SNS College of Technology, Coimbatore-35
(Autonomous)
23AUT202-Automotive Engines and Emission Control
2 Mark Questions
Unit 2

1. **What is the stoichiometric air-fuel ratio for gasoline in SI engines?**

   The stoichiometric air-fuel ratio for gasoline is 14.7:1.

2. **Why is the air-fuel ratio important in SI engines?**

   The air-fuel ratio is important for achieving optimal combustion, efficiency, and emission control in SI engines.

3. **How does a rich air-fuel mixture affect emissions in SI engines?**

   A rich air-fuel mixture leads to higher emissions of carbon monoxide (CO) and unburned hydrocarbons (HC).

4. **What impact does a lean air-fuel mixture have on NOx emissions?**

   A lean air-fuel mixture increases nitrogen oxide (NOx) emissions due to higher combustion temperatures.

5. **Describe the principle of operation of a simple fixed venturi carburettor.**

   A fixed venturi carburettor operates on the principle that air flowing through a venturi creates a pressure drop, which draws fuel into the airstream for mixing and combustion.

6. **What is the purpose of the venturi in a carburettor?**

   The venturi creates a pressure differential to facilitate fuel atomization and mixing with air.

7. **How does a constant vacuum carburettor differ from a fixed venturi carburettor?**

   A constant vacuum carburettor maintains a constant pressure drop across the fuel jet, ensuring consistent fuel delivery regardless of engine speed.

8. **What is the main advantage of a constant vacuum carburettor?**

   The main advantage is better fuel-air mixture control across different engine operating conditions.

9. **What is the function of a jerk pump in diesel engines?**

A jerk pump pressurizes and delivers fuel to the injector at precise timings and quantities.

10. **How does a jerk pump regulate the fuel injection timing?**

    The camshaft controls the injection timing by operating the plunger of the jerk pump.

11. **What is the role of a distributor pump in diesel engines?**

    A distributor pump distributes fuel to different cylinders and controls the timing and quantity of fuel injection.

12. **Why are distributor pumps commonly used in smaller diesel engines?**

    Distributor pumps are compact and cost-effective, making them suitable for smaller engines with less stringent performance requirements.

13. **What is a pintle nozzle and its function in diesel engines?**

    A pintle nozzle has a needle that protrudes into the spray hole, providing finer atomization of fuel for better combustion.

14. **What is the advantage of using a multihole nozzle in diesel injectors?**

    Multihole nozzles create multiple fuel jets, improving fuel distribution and combustion efficiency.

15. **How does a unit injector differ from a common rail direct injection system?**

    A unit injector integrates the pump and injector into a single unit for each cylinder, while a common rail system uses a high-pressure rail to supply fuel to individual injectors.

16. **What is the primary function of a diesel engine governor?**

    A diesel engine governor regulates engine speed by controlling fuel delivery to maintain a desired speed under varying loads.

17. **Describe how a mechanical governor works in a diesel engine.**

    A mechanical governor uses centrifugal force generated by rotating weights to adjust the fuel delivery based on engine speed changes.