

**April 2019**

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.]

**PART – A**

1. What do you understand from the term engine torque? How is it measured?
2. What is meant by scavenging?
3. List the various methods of expansion control in piston.
4. What is the function of a vibration damper?
5. List prominent types of the combustion chamber used for petrol engines.
6. Name the two standard reference fuels used for determining Cetane number.
7. What is crankcase ventilation? What are the methods of crankcase ventilation?
8. What are the leading characteristics of a Solex carburettor?

**PART – B**

9. What is firing order? What are the correct firing orders for 4 cylinder and 8 cylinder in-line engines?
10. Draw a typical valve timing diagram of a four stroke cycle diesel engine and indicate various process.
11. How cylinder liners are classified? Briefly explain the difference between them.
12. Name the different types of valves used and explain any one type.
13. What is petrol injection? State the merits of petrol injection system.

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14. What is diesel knock? What are the methods of controlling diesel knock?
15. Compare thermo siphon cooling system with pump circulation cooling system.
16. Compare pintle nozzle with pintaux nozzles.

PART – C

17. (a) Explain the construction and working of two stroke petrol engine with neat sketches.  
(Or)  
(b) Explain the construction and working principles of Wankel rotary engine with neat sketches.
18. (a) (i) Explain clearly the function and construction of a crank shaft.  
(ii) Discuss also the materials and methods of manufacture for these.  
(Or)  
(b) (i) State the various valve operating mechanism.  
(ii) With the help of a neat sketch, explain any one in detail.
19. (a) Explain with a simple sketch the construction and operation of AC mechanical fuel pump.  
(Or)  
(b) Explain with a neat sketch the construction and operation of Zenith carburettor.
20. (a) With a neat diagram, explain in detail the stages of construction in a diesel engine.  
(Or)  
(b) With necessary line diagram, explain the construction and operation of distributor type diesel fuel injection pump.
21. (a) (i) State the merits and demerits of air cooling system.  
(ii) Explain with neat sketch, the construction and working of wax pellet type thermostat.  
(Or)  
(b) (i) Explain with simple sketch, the splash lubrication system.  
(ii) Draw the circuit for full flow and by-pass filtering lubrication system and briefly explain.

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