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**4th Sem / Branch : Mech., CNC, Mech., Adv. Manuf. Tech.,  
Mech. Engg. (CAD/CAM Dsgn & Robotics)**

**Subject:- Thermodynamics-II / I.C. Engines**

Time : 3Hrs.

M.M. : 100

### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 The ratio of camshaft speed and engine speed of a four stroke engine is  
a) Half                                      b) One  
c) Two                                        d) Four
- Q.2 A compression ignition engine works on  
a) Otto cycle                                b) Diesel cycle  
c) Carnot cycle                            d) Rankine cycle
- Q.3 Rich air-fuel mixture is required for  
a) Staring                                    b) Idling  
c) Acceleration                           d) All of these
- Q.4 800cc car has following parameter as 800cc  
a) Fuel tank capacity                    b) Swept volume  
c) Power of engine                        d) Clearance volume
- Q.5 Contact breaker points are usually made of  
a) Tungsten                                b) Nickel  
c) Chromium                                d) None of these

Q.6 The number of turns in the primary winding of ignition coil is

- a) 100-200                                      b) 200-300  
c) 300-400                                      d) 400-500

Q.7 An injector is used in a

- a) Steam turbine                            b) Air compressor  
c) Petrol engine                              d) Diesel engine

Q.8 Which is the anti-freeze commonly used in I.C. engine?

- a) Brine    b) Ammonium chloride  
c) Alcohol                                        d) Carbon Disulphide

Q.9 Approximate percentage of heat of combustion loss is

- a) 25%    b) 20%  
c) 15%    d) 10%

Q.10 Critical pressure ratio for superheated steam is

- a) 0.615    b) 0.525  
c) 0.578    d) 0.546

### SECTION-B

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Define the compression ratio.

Q.12 A single cylinder diesel has one spark plug. (true/false)

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- Q.13 Define the stroke.
- Q.14 Define rope dynamometer.
- Q.15 Define the condenser efficiency.
- Q.16 Bleeding process involves additional cost of the plant. (true/false)
- Q.17 The main function of the condenser is to \_\_\_\_\_ back pressure on the prime mover.
- Q.18 Friction remains constant in the nozzle. (true/false)
- Q.19 Rocket can operate in vacuum. (true/false)
- Q.20 Constant volume gas turbine is also known as \_\_\_\_\_.

### SECTION-C

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 What do you understand by heat engine? How heat engines are classified?
- Q.22 Give location, function and material of the following part of an engine:
- a) piston                                      b) camshaft
  - c) main bearings
- Q.23 Write the various limitations of a simple carburetor.
- Q.24 Define the ignition coil and its uses.
- Q.25 What are requirements of fuel injection system?
- Q.26 Write a short note on air cooling system in IC engine.
- Q.27 Explain the construction and working of a fuel feed pump.

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- Q.28 Explain the working of splash lubrication system.
- Q.29 A single cylinder C.I. engine working on two stroke cycle runs at 500rpm. the diameter of bore and stroke length is 10cm each. The mean effective pressure is 6.5 bar. Calculate the I.P. of the engine.
- Q.30 Write the various properties of CNG.
- Q.31 Explain steam nozzle and its types.
- Q.32 Explain the nozzle control governing of steam turbine.
- Q.33 Write the various applications and limitations of a gas turbine.
- Q.34 Write a short note on RAM jet engine.
- Q.35 Give the comparison of open cycle and closed gas turbine.

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Compare the petrol engine and diesel engine.
- Q.37 Explain construction and working of MICO fuel injection system with diagram.
- Q.38 What is compounding? Explain various methods of compounding of steam turbine.

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