855

Register No.:

April 2018

Time – Three hours
(Maximum Marks: 75)

[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory. Answer any FOUR questions from the remaining in each PART – A and PART – B

(2) Answer division (a) or division (b) of each question in PART – C.

(3) Each question carries 2 marks in PART – A, 3 marks in Part – B and 10 marks in PART – C.

(4) Use of Steam table is permitted.]

PART – A

1. State the advantages of fluidised bed combustion.
2. What are the functions of piston rings?
3. Define carburetion.
4. Make a list of the common clutch troubles.
5. What is the use of collapsible steering system?
6. Mention the causes for spongy brake.
7. Enumerate the different tests for ascertaining the condition of a battery.
8. What are the drawbacks of petrol injection system?

PART – B

9. Draw the P-V diagram and T-S diagram of a modified Rankine cycle and indicate the various processes involved in this cycle.
10. Compare wet liners with dry liners.
11. Explain the service rating of lubricating oils.
12. Give a detailed classifications of carburettors.
13. State the merits of front independent suspension system.
14. Explain the self energizing action of brake shoes.
15. Explain the PCV system with a neat sketch.
16. In a test on a diesel engine, the SFC was obtained as 260gm/kWhr. The calorific value of the fuel is 42000kJ/kg. Determine the brake thermal efficiency.

[Turn over.....

PART – C

17. (a) A surface condenser is designed to handle 17500kg of steam per hour. The steam enters at 0.2 bar pressure and 87% dry and is condensed to water at 60°C. The circulating water enters at 40°C and leaves at 50°C. The condenser is made of 22mm inside diameter tubes. If the velocity of water in the tubes should not exceed 1.78m/sec, determine the number of tubes that must be used to build the condenser.

(Or)

(b) With a neat flow diagram, explain the working of a vapour absorption refrigeration system.

18. (a) Explain the working of a four stroke cycle diesel engine with neat sketches.

(Or)

(b) A six cylinder, four-stroke engine had a bore to stroke ratio of 360:500 mm. During the trial, the following results were obtained:

Mean area of indicator diagram- 0.00075m²; Length of indicator diagram- 0.075m; Spring number- 700 bar/m of compression; Brake torque - 14kNm; Speed - 500 rpm; Fuel consumption - 240kg/hr.
Determine: (i)total indicated power developed (ii)brake power (iii)mechanical efficiency and (iv)specific fuel consumption.

19. (a) Briefly explain the construction and working of pump assisted water cooling system with a neat sketch.

(Or)

(b) Explain the working of cold starting and acceleration circuits of Solex carburettor with neat sketches.

20. (a) Explain the construction and operation of a constant mesh gear box with neat sketches.

(Or)

(b) What is power steering? Name the various types of power steering used. Draw the layout of any one type of power steering and briefly explain its working.

21. (a) Explain the construction and operation of air assisted hydraulic brake system with a neat sketch.

(Or)

(b) Briefly explain the battery coil ignition system for a four cylinder petrol engine with a line diagram.
