

30.4.19

Roll No.

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

B.E / B.Tech( Full Time) DEGREE END SEMESTER EXAMINATIONS, APR / MAY 2019

MECHANICAL ENGINEERING

Sixth Semester

ME 7071 AUTOMOBILE ENGINEERING

(Regulation 2015 CBCS)

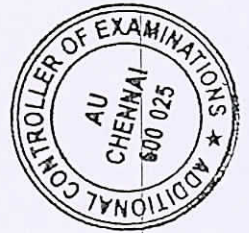
Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Which rule specifies the emission limits from automotive tail pipe?
2. Mention the significance of track length and wheel base
3. What is special about Wankel engine system?
4. Why a gas turbine based automotive engine is very rare?
5. List the differences between torque tube drive and hotchkiss drive.
6. Mention two functions of a suspension system.
7. Why an alternator is required in an automobile? Can a vehicle operate without an alternator?
8. List some advantages of air-conditioning in an automobile.
9. Why wind tunnel testing is done?
10. Make a list of checks commonly carried out during a SI engine routine service.



PART – B ( 5 x 13 = 65 marks)

- 11.ai) Explain with suitable illustrations some commonly found types of automobiles and their application. (9)
  - ii) Discuss the significance of atleast four performance parameters of an engine. (4)
- (OR)
- b)i) Mention the different types of power delivery along with their merits and demerits. (8)
  - ii) Briefly mention the Euro VI emission norms and safety regulations that are to be implemented from October 2019 in India. (5)
- 12: a) Describe with a schematic the operation of electronic engine management system applicable for a compression ignition engine. List the merits of electronic over mechanical engine management system. (10+3)
- (OR)
- b) Discuss the functioning of a three-way catalytic converter with an illustration. Also support your answer with an Emission vs Lambda curve. (5+4+4)

Roll No.

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

13. a)i) What is the function of a differential? Describe its operation with a sketch. (8)  
ii) Draw a sketch of a diaphragm type clutch and mention the various parts. (5)

(OR)

- b)i) State the necessity of gearbox in an automobile. Describe how a five speed synchromesh gearbox mechanism operates with a sketch. (2+7)  
ii) Mention the significance of the parameters in radial tyre – 205/65R15 95H (4)

14. a) Describe the various electronic systems put into operation in a modern day passenger car.

(OR)

- b)i) List some active and passive safety systems in an automobile and mention their necessity. (8)  
ii) Explain with an illustration the functioning of a starter motor. (5)

15. a) Give the significance of wind tunnel testing of vehicles. Draw a sketch of a wind tunnel testing facility and discuss how vehicles are tested in it. (4+9)

(OR)

- b) Discuss in detail about maintenance of vehicles. Mention about the common checks undertaken for a vehicle during 20,000 and 40,000 kms service. (6+7)

PART – C ( 1 x 15 = 15 marks)

- 16.i) Draw and enumerate the characteristics of an SUV? Mention the difference between a compact sedan and a SUV with an example. (5+5)  
ii) List some vehicle standards (IS mandatory from ARAI) to be adopted for a mid-size car. (5)

