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Question Paper Code: 42856

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018 Sixth Semester

Mechanical Engineering
ME 2354 – AUTOMOBILE ENGINEERING
(Regulations 2008)

(Common to PTME 2354 – Automobile Engineering for B.E. (Part-Time) Fifth Semester – Mechanical Engineering – Regulations 2009)

Time: Three Hours

Maximum: 100 Marks

Answer ALL questions.

PART - A

 $(10\times2=20 \text{ Marks})$

- 1. Name any 3 conventional vehicle frame sections.
- 2. Mention the types of piston rings used in an IC engine.
- 3. Compare and contrast between carburation and fuel injection in SI engines.
- 4. State the importance of using an intercooler with turbocharger.
- 5. Mention the need of using an overdrive in two wheelers.
- 6. Write down the importance of using universal joints in the driveline of a vehicle.
- 7. Differentiate between passive and semi-active suspension systems.
- 8. List any 2 de-merits of using a straight front axle.
- 9. Define "Bio-diesel" with any 1 example.
- 10. Expand the term CNG. What is the main composition of it?

PART – B

(5×16=80 Marks)

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11.	a)	With indicative sketches, describe about the chassis layout used in Front Engine Rear Drive vehicles.	(16)
		(OR)	
	b)	With a neat sketch, explain about the various resistances acting on a vehicle in motion.	(16)
12.	a)	With an indicative sketch, elaborate about the working of a Common Rail Diesel Injection system.	(16)
		Common to FTME 1354 - Automobile Log (OR)	
	b)	With aid of a cut a way sketch, explain about the working of a three-way catalytic converter used in vehicles. Also, write down the various relevant chemical reactions on the same.	(16)
13.	a)	(Any 4 points) ii) Write short notes on the working principle of a torque converter. (include	(4) a (12)
		(OR)	
	b)	Enumerate the components used and describe about its functions in a Hotchkiss drive configuration.	(16)
14.	a)	With relevant sketches write short notes on the following: i) Caster ii) Camber iii) Toe-in & Toe-out. (OR)	(5) (5)
	b)	With a simple block diagram, analyze the working of an Anti-Lock Braking system used in passenger cars.	(16)
15.	a)	Discuss the performance and emission characteristics of a diesel engine fuelled with Bio-Diesel as fuel.	
		(OR)	
	b)	With an indicative sketch, discuss about the working of a proton Exchange	(16)