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**Question Paper Code: 39720**

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Elective

Mechanical Engineering

01UME920 - ADVANCED IC ENGINES

(Regulation 2013)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

- The cold engine is started, it requires a \_\_\_\_\_ mixture.  
(a) leaner                      (b) richer                      (c) chemically equal                      (d) none mentioned
- The air standard efficiency of an Otto cycle compared to diesel cycle for the given compression ratio is  
(a) more                      (b) same                      (c) less                      (d) depending on power rating
- The pressure at the end of compression in the case of diesel engine is of the order of  
(a) 20 kg/cm                      (b) 6 kg/cm                      (c) 12kg/cm                      (d) 35 kg/cm
- Combustion in compression ignition engines is  
(a) homogeneous                      (b) turbulent                      (c) heterogeneous                      (d) laminar
- The following is not one of the major pollutants.  
(a) nitrogen oxides                      (b) carbon di-oxide  
(c) carbon monoxide                      (d) unburned hydro carbon
- The major contributor of Carbon monoxide is  
(a) motor vehicle                      (b) industry                      (c) stationary combustion                      (d) none of the /above

7. The advantage of gaseous fuel is that  
(a) can be stored easily (b) can mix easily with air  
(c) can displace more air from the engine (d) all of the mentioned
8. The C.I. engines alternative fuel most preferred are  
(a) aromatics (b)olefins (c) napthenes (d) paraffins
9. The most accurate gasoline injection system is  
(a) direct injection (b)throttle injection (c) port injection (d)manifold injection
10. The effective inhibitor of pre-ignition is  
(a) alcohol (b) lead (c) water (d)none mentioned

PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. Explain the various stages of combustion in a SI engine with a P- $\theta$  diagram. (8)
12. Explain the principle of operation of a turbocharger with neat sketch, indicated the objectives of turbo charging. (8)
13. Explain the methods of controlling emissions. (8)
14. Explain the reasons looking for alternate fuels for IC engines. (8)
15. What is lean burn engine and explain briefly with neat sketch. (8)