Model Question Paper-2 with effect from 2020-21(CBCS Scheme)

USN | | | | | | | | | | |

Fifth Semester B.E. Degree Examination

Automotive transmission

TIME: 03 Hours **Max. Marks: 100**

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

Module – 1			
Q.1	**(a)**	With a neat sketch explain the construction and working principle as a centrifugal clutch.	10
	(b)	Describe the working of multiplate clutch with neat sketch.	10
OR			
Q.2	**(a)**	With a neat sketch explain the followings.	
	i	Semi-centrifugal clutch.	10
	ii	Vacuum operated clutch.	10
Module – 2			
Q.3	**(a)**	Sketch and explain the construction and working principle of fluid flywheel	10
	(b)	With the help of graph ,discuss the performance characteristics of a torque converter	10
OR			
Q.4	**(a)**	With the help of a neat sketch discuss the working of sprag and roller of over running clutch	10
	(b)	Differentiate between fluid coupling and torque converter	10
Module – 3			
Q.5	**(a)**	Briefly discuss the various resistances to motion of the automobile	10

	(b)	Describe the variation of tractive effort and total resistance with the speed of the vehicle with the help of graph	10
		OR	
Q.6	**(a)**	Explain the following terms in detail: i) Acceleration ii) Gradeability iii) Drawbar pull.	10
	(b)	Describe the various of tractive effort and total resistances with the speed of the vehicle with the help of graph	10
		Module – 4	
Q.7	**(a)**	Briefly explain the principle of simple epicyclic gear train with sketch. Show that more number of gear ratios are possible from it.	10
	(b)	The input shaft of an epicyclic type of gearbox has two sun wheel each with 25 teeth splined to the shaft. Their corresponding annular ring have 100 teeth each. The output shaft has a sun running free on that shaft with 40 teeth, while the corresponding annular ring has 80 teeth .Calculate the first, second and reverse gear ratios	10
		OR	
Q.8	**(a)**	What is overdrive? Explain its use in automobile.	10
	(b)	Explain the working principle of a Wilson planetary transmission system with a neat sketch.	10
		Module – 5	
Q.9	**(a)**	With a neat diagram, explain the working of Borg Warner automatic transmission system.	10
	(b)	What are the limitation and advantages of hydrostatic drives.	10
		OR	
Q.10	**(a)**	With a neat sketch, explain the working principle of Variable displacement pump.	10
	(b)	Discuss the functioning of the hydraulic control in an epicyclic planetary gear system.	10

Table showing the Bloom's Taxonomy Level, Course Outcome and Programme Outcome

Question		**Bloom's Taxonomy Level attached**	**Course Outcome**	**Programme Outcome**
Q.1	(a)	L2	CO 1	1,2
	(b)	L1	CO1	2,3
Q.2	(i)	L2	CO1	1,2
	(ii)	L2	CO1	1,2
Q.3	(a)	L2	CO1	1,3
	(b)	L2	CO1	1,2

Q.4	(a)	L2	CO1	1,3
	(b)	L4	CO1	2,3
Q.5	(a)	L3	CO2	1,2
	(b)	L1	CO2	1,3
Q.6	(a)	L2	CO2	1,2
	(b)	L1	CO2	1,2
Q.7	(a)	L2	CO3	1,3
	(b)	L5	CO3	1,2
Q.8	(a)	L1	CO3	1,2
	(b)	L2	CO3	2,3
Q.9	(a)	L2	CO4	1,2
	(b)	L1	CO4	1,2
Q.10	(a)	L2	CO4	1,3
	(b)	L3	CO4	1,2

Bloom's Taxonomy Levels			
	Lower order thinking skills		
	Remembering(knowledge):L_1	Understanding Comprehension): L_2	Applying (Application): L_3
	Higher order thinking skills		
	Analyzing (Analysis): L_4	Valuating (Evaluation): L_5	Creating (Synthesis): L_6

Model Question Paper-1 with effect from 2020-21 (CBCS Scheme)

USN | | | | | | | | | | |

Fifth Semester B.E. Degree Examination

Automotive transmission

TIME: 03 Hours **Max. Marks: 100**

Note: 02. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

		Module – 1	
Q.1	**(a)**	What is the need of a clutch ? What are the requirements of a good clutch?	10
	(b)	With a neat sketch explain the construction and working principle as a centrifugal clutch	10
		OR	
Q.2		With a neat sketch explain the followings.	
	i	Semi-centrifugal clutch.	10
	ii	Vacuum operated clutch	10
		Module – 2	
Q.3	**(a)**	Sketch and explain the construction and working principle of fluid flywheel.	10
	(b)	With the help of graph, discuss the performance characteristics of a torque converter.	10
		OR	
Q.4	**(a)**	With the help of a neat sketch discuss the working of sprag and roller of over running clutch.	10
	(b)	Differentiate between fluid coupling and torque converter.	10
		Module – 3	
Q.5	**(a)**	Briefly discuss the various resistances to motion of the automobile.	10

	(b)	Describe the variation of tractive effort and total resistance with the speed of the vehicle with the help of graph	10
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Module – 4			
Q.7	**(a)**	Briefly explain the principle of simple epicyclic gear train with sketch. Show that more number of gear ratios are possible from it.	10
	(b)	The input shaft of an epicyclic type of gearbox has two sun wheel each with 25 teeth splined to the shaft. Their corresponding annular ring have 100 teeth each. The output shaft has a sun running free on that shaft with 40 teeth, while the corresponding annular ring has 80 teeth .Calculate the first, second and reverse gear ratios	10
OR			
Q.8	**(a)**	What is overdrive ?Explain its use in automobile	10
	(b)	Explain the working principle of a Wilson planetary transmission system with a neat sketch	10
Module – 5			
Q.9	**(a)**	With a neat diagram, explain the working of Borg Warner automatic transmission system	10
	(b)	What are the limitation and advantages of hydrostatic drives.	10
OR			
Q.10	**(a)**	With a neat sketch, explain the working principle of Variable displacement pump.	10
	(b)	Discuss the functioning of the hydraulic control in an epicyclic planetary gear system.	10

Table showing the Bloom's Taxonomy Level, Course Outcome and Programme Outcome

Question		Bloom's Taxonomy Level attached	Course Outcome	Programme Outcome
Q.1	(a)	L1	CO 1	1,2
	(b)	L2	CO1	1,2
Q.2	(i)	L2	CO1	1,3
	(ii)	L2	CO1	1,2
Q.3	(a)	L2	CO1	1,3
	(b)	L2	CO1	2,3
Q.4	(a)	L2	CO1	1,2
	(b)	L4	CO1	1,3
Q.5	(a)	L2	CO2	1,2
	(b)	L1	CO2	1,2
Q.6	(a)	L2	CO2	1,3
	(b)	L1	CO2	1,2
Q.7	(a)	L2	CO3	1,2
	(b)	L5	CO3	2,3
Q.8	(a)	L1	CO3	1,2
	(b)	L2	CO3	1,3
Q.9	(a)	L2	CO4	1,2
	(b)	L1	CO4	2,3
Q.10	(a)	L2	CO4	1,2
	(b)	L3	CO4	1,3

Bloom's Taxonomy Levels	**Lower order thinking skills**		
	Remembering(knowledge):L_1	Understanding Comprehension): L_2	Applying (Application): L_3
	Higher order thinking skills		
	Analyzing (Analysis): L_4	Valuating (Evaluation): L_5	Creating (Synthesis): L_6