thermal Efficiency" of an IC engine.

2. What is supercharging of an IC engine.

3. List out the various types of rotary compressors used for compressing air.

4. Draw the p-V and T-ϕ diagram for open cycle gas turbine.

5. Write the functions of front axle of an automobile.

6. List any six mountings of a steam boiler.

7. How do you classify Boiler Draught?

8. The dry saturated steam at a pressure of 5bar is expanded isentropically in a nozzle to a pressure of 0.2 bar. Find the velocity of steam turbine.

9. Write the working principle of a steam turbine.

10. Write the factors on which the blade height of turbine depends.

PART-B

10X5=50

Instructions : 1. Answer any **Five** questions.
2. Each question carries **ten** marks.
3. Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer

11. Explain the working principle of 2-stroke Diesel engine with a neat sketch.

12. Explain the working principle of multistage air compressor with the help of neat sketch.

13. (a) Explain the working of Rocket propulsion unit with a neat sketch.

    (b) Explain the working of Ramjet engine with a neat sketch.

14. Explain the construction and working of differential with a neat sketch.

15. Explain the working principle of a La-Mont boiler with a neat sketch.

16. A nozzle is to be supplied with steam at 10 bar and 200^0C and is to discharge 180kg per hour into a turbine wheel chamber where the pressure is 1 bar. The efficiency of the nozzle may be taken as 85$. Calculate the throat and exit diameters of the nozzle for maximum discharge.

17. A De-Laval steam turbine is supplied with 1kg of steam per sec. from a set of nozzles whose pressure range is to 0.2bar. The nozzle angle is 22^0 and blade exit angle is 30^0. The mean blade speed is 250 m/sec. if the nozzle efficiency is 80%, find the

    i)   Power developed

    ii) Blade efficiency and

    iii) Inlet angle of blade.

18. (a) Explain the water cooling (Thermosyphon) system in an IC engine.

    (b) Explain Nozzle control governing of steam turbines.

****