

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: Automobile Engineering
Program: B.Tech Mechanical Engineering
Course Code: MHEG 363

Semester: VIII
Time 03 hrs.
Max. Marks: 100

SECTION A

S. No.		Marks	CO
Q 1	Discuss in brief different components required for a braking system.	4	CO4
Q 2	List out the functions and requirement of transmission system in automobiles	4	CO2
Q 3	Draw the power flow layout of Front Engine Rear Wheel drive vehicle.	4	CO1
Q 4	Define: Castor, Camber, Scrub Radius, & King Pin inclination	4	CO4
Q 5	Illustrate the term firing order in a 4-cylinder engine with proper example.	4	CO5

SECTION B

Q 6	Define Master cylinder & explain the working of a tandem master cylinder with neat diagram.	10	CO4
Q 7	Differentiate rigid axle and independent suspension system and explain all the four types stub axles. OR Discuss various loads taken up by the rear axle and explain different types of rear axles used in automobiles.	10	CO3
Q 8	Asses the different types of chassis used in automobiles.	10	CO4
Q 9	Explain the difference and working of Fluid Flywheel & torque converter with suitable diagram.	10	CO2

SECTION-C

Q 10	Explain different types of front & rear axle independent suspension systems.	20	CO3
Q 11	Explain the principle of operation of stator motors and why is permanent magnet field preferred to electro-magnet field for the stator motor? OR Discuss the importance and functions of ignition system, why is lead acid batteries suitable choice for an automobiles?	20	CO5

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Instructions: Draw suitable diagrams wherever necessary

SECTION A

S. No.		Marks	CO
Q 1	Differentiate disk and drum brakes.	4	CO4
Q 2	Enlist different types of drive arrangements in automobiles	4	CO2
Q 3	Discuss in brief the requirement and functions of clutch in automotive transmission system.	4	CO1
Q 4	Discuss with suitable diagram swinging half axle rear independent suspension system.	4	CO4
Q 5	Discuss the importance of electrical sub systems in modern automobiles	4	CO5

SECTION B

Q 6	Define brake bleeding. Explain with a neat diagram the working of hydraulic wheel cylinder.	10	CO4
Q 7	Enlist different types of spring used in suspension. Explain any four types of leaf spring in detail with neat diagram. <p style="text-align: center;">OR</p> Explain, in detail, with proper justification why front axle in rigid axle suspension are always preferred in I section.	10	CO3
Q 8	Explain instantaneous center and its effect on understeer and oversteer condition of steering mechanism.	10	CO4
Q 9	Explain in detail the procedure for determining the equation for setting the bottom gear ratio of an automobile transmission system	10	CO2

SECTION-C

Q 10	Describe all the parts of a steering system; explain all the parameters of steering geometry with suitable diagram.	20	CO3
Q 11	Describe the important function of motors in automobiles. State the minimum cranking speed for petrol and diesel engines. <p style="text-align: center;">OR</p> Explain coil ignition. On what principle does a coil; ignition system operates and why is a capacitor used across the contact breaker in a conventional coil ignition circuit?	20	CO5

