

**Registration No.**

--	--	--	--	--	--	--	--	--	--

**M.E./M.Tech. Degree Examinations, January 2017**

**First Semester**

**INTERNAL COMBUSTION ENGINEERING**

**IC16001 – ENGINE POLLUTION AND CONTROL**

**(Regulation 2016)**

**QP Code: 158301**

**Time: Three hours**

**Maximum : 100 marks**

Answer **ALL** questions

**PART A - (10 X 2 = 20 Marks)**

1. List any four most abundant greenhouse gases in Earth's atmosphere.
2. List the effects of environmental pollution on monument and plants.
3. Is it possible to have a black smoke in SI engines?
4. Write short notes on NO<sub>x</sub> formation in CI engines.
5. Why NDIR technique is not preferred measuring technique for HC emissions?
6. What is the use of Chemiluminescent analyser?
7. Explain the effect of advancing the spark timing in the emission formation.
8. List the specific advantages of GDI technology with respect to emissions.
9. What is the need of diving cycle?
10. What do you mean by Euro-IV?

**PART B - (5 X16 = 80 Marks)**

11. (a) What are the sources of emissions in an engine? Also explain the effect of (16)  
emissions on human health and environment.

**(OR)**

- (b) What do you mean by global warming? Discuss in detail about its effect on (16)  
environment.

12. (a) Discuss the mechanism of carbon monoxide and hydrocarbon formation in (16)  
SI engine.

**(OR)**

- (b) Explain smoke and particulate emission formation in CI engines. (16)
13. (a) Explain in detail about smoke meters. (16)
- (OR)**
- (b) Explain the working of an instrument used for the measurement of CO and CO<sub>2</sub> emissions from IC engines. (16)
14. (a) Explain in detail about the effect of engine speed, cetane number and combustion duration on nitric oxide formation in CI engines. (16)
- (OR)**
- (b) With a aid of a neat sketch explain the construction, working and limitations of a three way catalytic converter. (16)
15. (a) Explain in detail about: (16)
- (i) Transient Dynamometer
  - (ii) CVS System.
- (OR)**
- (b) Explain in detail about: (16)
- (i) SHED Test
  - (ii) Indian Diving Cycle.