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Department of Electronics and Communication Engineering

REPORT ON EXPERIMENTAL LEARNING METHOD -2022-23

DATE: 16-12-2022

NAME OF THE TOPIC: Performance test on heat balance sheet

CONDUCTED BY: Dr. Rayudu Peyyala Professor-ME

TARGET STUDENTS: IV Year ME Students

192G1A0301	192G1A0315	192G1A0329	202G5A0306
192G1A0302	192G1A0316	192G1A0330	202G5A0307
192G1A0303	192G1A0317	192G1A0331	202G5A0308
192G1A0304	192G1A0318	192G1A0332	202G5A0309
192G1A0305	192G1A0319	192G1A0333	202G5A0310
192G1A0306	192G1A0320	192G1A0334	202G5A0311
192G1A0307	192G1A0321	192G1A0335	202G5A0312
192G1A0308	192G1A0322	192G1A0336	202G5A0313
192G1A0309	192G1A0323	192G1A0337	202G5A0314
192G1A0310	192G1A0324	202G5A0301	202G5A0315
192G1A0311	192G1A0325	202G5A0302	202G5A0316
192G1A0312	192G1A0326	202G5A0303	202G5A0317
192G1A0313	192G1A0327	202G5A0304	202G5A0318
192G1A0314	192G1A0328	202G5A0305	202G5A0319

REPORT:

Emissions from Internal Combustion (IC) engines are a significant environmental concern, and their characteristics are closely monitored to ensure compliance with regulatory standards. The primary emissions from IC engines include nitrogen oxides (NO_x), carbon monoxide (CO), unburned hydrocarbons (HC), and particulate matter (PM). Here are the characteristics of each emission:

Nitrogen Oxides (NO_x):

Composition: NO_x includes nitrogen oxide (NO) and nitrogen dioxide (NO₂).

Formation: Formed during combustion when nitrogen in the air reacts with oxygen at high temperatures.

Factors Influencing Emission: Combustion temperature, air-to-fuel ratio, and residence time in the combustion chamber.

Environmental Impact: Contributes to air pollution, acid rain, and ground-level ozone formation.

Carbon Monoxide (CO):

Composition: Carbon monoxide is a colorless, odorless gas.

Formation: Incomplete combustion of carbon-containing fuels.

Factors Influencing Emission: Incomplete combustion due to insufficient oxygen, poor ignition, or incorrect fuel-to-air ratio.

Environmental Impact: CO is a poisonous gas that can cause health issues. It contributes to air pollution and the formation of ground-level ozone.

Unburned Hydrocarbons (HC):

Composition: Hydrocarbons that have not undergone complete combustion.

Formation: Result from incomplete combustion due to insufficient oxygen or improper combustion conditions.

Factors Influencing Emission: Poor combustion efficiency, misfire, or incomplete vaporization of fuel.

Environmental Impact: HC emissions contribute to smog formation and have adverse health effects. They are also a precursor to ground-level ozone.

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