METHODES OF POLLUTION CONTROL IN SI ENGINE

Q) What are the methods of pollution control in SI Engine?
04 Marks

Ans.

There are different methods used for control the pollution by SI engine:

1) Modification in engine design & operating variables.

2) Treatment of exhaust gases after emission from engine.

1) Modification in engine design & operating variables:

   a) Using leaner mixture for combustion.

   b) Use of narrow venturi meter for higher air speed & atomisation.

   c) Pretreatment of the mixture to improve vaporisation & mixing of fuel with air.

   d) Design of muffler according to gases discharge.

2) Treatment of exhaust gases after emission from engine:

   a) Use of catalytic convertor.

   b) Automatic hot air intake system.

   c) Use of exhaust gas recirculation system.

   d) Modification in fuel.
Q) Explain in brief methods of pollution control in SI engine?  08Marks

Ans:

Pollution control methods of SI engine devided into following variables:

1) Modification in engine design & operating variables.
2) Treatment of exhaust gases after emission from engine.

1) Modification in engine design & operating variables:

a) Design of muffler:

Muffler reduces noise & exhaust pressure of the gases before dispersing into the atmosphere. The condensed water which carries the acidic contents should not remain accumulated.

b) Use of lean idle mixture:

By using lean mixture & maximum spark retard compatible with good power output & drivability.

c) Automatic hot air intake system:

It helps to increase temperature of intake air during idling condition & lean mixture provided to engine. It also helps to reduce amount of CO, HC, NOx in the exhaust.

d) Use of narrow venturimeter:

Use of narrow venturimeter to produce high air speed & better fuel atomisation. It also helps to create turbulence.

e) Use of automatic transmission.

2) Treatment of exhaust gases after emission from engine.

a) Use of catalytic converter:

Catalyst is a substance which brings about a chemical reaction without itself undergoing any change in form or mass. When exhaust gases like HC, CO, NOx passes
through catalyst a chemical reaction take place & gases are converted into harmless CO2,H2O,H2.

**b) Exhaust gas recirculation system:**

Exhaust gas mainly consists CO2,NOx, HC, water vapours. This system recirculates gases through intake manifold in order to reduce temperature.

c) Promotion of after burning of the pollutants by exhaust heat conservation, introduction of additional air & providing sufficient volume to ensure adequate reaction time.