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B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Sixth Semester

OE18104 – FUNDAMENTALS OF AUTOMOTIVE POLLUTION AND CONTROL METHODS*(Common to all branches except Automobile Engineering)***(Regulation 2018/2018A)****TIME: 3 HOURS****MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Outline the important sources of pollutant and effects of emission.	3
CO 2	Discuss the emission standards for two and four wheelers.	3
CO 3	Describe the formation of emissions in SI engines and CI Engine.	3
CO 4	Explain the various techniques for emission reduction and measurement.	3
CO 5	Discuss the automotive noise, vibration and harshness.	3

PART- A (10 x 2 = 20 Marks)*(Answer all Questions)*

		CO	RBT LEVEL
1.	What are the sources of pollution in I.C. Engine?	1	1
2.	When does the emission become a pollutant?	1	2
3.	Why regulations are necessary for automotive emissions?	2	2
4.	What is a driving cycle?	2	2
5.	What is the effect of CO on human health?	3	2
6.	What are the causes for black smoke from an automobile?	3	2
7.	Name few after treatment devices used in IC engines?	4	1
8.	State the application of Beer-Lambert's Law	4	2

9.	Define noise, vibration and harshness	5	1
10.	Name few noise-measurement devices.	5	1

PART- B (5 x 14 = 70 Marks)

		Marks	CO	RBT LEVEL
11. (a)	Discuss the emission effects on human health and environment.	(14)	1	3
	(OR)			
(b)	Discuss the working principle of IC Engine working based on the Otto Cycle.	(14)	1	3
12. (a)	Compare between Bharat Stage - IV and Bharat Stage-VI emission norms briefly.	(14)	2	3
	(OR)			
(b)	Assess the emission level with respect to BS norms from 1990 to 2020 for Light-duty vehicles.	(14)	2	3
13. (a)	Evaluate the formation of unburned hydro carbon in SI Engine.	(14)	3	3
	(OR)			
(b)	Evaluate the mechanism of Soot and particulate formation in CI engines.	(14)	3	3
14. (a)	Discuss about three way catalytic converter and explain with a neat sketch.	(14)	4	3
	(OR)			
(b)	Discuss the working principle of a Suitable instrument to measure the Concentrations of hydrocarbons in the engine exhaust gas.	(14)	4	3
15. (a)	Discuss the sources for engine combustion noise , inlet and exhaust noise in Vehicle.	(14)	5	3
	(OR)			
(b)	Discuss the usage of muffler and classify the same with neat sketches.	(14)	5	3

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT
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16. Briefly discuss about Global warming and its effects.

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