Exam Date & Time: 10-May-2024 (02:30 PM - 05:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER B.TECH END SEMESTER EXAMINATIONS, APR 2024

OPEN ELECTIVE-INTERNAL COMBUSTION ENGINES [MME4303]

Marks: 50 **Duration: 180 mins.**

A

Answer all the questions. Section Duration: 180 mins

Instructions to Candidates: Answer ALL questions

1) What is air standard Diesel cycle? Explain the cycle by listing down all the 4 processes in it with a neat sketch. (5)

A)

B) Describe dissociation loss and give the reason why it is found higher in SI engines than in CI engines. (3)

C) Define compression ratio and briefly explain how they affect the performance of the engine. (2)

2) Explain the different stages of combustion in compressed ignition engines with appropriate sketches. (4)

A)

B) Discuss the effect of delay period on combustion and engine performance and briefly explain the factors influencing it. (4)

C) What is ignition limit and briefly explain its importance in IC engine performance. (2)

3) Explain Multi port fuel injection system (MPFI) used in spark ignition engines with appropriate sketches. (4)

A)

B) What is stratified injection in internal combustion engine? Explain with necessary sketch. (3)

C) Explain direct and indirect combustion chamber designs used in compressed ignition engines. (3)

4) Discuss the different types of super charging used in IC engines with necessary sketches. (4)

A)

B) Compare the techniques of supercharging and turbocharging used in IC engines. (3)

C) What is exhaust oxygen sensor? Describe its function and working principle with a neat sketch. (3)

5) Explain common rail direct injection system used in Diesel engine with appropriate sketch. (5)

A)

B) Describe one type of temperature sensor used in IC engine using and explain its working principle. (3)

C) What is the need of supercharging in IC engines. Explain briefly to convey your understanding. (2)

-----End-----