KUMARAGURU
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Register Number:…..……..

B.E DEGREE EXAMINATIONS: MAY 2015

(Regulation 2013)

Forth Semester

AUTOMOBILE ENGINEERING

U13AUT401: Fuels and Lubricants

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Olefin is ---------- hydrocarbon.
2. The Paraffin hydrocarbons are
   a) Unsaturated b) one or two double bond
   c) Ethane d) Hexane
3. Most commonly used lubrication system in automobiles is the……..
4. Complete film of lubricant exists between the two bearing surfaces is called
   a) Hydrodynamic friction b) Rolling friction
   c) Mechanical friction d) None of the above
5. Mist lubrication system is mainly used in ---------- engine
6. Biomass fuels suffer from the disadvantage of
   a) flash and fire points are identical b) flash point > fire point
   c) flash point <fire point d) flash point > pour point
7. The type of lubrication performed by the engine running at high speed is
   a) Hydrostatic lubrication b) Hydro dynamic lubrication
   c) Boundary lubrication d) None of the above
8. The amount of heat produce by burning one kg of fuel is known as……
9. Stoichiometric air is defined as the ----------required for combustion of fuels
   a) Excess air b) Minimum air
   c) Both A and B d) None of the above
10. For complete combustion of the fuel ---------- required

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. What do you mean by CATALYTIC CRACKING?
12. Why additives are added in lubricants?
13. Give four alternative fuels for SI engines
14. List out the four required properties of SI engine fuels.
15. What is volatility?
16. What is dry gas analysis?
17. What is meant by gravimetric analysis?
18. List out various frictional losses in an engine.
19. List out the types of lubricating oils.
20. Mention the methods of testing of lubricants.

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. a) (i) Explain the petroleum refining process with neat sketch. (10)

    (ii) Compare catalytic cracking and thermal cracking. (4)

22. a) Enumerate the important properties of SI engine fuels.

(OR)

b) Explain the any two types of Calorimeters used for determination of heat values.

23. a) Enumerate the methods for calculation of air fuel ratio by knowing the combustion products.

(OR)

b) With the help of neat sketch explain the construction and working of Orsat apparatus.

24. a) Write short notes on

a. hydrodynamic lubrication b. elasto hydrodynamic lubrication,

c. boundary lubrication, d. Hydrostatic lubrication

(OR)

b) Calculate the amount of theoretical air required for the combustion of 1 Kg of Acetylene to CO_2 and H_2O

25. a) Discuss the different types of lubricating oils and additives added to lubricants.

(OR)

b) Discuss the various types of Grease and testing of grease.

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