

Reg. No.

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**B.E. / B.TECH. DEGREE EXAMINATIONS, DEC 2019**

Third Semester

**AE18304 – AUTOMOTIVE FUELS AND LUBRICANTS***(Automobile Engineering)***(Regulation 2018)****Time: Three Hours****Maximum : 100 Marks**

Answer ALL questions

**PART A - (10 X 2 = 20 Marks)**

		<b>CO</b>	<b>RBT</b>
1.	List the distillates from petroleum according to their boiling temperature.	<b>1</b>	<b>R</b>
2.	What is alkylation? Why it is done?	<b>1</b>	<b>U</b>
3.	What do you mean by elasto-hydrodynamic lubrication?	<b>2</b>	<b>U</b>
4.	What is blow-by loss?	<b>2</b>	<b>U</b>
5.	Enumerate the requirements of lubricants.	<b>3</b>	<b>U</b>
6.	What are the advantages of synthetic lubricants?	<b>3</b>	<b>U</b>
7.	What do you mean by calorific value of a fuel?	<b>4</b>	<b>U</b>
8.	Differentiate between cloud point and pour point.	<b>4</b>	<b>U</b>
9.	Differentiate between RON and MON.	<b>5</b>	<b>U</b>
10.	Mention the additives used for petrol.	<b>5</b>	<b>R</b>

**PART B - (5 X16 = 80 Marks)**

11. (a) (i) Explain the chemical structures of petroleum and compare them. **(8)** **1** **U**
- (ii) Discuss in detail about the manufacture of gasoline in a modern refinery with a process flow diagram. **(8)** **1** **U**
- (OR)**
- (b) (i) Write short notes on gasoline blending. **(6)** **1** **U**
- (ii) Discuss the steps involved in the manufacture of lubricants from oil base stocks. **(10)** **1** **U**

12. (a) Give in detail the effect of any four variables on engine friction. (16) 2 U

(OR)

(b) Describe with a neat sketch the mechanism of lubrication in a journal bearing. (16) 2 U

13. (a) Discuss in detail the additives used for lubricants and their additive mechanisms. (16) 3 U

(OR)

(b) How grease is classified? Mention the properties of grease and the tests used to evaluate the same. (16) 3 U

14. (a) Explain the ASTM distillation test for the determination of the volatility of the fuel and discuss the significance of the distillation curve. (16) 4 U

(OR)

(b) (i) What is aniline point? Explain its significance. (6) 4 U

(ii) Discuss with a neat any one test method to check the viscosity and corrosiveness of fuels. (10) 4 U

15. (a) (i) Discuss about the various stages of combustion in a CI engine. (8) 5 U

(ii) Explain the various factors affecting flame propagation in a SI engine. (8) 5 U

(OR)

(b) (i) Compare the phenomenon of knock in SI and CI engines. (8) 5 U

(ii) Briefly describe the rating of CI engine fuels. (8) 5 U