

16047(J)

J-16

B. Tech 4th Semester Examination

Auto Fuel and Lubrication (NS)

AU-221

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Candidates are required to attempt five questions in all selecting one question from each of the section A, B, C and D of the question paper and all the subparts of the questions in section E. Use of non-programmable calculator is allowed.

SECTION - A

1. What is the difference between catalytic cracking and thermal cracking? Also explain alkylation, isomerisation and blending. (20)
2. Explain the properties of fuel and lubricating oil. How testing of fuel is done? (20)

SECTION - B

3. Explain combustion mechanism in CI engine. What is the need of diesel fuel additives? (20)
4. Explain knocking in SI engine. How can we minimize it? Also explain octane rating. (20)

[P.T.O.]

SECTION - C

5. Discuss the various types of alternative fuels and their properties that can be used in engines. Also explain synthetic lubricants. (20)
6. Classify the lubricating oil and discuss about their properties. What are the testing methods of lubricants? (20)

SECTION - D

7. Explain engine friction. What is the difference between hydrodynamic lubrication and boundary lubrication? (20)
8. Explain the design procedure of a lubricating system. Also discuss about bearing lubrication. (20)

SECTION - E

9. Explain the following terms:
 - (i) Fuel cell and solar car.
 - (ii) Pour point and fire point.
 - (iii) Cetane rating and Octane rating.
 - (iv) Normal and abnormal combustion.
 - (v) Function of lubrication system.
 - (vi) Degradation and deterioration of lubricants.
 - (vii) Elasto hydrodynamic lubrication.
 - (viii) Spontaneous ignition temperature.
 - (ix) Flammability and ignitability.
 - (x) Viscosity and viscosity index. (10×2=20)