

Question Paper Code: 51862

## B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Sixth Semester

Mechanical Engineering

## ME 2354/ME 62/10122 ME 604 – AUTOMOBILE ENGINEERING

(Regulations 2008/2010)

(Common to PTME 2354/10122 ME 604 Automobile Engineering for B.E. (Part-Time)
Fifth/Sixth Semester – Mechanical Engineering

Regulations 2009/2010)

Time: Three Hours

Maximum: 100 Marks

## Answer ALL questions. $PART - A (10 \times 2 = 20 \text{ Marks})$

- 1. What are the classifications of automobile based on transmission system?
- 2. What are the advantages of tubeless tyre over tubed tyre?
- 3. What is the need of altering the ignition timing with respect to engine speed and load?
- 4. What are the factors that affect the life of a spark plug?
- State the function of main shaft and lay shaft of a gear box.
- 6. What do you meant by overdrive?
- 7. What is a self energizing brake?
- 8. Why Synchronizer is required in the automotive transmission system?
- 9. What is the need to switch over to alternate sources of energy?
- Write the reaction takes place during discharging and charging of nickel metal hydride cell.

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## $PART - B (5 \times 16 = 80 Marks)$

11.	(a)	(i)	What is the effect of weight of vehicle and passengers on the frame side members? Explain.	(8)
		(ii)	Write note on different types of material used for chassis frame.  OR	(8)
	(b)	(i)	Explain the term "Rolling resistance" with the help of a neat sketch.	(8)
	(0)	(ii)	Draw a neat labelled diagram of rear engine rear wheel drive type of vehicle layout.	(8)
12.	(a)	(i)	Explain electronic spark timing/control with a circuit diagram.	(8)
	(-)	(ii)	Write short notes on the following:	(8)
		17/19	Ignition Coil and Alternator	
			OR	
	(b)	Disc	uss various methods to reduce the level of pollutants in the exhaust gases.	(16)
12	(0)	(i)	Explain the need of universal joints in propeller shafts.	(6)
13.	(a)	(i) (ii)	How will you classify clutches? Describe with neat sketch function and	
		(11)	working of multi-plate clutch.	(10)
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	(b)	(i)	Explain with neat sketch gear shifting mechanism.	(8)
		(ii)	Explain the working of automatic gear box.	(8)
14.	(a)	(i)	With a neat sketch, explain the construction and operation of a shock	(8)
			absorber.	(8)
		(ii)	Explain in detail about steering geometry with neat sketches.  OR	(0)
	(b)	(i)	Distinguish between independent suspension and conventional suspensio system.	n (6)
		(ii)	Explain air brake system in detail. Also state its advantages over hydrauli brake system.	(10)
15	. (a)	(i)	Explain in brief electrical car layout.	(8)
		(ii)	Compare advantages and disadvantages of LPG, hydrogen and biodies	el (8)
			as a fuel used in I.C. engine.	(0)
			OR	(16)
	(b)	) Ex	plain the various properties of alternative fuels.	(10)

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