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**Question Paper Code : 91849**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Sixth/Seventh/Eighth/Tenth Semester

Mechanical Engineering

ME 6602 – AUTOMOBILE ENGINEERING

(Regulations 2013)

(Common to Mechanical Engineering (Sandwich)/Mechatronics Engineering/

Robotics and Automation Engineering)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. What is a forward control vehicle ?
2. Brief about frameless construction.
3. Mention the importance of ignition systems in automobiles.
4. Contrast between BS 4 and BS 6 emission norms.
5. Expand AMT.
6. Discuss about any one variable velocity joint used in driveline of a vehicle.
7. Distinguish between understeer and oversteer.
8. List the components of Anti-Lock Braking system.
9. Mention the major constituent of natural gas.
10. List any 2 merits of electric vehicles.

PART – B

(5×13=65 Marks)

11. a) With a neat schematic layout, describe the constructional details and power flow in a Front Engine Front Drive vehicle. (13)  
(OR)  
b) With aid of suitable sketch, summarize the relevant aerodynamic forces and its influenced moments acting upon a fast moving vehicle. (13)

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12. a) With relevant sketch, appraise upon the MPFI technology used in gasoline fueled vehicles. Also mention its merits over the conventional system. (13)

(OR)

b) Discuss the working and merits of a variable geometry turbo charger used in diesel fueled vehicles. (13)

13. a) With a simple sketch, elaborate upon the construction and working of a constant mesh gearbox. (13)

(OR)

b) With suitable figure, demonstrate upon the working of Hotchkiss drive used in heavy commercial vehicles. (13)

14. a) With neat sketch, explain upon the construction and working of air suspension system used in Heavy Commercial Vehicles. Also mention any 4 merits of the system. (13)

(OR)

b) With an indicative diagram, analyze the working of a typical Electronic Brake Force Distribution system used in a modern vehicle. (13)

15. a) With relevant equations, discuss about the transesterification process to produce bio diesel. (13)

(OR)

b) With aid of a neat block diagram, outline the various operational modes of a hybrid vehicle. (13)

PART – C

(1×15=15 Marks)

16. a) With relevant equations, critique upon the importance of a three-way catalytic converter used in modern vehicles. (15)

(OR)

b) With suitable sketch, appraise upon a hydraulically assisted power steering system used in modern vehicles. (15)