Reg. No. | V | E | E | R | A | P | A | N | D | I | A | N |

Question Paper Code : 52688

B.E/B.Tech. DEGREE EXAMINATION, APRIL 2016

Eighth Semester

Mechanical Engineering

ME 2041/ME 807/10122 MEE 53 – ADVANCED I.C. ENGINES

(Regulations 2008/2010)

Time : Three Hours **Maximum : 100 Marks**

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. What are the various factors affecting knock in spark ignition engine ?

2. List the different types of combustion chambers found in spark ignition engine.

3. State briefly about air motion in CI engines using diagrams.

4. Define turbo charging.

5. What are the various pollutants present in combustion products ?

6. Briefly discuss about the working of three way catalytic convertor.

7. Write about the different types of alternate fuels available.

8. Which are the different types of onboard hydrogen storage methods that can be used ?

9. Give a brief introduction to lean burn engines.

10. What is common rail direct injection diesel engine ?

PART – B (5 × 16 = 80 Marks)

11. (a) Explain in detail about normal and abnormal combustion in SI engines. **(16)**

OR

(b) With a neat sketch explain in detail about the different types of fuel injection system used in SI engines.

12. (a) Discuss in detail about the various stages of combustion in a CI engine. **(16)**

OR

(b) What are the various factors that influence spray penetration in CI engines ? Explain in detail.

13. (a) Write short notes on the formation of particulate and smoke emission in IC engines. **(16)**

OR

(b) Explain in detail about the different methods used for the measurement of exhaust emission in petrol engines.

14. (a) What are the modifications to be made in CI engine running on biodiesel ? Explain in detail about the use of biodiesel as fuel in CI engines and the various merits and demerits of its use. **(16)**

OR

(b) Explain in detail about the effects of using biogas as fuel on engine performance and emission characteristics.

15. (a) With a neat sketch explain in detail about gasoline direct engine. **(16)**

OR

(b) Discuss in detail about the heat release analysis in engines.

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