

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, April 2018
B. Tech. in Mechanical Engineering, Semester VI

Roll No.....

ME 624: AUTOMOBILE ENGINEERING

Time: 3 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	Objective type multiple choice questions (10 questions @ 1 mark)	10
i.	What causes the main force which opposes the driver when the clutch pedal is depressed? (a) Friction between lining (b) Friction in the linkage (c) Thrust spring (d) None of these	
ii.	By using synchronizing device, the two adjacent gears have their speeds (a) Increased (b) Reduced (c) Unequalized (d) Equalized	
iii.	The smallest gears inside the differential casing are (a) Pinion gears (b) Sun gears (c) Side gears (d) Ring gears	
iv.	The purpose of four-wheel drive is (a) Clutch operation is simplified (b) Road adhesion is increased (c) Road adhesion is decreased (d) Cooling of engine is simplified	
v.	The circumferential grooves on tyres (a) Increases load carrying capacity (b) Provides good traction (c) Reduces the danger of skidding (d) All of the above	
vi.	Which part is not common between the petrol and diesel engines? (a) Air cleaner (b) Silencer (c) Crank shaft (d) Spark plug	
vii.	An under-inflated tyre wear more (a) Near centre (b) Near edges (c) In cross-direction (d) In lateral direction	
viii.	In an engine the temperature of the piston will be more at (a) The crown of the piston (b) The skirt of the piston (c) The piston walls (d) The land of the piston	
ix.	An engine has stroke volume 800 cm ³ and clearance volume 100 cm ³ , the compression ratio of the engine is (a) 9:1 (b) 8:1 (c) 10:1 (d) 7:1	
x.	Which vehicle is provided with single wheel drive? (a) Tractor (b) Truck (c) Motor cycle (d) Car	
Q.2	Short answer type questions (4 questions @ 2.5 marks)	10
i.	What are the main components used in an automobile?	
ii.	How are torque and gear ratio related?	
iii.	On what basis are automobile engines classified?	
iv.	What is the function of the drop arm?	

Q.3A	In A Tractor, How The Hydraulic Brake system Work?	05
Q.3B	Explain Under Steering and Over Steering.	05
Q.4A	What are the requirements of a transmission system?	05
Q.4B	What is the purpose of the camshaft?	05
Q.5A	Explain in brief steering gear box?	05
Q.5B	How important is inflation pressure in automobile wheels? Explain.	05
Q.6A	Explain why pistons need to be light in weight.	05
Q.6B	Where is the necessity of Gear-Box when the engine speed can be varied by an accelerator?	05
Q.7	Explain the construction and working of a differential with a neat sketch.	10
Q.8	Explain construction and working of a cone clutch with a neat sketch.	10
Q.9	Explain the working of a three speed Constant mesh gear box with the help of a diagram.	10
	OR	
Q.9	Explain the differences between coil spring, leaf spring and torsion bar with the help of neat sketches and explain their role in suspension system.	10
Q.10	Describe the working of a hydraulic torque converter with a neat sketch.	10
	OR	
Q.10	With the help of a neat sketch explain the working of a fluid coupling.	

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