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Third Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025

Automotive Transmission

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	With a neat sketch discuss the various resistances to motion.	10	L3	CO1
	b.	Discuss the term traction, tractive effort performance curves.	10	L4	CO1
OR					
Q.2	a.	Discuss the necessity of gear box.	10	L1	CO1
	b.	Explain the working of constant mesh gearbox with relevant figure.	10	L1	CO1
Module – 2					
Q.3	a.	Discuss the requirements of a clutch.	10	L1	CO1
	b.	With a neat sketch discuss the operation of clutch by vacuum.	10	L2	CO1
OR					
Q.4	a.	Explain the bull and roller one way clutch and spray clutches with relevant figure.	10	L2	CO2
	b.	Discuss the working fluid requirements of a fluid couplings.	10	L1	CO2
Module – 3					
Q.5	a.	With a neat sketch explain the working of a Wilson planetary transmission.	10	L3	CO2
	b.	With a suitable figure discuss the construction of overdrives.	10	L2	CO2
OR					
Q.6		An epicyclic gear train consists of two Amular Gears A and B. the compound gear C – D rotates about eth axis 0,. Gear E meshes with gear C and gear A and gear F angles with gear D and gear B. Gear C consists of 28 teeth and gear consists of 26 teeth and number of teeth on gear E and F are 20. Gears E and F are connected using an arm G. i) Sketch one arrangement ii) Find the number of teeth on gear A and B iii) If arm G makes 100 rpm clock wise and gear A is fixed then find the speed of gear B. iv) If arm G makes 100 rpm clockwise and gear A makes 10 rpm counter clockwise. The find the speed of gear B.	20	L4	CO3
Module – 4					
Q.7	a.	With a neat sketch explain the principle of hydrostatic drives.	10	L3	CO3
	b.	Discuss the advantages and disadvantages of hydro static drives.	10	L1	CO3
OR					
Q.8	a.	Describe the working Borge – Warner gear box with suitable figure.	10	L4	CO4
	b.	Discuss the fundamentals of a hydraulic control system.	10	L2	CO4
Module – 5					
Q.9	a.	Describe the differential of an electric vehicle with suitable figure.	10	L3	CO4
	b.	Explain the torque speed characteristics of an electric vehicle.	10	L3	CO4
OR					
Q.10	a.	Discuss the terms : i) EV motor sizing , ii) Initial acceleration iii) Rated vehicle velocity iv) Maximum velocity.	10	L2	CO4
	b.	Discuss the transmission configuration of an electric vehicle.	10	L3	CO4