

**III B. Tech II Semester Supplementary Examinations, February-2022**  
**AUTOMOTIVE EMISSION AND POLLUTION CONTROL**

(Automobile Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
2. Answer **ALL** the question in **Part-A**  
3. Answer any **FOUR** Questions from **Part-B**
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**PART -A**

**(14 Marks)**

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|----|----|---|------|
| 1. | a) | What is nitrogen oxide?                                     | [2M] |
|    | b) | Write the factor affecting the emissions in CI engines.     | [2M] |
|    | c) | What is post combustion treatment?                          | [2M] |
|    | d) | Draw the evaporative control system used in diesel engines. | [3M] |
|    | e) | Write the Beer-Lambert's law.                               | [3M] |
|    | f) | Write the fuel requirements of spark-ignition engine.       | [2M] |

**PART -B**

**(56 Marks)**

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|----|----|---|------|
| 2. | a) | How does NOx affect the environment?  | [7M] |
|    | b) | What are the different methods for measuring the evaporative losses?                              | [7M] |
| 3. | a) | What are the design variables considered for SI engine.   | [7M] |
|    | b) | Write the comparison between external combustion engine and internal combustion engine.           | [7M] |
| 4. | a) | How does common rail fuel injection work in diesel engines?                                       | [7M] |
|    | b) | What are the advantages of common rail fuel injection in diesel engines?                          | [7M] |
| 5. | a) | Write the selection criteria for diesel particulate trap systems.                                 | [7M] |
|    | b) | What are the economic benefits of the catalyst used in diesel engines?                            | [7M] |
| 6. | a) | Draw the schematic of an NDIR analyzer for measurement of CO and CO <sub>2</sub> concentration?   | [7M] |
|    | b) | Explain the method of gas chromatography for separating the individual constituents of a mixture. | [7M] |
| 7. | a) | Explain the process of obtaining the biodiesel fuel.  | [7M] |
|    | b) | What are different properties of biodiesel fuel?  | [7M] |

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