

Question Paper

Exam Date & Time: 30-May-2022 (09:30 AM - 12:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES
IV SEMESTER B.Sc. (Applied Sciences) in Engg.
END SEMESTER THEORY EXAMINATION - MAY/ JUNE 2022

INTERNAL COMBUSTION ENGINES [IME 243]

Marks: 50

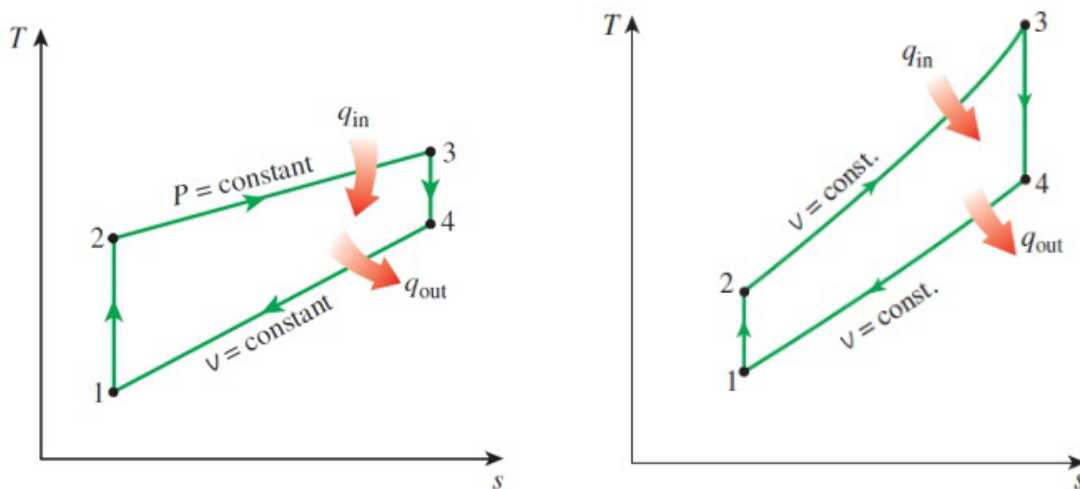
Duration: 180 mins.

Answer all the questions.

Missing data may be suitably assumed

- 1) Name and explain the thermodynamic cycles shown in Figure and write the expression for thermal efficiencies of the cycle. (5)

A)



- B) Explain the effect of compression ratio on the thermal efficiency of otto cycle. What is the ideal range of values of compression ratio? Explain the consequences when compression ratio is very high. (5)

- 2) Explain the different factors affecting the first-stage combustion in a CI engine. (5)

A)

B)

Elaborate on the primary considerations for the design of combustion chamber in a CI engine. (5)

- 3) Explain the different abnormal combustion in an SI engine. (5)

A)

B)

Explain the different types of delay period in CI engines. What factors affect them? (5)

- 4) Discuss the advantages and disadvantages of using excess air in a combustion process. (5)