

October 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 tables are allowed]

PART – A

1. State the function of electrostatic precipitator
2. Define vacuum efficiency of a condenser.
3. State two functions of piston rings.
4. What is the function of cam shaft?
5. What are the types of oil pumps?
6. State any two purposes of gear box.
7. Mention the types of starting motor drives.
8. What is the function of a fuel filter?

PART – B

9. State the differences between impulse turbines and reaction turbines.
10. State the functions of a flywheel.
11. Compare wet liners with dry liners.
12. List the types of lubrication system.
13. What are the elements of fuel feed system in a petrol engine?
14. State three troubles in clutches and their remedies.
15. List the major parts of a battery coil ignition system.
16. State the sources of air present in a condenser.

[Turn over....]

PART - C

17. (a) A surface condenser is required to condense 25,000kg of steam per hour at a pressure of 0.12bar and 0.88 dry. Cooling water enters at 30°C and leaves at 40°C. If the velocity of water in the tubes should not exceed 2 m/s, determine the number of 25mm inner diameter tubes that must be used to build the condenser. Condensate temperature is 49°C.
(Or)
- (b) Explain the working of a vapour compression refrigeration system with a neat sketch.
18. (a) (i) Compare four stroke engines with two stroke engines.
(ii) Explain the working of overhead valve mechanism.
(Or)
- (b) A six cylinder four stroke engine has a bore to stroke ratio of 360:500mm. During the trial, the following results were obtained. Mean area of indicator diagram=0.00075m²; Length of indicator diagram=0.075m; Spring number=70,000kN/m² per m of compression; Brake torque=14kNm; speed=500rpm; Fuel consumption=240kg/hr. Calculate: (1)Total Indicated power developed (2)Brake power (3)Mechanical efficiency (4)Specific fuel consumption.
19. (a) (i) Explain the working of A.C mechanical fuel pump.
(ii) Write a short note on DTSI system.
(Or)
- (b) (i) Explain the working of a full pressure lubrication system.
(ii) Explain the thermosyphon cooling system.
20. (a) Explain the working of a multi-plate clutch with a neat sketch.
(Or)
- (b) (i) Explain the construction and working of semi-floating rear axle.
(ii) Explain the working of re-circulating ball type steering gear box.
21. (a) Explain the working of air brake system with a neat sketch.
(Or)
- (b) (i) Explain the EGR system of reducing emission.
(ii) Explain the construction of an ignition coil.