#### 1200MRT342042502

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Name:

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY B.Tech Degree S6 (R,S) Examination April 2025 (2019 Scheme)

#### **Course Code: MRT342**

### **Course Name: AUTOMOBILE ENGINEERING**

#### Max. Marks: 100

#### **Duration: 3 Hours**

## PART A

		Answer all questions, each carries 3 marks.	Marks
1		What are the functions of Flywheel in an engine?	(3)
2		Explain the three types of frame construction.	(3)
3		What is the need for clutch and gear box in an automobile?	(3)
4		Explain the features of Double Wish Bone suspension system.	(3)
5		Explain how Parking brake works?	(3)
6		Explain the desirable properties of brake pad materials.	(3)
7		Distinguish the terms under steer and over steer.	(3)
8		Explain the advantages of fuel injection system over conventional systems.	(3)
9		What is Aerodynamic Drag? Discuss the effect of Drag using mathematical	(3)
		equations.	
10		List and Explain different battery parameters.	(3)
		PART B Answer any one full question from each module, each carries 14 marks.	
		Module I	
11	a)	With a neat sketch explain the construction and working of centrifugal clutch.	(6)
	b)	Explain with a neat sketch about the construction and working of synchromesh	(8)
		Gear box.	
		OR	
12	a)	Explain the construction and working details of multi plate clutch	(7)
	b)	Explain about automated manual transmission.	(7)
		Module II	
13	a)	With the help of neat diagram explain about trailing and semi trailing arm rear	(7)
		wheel drive independent suspension.	
	b)	Explain the term suspension roll centers.	(7)
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14	a)	Explain the working of hydro-pneumatic suspension.	(7)
	b)	Explain the working of De Dion axle rear wheel suspension.	(7)
		Module III	
15	a)	Explain about pneumatic operated disc brakes.	(7)
	b)	Discuss the features and advantages of ABS system over hydraulic brake system	(7)
		OR	
16	a)	List out the merits and demerits of pneumatic operated disc brakes.	(7)
	b)	Explain the working of vacuum assisted brake servo unit	(7)
		Module IV	
17	a)	Explain MPFI system with neat figure. List its advantages.	(10)
	b)	Explain Toe-in & Toe-out in steering geometry.	(4)
		OR	
18	a)	Explain the working of Rack and Pinion steering mechanism with a neat sketch	(7)
	b)	With the help of neat diagram explain worm and roller type steering gear box.	(7)
		Module V	
19	a)	What are the various methods to reduce the air drag?	(7)
	b)	With the help of neat drawing explain the working of fuel cell.	(7)
		OR	
20	a)	Discuss on the effect of 'under body floor height' on aerodynamic lift & drag of	(7)
		a vehicle.	
	b)	Explain the principle behind Maglev trains with neat figure.	(7)

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