

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Backlog), Nov.-Dec 2017

B. Tech. in Mechanical Engineering, Semester VI

Roll No.....

23/11/17

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. The main function of the clutch is to temporarily disconnect the engine from the (a) Gear box (b) Overdrive (c) Differential (d) Propeller shaft
- ii. The spring commonly used in heavy duty automobile is; (a) coil spring (b) elliptic leaf spring (c) plastic spring (d) semi-elliptic leaf spring
- iii. Increase of torque in a vehicle is obtained by (a) decreasing speed (b) decreasing power (c) decreasing petrol consumption (d) all of the above
- iv. The angle formed by the wheel with the vertical when the top of the wheel slants outward is called (a) Positive caster (b) Negative caster (c) Positive camber (d) Negative camber
- v. Which one of the following is located between the engine and gear box? (a) Clutch (b) Differential (c) Propeller shaft (d) None of these
- 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. 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.
- viii. The combination of crown wheel and pinion is called the (a) Differential (b) Final drive (c) Rear axle (d) Rear drive
- ix. 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
- x. In the side members of the frame of a vehicle, the weight of the vehicle produces (a) vertical bending (b) horizontal bending (c) torsion (d) all of these

Q.2 Short answer type questions (2 questions @ 5 marks) 10

- i. What are the functions of a brake in an automobile?
- ii. How are torque and gear ratio related?

Q.3A What are the requirements of a transmission system? 05

Q.3B	List three advantages of using the overdrive.	05
Q.4A	Describe briefly with a neat sketch the working of a single plate clutch.	05
Q.4B	What are the functions of a propeller shaft in the transmission system of a vehicle?	05
Q.5A	Write down the advantages of independent suspension system.	05
Q.5B	Explain the term Power steering.	05
Q.6A	Explain in brief about coil spring which is used in suspension systems.	05
Q.6B	Describe the inner details of a tyre with a neat sketch.	05
Q.7	Explain the construction and working of a differential with a neat sketch	10
Q.8	Explain the working of a three speed Constant mesh gear box with the help of a diagram.	10
Q.9	With the help of a neat sketch explain the working of a fluid coupling.	10
	OR	
Q.9	Explain the working of a semi-centrifugal clutch with a neat sketch.	10
Q.10	Describe the working of a hydraulic torque converter with a neat sketch.	10
	OR	
Q.10	Explain the working of a centrifugal clutch with a neat sketch.	10

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