

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Backlog), April-May 2015
B. Tech in Mechanical Engineering, Semester IV



Roll No.....

ME 404: 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 combination of crown wheel and pinion is called the (a) Differential (b) Final drive (c) Rear axle (d) Rear drive	
iii.	In majority of vehicles, free pedal play specified is (a) 2 mm (b) 20 mm (c) 12 mm (d) 30 mm	
iv.	Frame sections are usually of (a) Channel section (b) Double Channel section (c) I-section (d) Square box section	
v.	The typical gear oil used in most cars and trucks has a classification of (a) SAE 20 (b) SAE 30 (c) SAE 40 (d) Multipurpose SAE 85W-90	
vi.	In an overdrive output is obtained through (a) Sun gear (b) Planetary carrier (c) Annulus (d) Any of the above	
vii.	Gear shafts and gear wheels are normally made of (a) Cast Iron (b) Utility steel (c) Valve steel (d) Nitriding steel	
viii.	Normally the value of drag coefficient for aerodynamically shaped cars is (a) 0.3 (b) 0.1 (c) 0.8 (d) 1.0	
ix.	Precise control of air fuel ratio in the cylinder is difficult when engine is (a) Under cold start (b) very hot (c) Running normal (d) Idling	
x.	6 volt battery rated at 120 ampere hour should be able to furnish 6 amperes for (a) 6 hrs (b) 20 hrs (c) 10 hrs (d) 120 hrs	
Q.2	Short answer type questions (4 questions @ 2.5 marks)	10
i.	What is the use of Servo? Hydraulic pressure into mechanical movement	
ii.	What is the meaning of Wheelbase? Dia of smallest circle made by outer wheel when the wheels are at their extreme	
iii.	Name the two factors that increase the oil consumption? Engine speed and cylinder wall wear	
iv.	What is the function of Universal Joint? To connect two shafts which are inclined to each other	

Q.3A	What is the basic difference between the SI engine and the Diesel engine?	05
Q.3B	What are the purposes of the engine flywheel?	05
Q.4A	Write the different methods to reduce engine emissions?	05
Q.4B	Draw the general layout of complete transmission system of an automobile.	05
Q.5A	Write a short note on Gear Box lubricants.	05
Q.5B	Explain the working of multi plate clutch with a suitable diagram	05
Q.6A	Describe briefly the construction of lead acid battery with a neat sketach.	05
Q.6B	Explain the working principle of a fuel level indicator.	05
	OR	
Q.6B	Classify various types of tyre.	05
Q.7A	Explain Rack and pinion steering gear.	05
Q.7B	Describe any type of mechanical brake with the help of neat sketches.	05
	OR	
Q.7B	Explain hydraulic torque converter?	05
Q.8A	Enumerate different types of frames. Compare their merits and demerits.	10
Q.9A	Compare the different types of Clutches.	10
Q.9B	Explain the various pollutants emitted by vehicles?	10
	OR	
Q.9B	Explain the operation of Differential with a neat diagram?	10

