

Roll No. ....

**22603**

**M. Tech. 1st Semester (ME)  
CBCS Scheme  
Examination – February, 2022  
IC ENGINE COMBUSTION & POLLUTION  
Paper : MTME 21C3**

Time : Three Hours ] [ Maximum Marks : 100

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after examination.*

**Note :** Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. Explain the following : 4 × 5 = 20
- (a) Gasoline grades
  - (b) Flame stabilization
  - (c) Detonation velocity
  - (d) Determination of air fuel ratio in IC engines

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**UNIT - I**

2. Differentiate between actual cycles and air-standard cycles. Why the actual cycle efficiency is much lower than the air-standard cycle efficiency? 20

3. What are different kinds of fuel used in an IC engine? Also describe the rating of CI and SI engine fuels. 20

**UNIT - II**

4. Explain the following:

(a) Laminar premixed flame and turbulent flame propagation 10

(b) Combustion modes and flame types 10

5. Explain the process of combustion in IC engine along with various stages of combustion in SI and CI engine. 20

**UNIT - III**

6. Explain in detail the effect of pollutant emissions from premixed and non-premixed combustion of fuel in IC engines. 20

7. Discuss the following:

(a) Structure of detonation waves 10

(b) Burning of carbon and coal combustion 10

22503 (P-3)(Q-9/22)

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**UNIT - IV**

8. Explain in detail working of the following:

(a) Orsat apparatus 10

(b) Infrared analyzer 10

9. Explain various pollutants in exhaust gases of petrol and diesel engines and also discuss their methods of analysis. 20

22503 (P-3)(Q-9/22)

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