**Internal Combustion Engines**

**Department of Mechanical Engineering**

1. The major loss in an S.I. engine is due to \_\_\_\_\_\_\_\_\_\_\_\_  
   a) variation in specific heat and chemical equilibrium  
   b) pumping  
   c) exhaust blow down  
   d) incomplete combustion

Ans. (a)

1. Which of the following statement is not correct with respect to alcohols as alternate fuel in IC engines?  
   a) alcohol contains about half the heat energy of gasoline/litre  
   b) alcohol does not vaporize as easily as gasoline  
   c) alcohols are corrosive in nature  
   d) anti-knock characteristics of alcohol is poor

Ans. (d)

1. The number of holes in a multi-hole nozzle, varies from \_\_\_\_\_\_\_\_\_\_\_  
   a) 4 to 8  
   b) 4 to 18  
   c) 4 to 12  
   d) none of the mentioned

Ans. (b)

1. The ignition timing is affected by \_\_\_\_\_\_\_\_\_\_\_\_\_  
   a) engine speed  
   b) mixture strength  
   c) compression ratio  
   d) all of the mentioned

Ans. (d)

1. Blow by losses are reduced as the engine speed is \_\_\_\_\_\_\_\_\_\_\_\_  
   a) reduced  
   b) unpredictable  
   c) increased  
   d) none of the mentioned

Ans. (c)

1. Which one of the following event would reduce the volumetric efficiency of a vertical compression ignition engine?  
   a) exhaust valve closing after top dead center  
   b) inlet valve closing after bottom dead center  
   c) inlet valve closing before bottom dead center  
   d) inlet valve opening before top dead center

Ans. (c)

1. Which of the following does not relate to spark ignition engine?  
   a) Spark plug  
   b) Carburetor  
   c) Fuel injector  
   d) Ignition coil

Ans. (c)

1. An SI engine sometimes continues to run for a very small period even after the ignition is switched off. This phenomenon is called?  
   a) throttling  
   b) idling  
   c) dieseling  
   d) none of the mentioned

Ans. (c)

1. The ash content in diesel oil should not be more than \_\_\_\_\_\_\_\_\_\_\_  
   a) 1%  
   b) 5%  
   c) 0.1%  
   d) 0.01%

Ans. (d)

1. The air standard efficiency of an I.C. engine depends on \_\_\_\_\_\_\_\_\_\_\_\_\_  
   a) fuel used  
   b) speed of engine  
   c) compression ratio  
   d) none of the mentioned

Ans. (c)

1. The thermal efficiency of diesel engines is about \_\_\_\_\_\_\_\_\_\_\_  
   a) 15%  
   b) 30%  
   c) 50%  
   d) 70%

Ans. (d)

1. The air standard efficiency of an otto cycle compared to a diesel cycle for the given compression ratio is?  
   a) same  
   b) less  
   c) more  
   d) more or less depending on other factors  
    Ans. (d)
2. What is the average pressure developed in the combustion chamber during the operating cycle?  
   a) Indicated mean effective pressure  
   b) Mean effective pressure  
   c) Combustion Pressure  
   d) Operating pressure

Ans. (a)

1. Find the indicated power of the tractor engine having brake power 60kw and friction power of 5kw.  
   a) 55  
   b) 50  
   c) 60  
   d) 65

Ans. (d)

1. What is used as a sealant between the engine head and the cylinder block?  
   a) Engine seal  
   b) Engine cover  
   c) Mid seal  
   d) Head gasket

Ans. (d)

1. Which gear is intentionally connected between the crankshaft and camshaft?  
   a) Timing  
   b) Main gear  
   c) Primary gear  
   d) Secondary gear

Ans. (a)

1. The engine cylinder of a reciprocating steam engine is made of \_\_\_\_\_  
   a) Cast-iron  
   b) Chromium  
   c) Aluminum  
   d) Speed steel

Ans. (a)

1. Which of the following statement about stuffing box (in a reciprocating steam engine) is TRUE?  
   a) Stuffing box is the casing which engine assembly is placed  
   b) Stuffing box guides the crank shaft  
   c) Stuffing box provides a steam-tight hole for the piston rod to pass through, to prevent steam leakage  
   d) Stuffing box serves no purpose during engine operation  
   Ans. (c)
2. What is the function of a connecting rod in a reciprocating steam engine?  
   a) It converts the circular motion of the crankshaft into the reciprocating motion of the piston rod  
   b) It converts the reciprocating motion of the crankshaft into reciprocating motion of the piston rod  
   c) It converts the reciprocating motion of the piston rod and cross-head into circular motion of the crankshaft  
   d) It converts the circular motion of the piston rod and cross-head into circular motion of the crankshaft.

Ans. (c)

1. Which of the following is the correct formula for calculating swept volume (of a reciprocating steam engine)? (L – Piston Stroke, D – Diameter of the piston)  
   a) π4 L2 D  
   b) π4 D2 L  
   c) π4 L3  
   d) π4 D3

Ans. (b)

1. The steam pressure that acts on the exhaust side of the piston is known as \_\_\_\_\_  
   a) Cylinder Pressure  
   b) Base Pressure  
   c) Piston Pressure  
   d) Back Pressure

Ans. (d)

1. The common fuels for I.C. engines are \_\_\_\_\_\_\_\_\_\_\_\_\_  
   a) Petrol and diesel  
   b) Petrol, power kerosene, light speed diesel and high-speed diesel  
   c) Kerosene and diesel  
   d) Petrol and kerosene

Ans. (b)

1. Quality of the fuel is judged by its \_\_\_\_\_\_\_\_\_\_\_\_  
   a) Calorific value  
   b) Power conversion  
   c) Loss to cool the engine  
   d) Consumption

Ans. (a)

1. Vapor lock is associated to the \_\_\_\_\_\_\_\_\_\_\_\_  
   a) Cooling system of engine  
   b) Ignition system of engine  
   c) Fuel supply system of engine  
   d) Governor system of engine

Ans. (a)

1. Octane number is associated to \_\_\_\_\_\_\_\_\_\_\_\_  
   a) Fuel consumption  
   b) Ignition quality of fuel  
   c) Fuel supply system  
   d) Fuel delivery

Ans. (b)

1. A four-stroke diesel engine operating at 800 rpm uses 0.10 kg of fuel in 4 minutes while developing a torque of 70 Nm. Calculate brake specific fuel consumption  
   a) 0.262 kg/kwh  
   b) 0.256 kg/kwh  
   c) 0.242 kg/kwh  
   d) 0.236 kg/kwh

Ans. (b)

1. An IC engine consumes high speed diesel oil at the rate of 0.5 kg/h. Calculate the power of the engine.  
   a) 10 KW  
   b) 15.45 KW  
   c) 6.15 KW  
   d) 22.15 KW

Ans. (c)

1. Find the brake thermal efficiency of an engine having relative efficiency as 65% and the diesel cycle efficiency as 60%.  
   a) 39%  
   b) 36%  
   c) 35%  
   d) 34%

Ans. (a)

1. Find the indicated thermal efficiency of a petrol engine having Mass flow rate of fuel 9 kg / hr and indicated power of 45 Hp.  
   a) 29%  
   b) 33%  
   c) 35%  
   d) 28%

Ans. (a)

1. Find the brake thermal efficiency of a diesel engine having a Mass flow rate of fuel 10 kg / hr and brake power 50 Hp.  
   a) 29%  
   b) 25%  
   c) 26%  
   d) 27%

Ans. (a)