Code No: R203203A **R20** SET -1

III B. Tech II Semester Regular Examinations, July -2023
AUTOMOBILE ENGINEERING
(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.		Explain the different lubrication systems and discuss the main parts of the lubrication systems. List out its advantages and disadvantages.	[14M]
		(OR)	
2.	a)	Explain briefly about the defects in chassis frame.	[7M]
	b)	Differentiate between turbo charging and super charging.	[7M]

UNIT-II

3.	a)	With help of neat sketch, explain the construction and operation of Hotchkiss Drive.	[7M]
	b)	Explain the working principle and application of a free wheel drive in a Transmission system.	[7M]
		(OR)	
4.	a)	Explain in detail about any one type of Synchromesh Gear Box with neat Sketches.	[7M]
	b)	What are the effects of wheel bearing layout on axle loading?	[7M]

UNIT-III

5.	a)	Discuss air suspension system with a sketch.	[7M]
	b)	How wheel alignment done in automobiles? Explain.	[7M]
		(OR)	
6.	a)	Explain the construction and working of davis steering gear mechanism.	[7M]
	b)	Define camber, castor, king pin rake angles and their significance in steering Geometry.	[7M]

UNIT-IV

7.	a)	Briefly discuss the functional requirements of braking fluids.	[7M]
	b)	Explain Compensated voltage control with the help of a diagram.	[7M]
		(OR)	
8.	a)	Draw and explain in detail with a simple sketch, working of master cylinder in braking system.	[7M]
	b)	Draw and explain with relevant circuit diagram, working of a windscreen wiper In a automobile.	[7M]

UNIT-V

9.	a)	Briefly explain how engine specifications logically guide a customer while purchasing a new vehicle	[10M]
	b)	Why engine service is required?	[4M]
		(OR)	
10.		Discuss briefly inspection and repair procedures for engine crank shafts in automobiles	[14M]

Code No: R203203A **R20** SET -2

III B. Tech II Semester Regular Examinations, July -2023
AUTOMOBILE ENGINEERING
(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.		Explain with neat sketches the various types of chassis & discuss their advantages and disadvantages.	[14M]
		(OR)	
2.	a)	Explain how a four wheel drive mechanism offers better power transmission in a automobile	[7M]
	b)	With the help of a neat sketch explain Splash Lubrication system?	[7M]

UNIT-II

3.	a)	Explain about centrifugal clutch with neat diagram?	[7M]
	b)	Explain about sliding mesh and synchro mesh gear boxes with neat diagrams?	[7M]
		(OR)	
4.	a)	What are the features of a good quality clutch? Explain the working of multi plate clutch with a neat sketch.	[10M]
	b)	Why is double clutching technique used?	[4M]

UNIT-III

5.		Explain the working of principle in rigid axle suspension system with neat diagram.	[14M]
		(OR)	
6.		Discuss the working of a diagonal braking system with a layout. Also explain the working of master cylinder in a hydraulic brake.	[14M]

UNIT-IV

7.	a)	Explain the operation of Hydraulic braking system with neat sketch.	[7M]
	b)	What is meant by tandem cylinder? How is better than a master cylinder?	[7M]
		(OR)	
8.	a)	Explain with a simple sketch, working of Bendix mechanism in an automobile.	[7M]
	b)	What is the difference between ABS and Normal braking system?	[7M]

UNIT-V

9.	a)	How effective are seat belts and explain why is it safer to wear seat belts.	[7M]
	b)	What are suspension sensors and explain how these improve comfort levels in a automobile?	[7M]
		(OR)	
10.	a)	Explain how air bags work and why it is essential in an automobile.	[7M]
	b)	Discuss in detail the service details for the engine piston-connecting rod assembly	[7M]

Code No: R203203A **R20** SET -3

III B. Tech II Semester Regular Examinations, July -2023
AUTOMOBILE ENGINEERING
(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	Draw the layout of four-wheel drive and list its advantages and disadvantages.	[7M]
	b)	Explain the working principle of turbocharger with neat sketch.	[7M]
		(OR)	
2.	a)	What is engine lubrication? Explain the splash lubrication system with neat sketch.	[7M]
	b)	Explain the oil filters and oil pumps.	[7M]

UNIT-II

3.	a)	Explain the working principle of cone clutch with neat sketch.	[7M]
	b)	Writs short note on wheels and tyres.	[7M]
		(OR)	
4.	a)	With the help of a neat sketch, explain the construction and operation of a sliding mesh gear box.	[7M]
	b)	What are the functions and requirement of propeller shaft? Explain in detail.	[7M]

UNIT-III

5.	a)	Explain the Ackerman principle of steering with neat sketch.	[7M]
	b)	Explain the working of shock absorber with neat sketch.	[7M]
		(OR)	
6.	a)	With reference to the steering system explain the purpose of Camber, Caster and Toe in with neat sketch.	[7M]
	b)	What are the objectives of suspension system?	[7M]

UNIT-IV

7.	a)	Discuss the function & working of a Master cylinder assembly in brake system with a sketch.	[7M]
	b)	Write short note on solenoid switch and engine temperature indicator.	[7M]
		(OR)	
8.	a)	Explain the working of pneumatic brakes with neat sketch.	[7M]
	b)	Write short note on horn and wiper.	[7M]

UNIT-V

9.	a)	Discuss in detail the specifications of automobile engine.	[7M]
	b)	Explain the electronic dash board instruments.	[7M]
		(OR)	
10.	a)	Discuss in detail about the safety system.	[7M]
	b)	Write short note on fuel flow sensor and oxygen sensor.	[7M]

Code No: R203203A **R20** SET -4

III B. Tech II Semester Regular Examinations, July -2023
AUTOMOBILE ENGINEERING
(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	What are the main components of an automobile? Describe all of them briefly.	[7M]
	b)	Explain the working principle of super charger with neat sketch.	[7M]
		(OR)	
2.	a)	Draw the layouts of automobile chassis and explain its significance.	[7M]
	b)	Describe the pressure lubrication system with neat sketch.	[7M]

UNIT-II

3.	a)	What is need for clutch and gear box in an automobile? Explain the principle of magnetic clutch.	[7M]
	b)	Discuss in detail about the different types of wheels and tyres with respect to construction, advantages and disadvantages.	[7M]
		(OR)	
4.	a)	With the help of a neat sketch, explain the construction and operation of a sliding mesh gear box.	[7M]
	b)	Explain Torque tube drive with neat sketch.	[7M]

UNIT-III

5.	a)	Sketch and explain various steering geometries.	[7M]
	b)	Sketch and explain the working of torsion bar.	[7M]
		(OR)	
6.	a)	Explain the steering linkage with suitable sketch.	[7M]
	b)	Describe the working of front independent suspension system with neat sketch.	[7M]

UNIT-IV

7.	a)	What are the essential differences between mechanical brakes and hydraulic brakes?	[7M]
	b)	Write short note on lighting system and oil pressure gauge.	[7M]
		(OR)	
8.	a)	Explain the working of bendix drive.	[7M]
	b)	Discuss the working of vacuum brakes with neat sketch.	[7M]

UNIT-V

9.	a)	What are the sensors and actuators used in automobiles? Explain the purpose of each.	[7M]
	b)	Write short note on air bags.	[7M]
		(OR)	
10.	a)	Describe in detail about the automobile engine service.	[7M]
	b)	What is CPU? Explain the computer memory used in automobiles.	[7M]