

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, (Backlog) November 2016

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.	Most popular manual steering gear for cars today is (a) rack and pinion type (b) worm and wheel type (c) cam and roller type (d) worm and nut type	
ii.	The function of a universal joint is to allow the propeller shaft to (a) change length (b) transfer torque at an angle (c) bend sideways (d) change inclination.	
iii.	Increase of torque in a vehicle is obtained by (a) decreasing power (b) decreasing petrol consumption (c) decreasing speed (d) all of the above	
iv.	The function of master cylinder in hydraulic system is (a) To increase pressure equally in all cylinders (b) To increase pressure unequally in all cylinders (c) To increase power equally in all cylinders (d) To decrease power equally in all cylinders.	
v.	A two-piece propeller shaft requires (a) one universal joint (b) a center support bearing (c) the shaft to be solid (d) none of the above	
vi.	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	
vii.	Which part is not common in SI and CI engines (a) Air cleaner (b) Dynamo (c) Silencer (d) Fuel injector	
viii.	Which one of the following is located between the engine and gear box? (a) Clutch (b) Differential (c) Propeller shaft (d) None of these	
ix.	CO is generated when engines run on (a) Lean mixture (b) Rich mixture (c) Stoichiometric A:F ratio (d) Cruising speed	
x.	Brake lining is mounted on (a) Brake drum (b) Wheel cylinder (c) Brake shoe (d) Any of the above	
Q.2	Short answer type questions (4 questions @ 2.5 marks)	10
i.	List the components included in the chassis.	
ii.	What are the functions of a clutch?	
iii.	List the requirements to be fulfilled by the body structure.	
iv.	What is meant by transmission in an automobile?	
Q.3A	Write a note on under-inflation and over-inflation.	05

Q.3B	Explain the working of a semi-centrifugal clutch.	05
Q.4A	Describe the features of universal joints used in automobile propeller shafts.	05
Q.4B	Explain Ackerman's steering principle with a sketch.	05
Q.5A	Describe the working of a hydraulic torque converter.	05
Q.5B	Make a neat sketch of a common type of steering gear box and explain how it works.	05
Q.6	Describe the operation of a hydraulic braking system of an automobile with the help of a neat diagram.	10
Q.7	Prepare a schematic diagram to show a car air-conditioning system with thermostatic control.	10
Q.8	Draw a neat sketch of a steering system, mark all important parts on it and explain how the system works.	10
Q.9	With the help of a neat sketch explain the working of a fluid coupling.	10
Q.10	Draw a line sketch of a differential showing the internal parts and explain how it functions.	10

-----ALL THE BEST-----