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<ul> <li>(An Autonomous Institution affiliated to VTU, Belagavi) Eighth Semester, B.E Automobile Engineering Semester End Examination; May/June - 2019 Automotive Air Pollution and Control <u>Max. Marks: 100</u></li> <li>Time: 3 hrs <u>Max. Marks: 100</u></li> <li>Note: Answer FIVE full questions, selecting ONE full question from each unit. UNIT - 1</li> <li>a. Explain the formation of NO<sub>x</sub> with chemical reaction in C.I engine and also name the engine variables influences the formation of NO<sub>x</sub> with brief explanation.</li> <li>b. What is UBHC? Determine the reasons both in SI and CI engines.</li> <li>2. a. Analyze the effect of Air fuel ratio, Burnt gases, Engine speed and Ignition timing on the formation of Nitrogen oxides.</li> <li>b. Infer the soot formation mechanisms and suggest some important reasons. UNIT - II</li> <li>3. Why the lean burn SI engine is recommended to achieve reduced emission?</li> <li>b. Suggest some measures to control the emission of pollutants in SI and CI engines.</li> <li>c. With neat sketch the construction, signification and working of positive crankcase ventilation system.</li> <li>b. Discuss the effect of the following gasoline fuel properties on emission : i) Octane number ii) Aromatic contents iii) Additives iv) Distillation interval</li> <li>b. Discuss the harmful effects of the following on human health : i) Load ii) NO<sub>x</sub> iii) CO iv) Sulfur dioxide</li> <li>6. Discuss any five properties of diesel fuel, which influences the emission from CI engine.</li> <li>b. List out the different gas sampling methods and explain any two in detail. UNIT - IV</li> <li>7 a. Explain the test cycle for light, medium and heavy duty vehicles.</li> <li>8 a. Explain the test cycle for light, medium and heavy duty vehicles.</li> <li>8 a. Explain the test cycle for light, medium and heavy duty vehicles.</li> <li>8 b. Explain the working of following smoke meters :</li> </ul>	E ST			
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b. Explain the working of following smoke meters :				
i) Filter type	υ.	i) Filter type		
ii) Bosch type				

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## UNIT - V

9 a. What is post combustion treatment? What is the necesity?

- b. Write a short note on catalyst poisoning and thermal reactor.
  c. With sketch, explain the working of wire mesh particulate trap and oxidizer.
  8
  10 a. What are the exhaust gas contents before the treatment?
  b. With sketch, explain the working of ceramic honeycomb (monolith) type catalytic converter.
  8
  - c. With schematic diagram, explain the working of thermal reactor for HC and CO oxidation.

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