

Question Paper

Exam Date & Time: 03-Mar-2021 (02:00 PM - 05:00 PM)



MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

THIRD SEMESTER B.TECH END SEMESTER EXAMINATIONS, MAR 2021

AUTOMOTIVE ENGINES [AAE 2172]

Marks: 50

Duration: 180 mins.

A

Answer all the questions.

Section Duration: 180 mins

Instructions to Candidates: Answer ALL questions Missing data may be suitably assumed

- 1) List the categories by which the IC engines are classified and state the specific application of small 2 stroke petrol engine, small 4 stroke petrol engines, 2 stroke diesel engines and 4 stroke diesel engines. (4)
 - A)
 - B)
 - C)
- 2) The following observations were obtained during a trial on a four-stroke diesel engine, Cylinder diameter = 25 cm, stroke of the piston = 40 cm, crankshaft speed = 250 rpm, Brake load = 70 kg, Brake drum diameter = 2 m, mean effective pressure = 6 bar, diesel oil consumption = 0.1 m³/min, specific gravity of diesel = 0.78, Calorific value of diesel = 43900 kJ/kg, Find, Brake Power, Indicated Power, Frictional Power, Mechanical efficiency, Brake thermal efficiency, Indicated thermal efficiency. (4)
 - A)
 - B)
 - C)
- 3) Draw a neat sketch of a wet cylinder liner labelling all the parts. What are the functions and types of cylinder liner? What are the materials used for it? Also state the advantages and disadvantages of cylinder liners. (4)
 - A)
 - B)
 - C)
- 4) What is a carburettor? What are its functions? With a neat sketch explain the working of acceleration pump in the carburettor. (4)
 - A)
 - B)
 - C)

- 5) Explain how the in-cylinder pressure is measured using Dobbie McInnes mechanical indicator. (4)
- A)
- B) Explain air cooling method used in IC engines, what are its disadvantages? (3)
- C) With a neat sketch, explain the working of a gear pump used for lubrication in an IC engine. (3)

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