Code No: R193203H **R19** **SET - 1**

III B. Tech II Semester Regular Examinations, June-2022

AUTOMOBILE ENGINEERING

(Mechanical Engineering)

Time: 3 hours Max. Marks: 75

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

1. a) Classify different types of automobile bodies and explain them in brief with suitable examples. [8M]
   b) Outline various types of automobile engines and give their applications. [7M]

(OR)

2. a) Compare and contrast front wheel drive with rear wheel drive. [8M]
   b) Illustrate crankcase ventilation? Explain it with a line sketch. [7M]

UNIT-II

3. a) Demonstrate the function of a carburetor? With a neat sketch explain the working of a simple carburetor. [8M]
   b) Summarize the working of mechanical fuel pump used in petrol engines. [7M]

(OR)

4. a) Interpret the construction and working of fuel injector used in CI engines. [8M]
   b) Elaborate different testing methods on diesel engine fuel pumps. [7M]

UNIT-III

5. a) Classify engine cooling systems and explain working of forced circulation water cooling system. [8M]
   b) Differentiate Magneto and Coil ignition systems. [7M]

(OR)

6. a) Compare and contrast different types of radiators with line sketches. [8M]
   b) Differentiate spark advance and spark retard methods. [7M]

UNIT-IV

7. a) Choose any one Bendix drive mechanism and explain with neat sketch. [8M]
   b) Identify the purpose of different lights used in automobiles and explain with neat layout. [7M]

(OR)

8. a) Indicate different instruments used on instrument panel and explain working of any one instrument. [8M]
   b) Draw a neat sketch of wiper mechanism and explain its working. [7M]

UNIT-V

9. a) What are the different types of shock absorbers available? Extend working of any one with neat sketch. [8M]
   b) Organize layout of steering system used in heavy vehicles and explain functions of different components. [7M]

(OR)

10. a) Identify the type of brake systems used in cars and explain with neat sketch. [8M]
    b) Differentiate independent and rigid axle suspension systems. [7M]

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Code No: R193203H **R19** **SET - 2**

III B. Tech II Semester Regular Examinations, June-2022

AUTOMOBILE ENGINEERING

(Mechanical Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

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UNIT-I

1.	a)	Explain automobile anatomy with neat sketch.	[8M]
	b)	Distinguish two wheel drive and four wheel drive systems.	[7M]
		(OR)	
2.	a)	Illustrate the lubrication system used in multi-cylinder engines with neat sketch.	[8M]
	b)	Elaborate re-boring of cylinder and nitriding of crankshaft.	[7M]
		UNIT-II	
3.	a)	Demonstrate petrol injection system with a neat layout.	[8M]
	b)	Explain working of electrical fuel pump used in petrol engines.	[7M]
		(OR)	
4.	a)	Compare different fuel injection systems used in CI engines and explain them in brief.	[8M]
	b)	Show working of CAV fuel pump with neat sketch.	[7M]
		UNIT-III	
5.	a)	Outline different engine cooling methods and explain any one with neat sketch.	[8M]
	b)	How spark advance is achieved is SI engines?	[7M]
		(OR)	
6.	a)	Which type of ignition system is used in bikes? Explain with neat sketch.	[8M]
	b)	Summarize evaporative cooling system? Explain in brief.	[7M]
		UNIT-IV	
7.	a)	Demonstrate working of cut-out relay with a neat sketch.	[8M]
	b)	Identify the gear box used in busses and explain it with neat a sketch.	[7M]
		(OR)	
8.	a)	Interpret the working of the following accessories in automobiles: (i) Pressure gauge and (ii) Fuel gauge.	[8M]
	b)	(i) Differentiate single-plate and multi-plate clutches. (ii) Give merits and de-merits of fluid fly wheel.	[7M]

UNIT-V

9. a) Illustrate working of an independent wheel suspension system and explain. [8M]
   b) Build construction of rack and pinion steering system, and explain its working. [7M]

(OR)

10. a) Where telescopic shock absorbers are used? Explain working of it with neat sketch. [8M]
    b) Compare and contrast various types of springs used in suspension system. [7M]

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Code No: R193203H **R19** **SET - 3**

III B. Tech II Semester Regular Examinations, June-2022

AUTOMOBILE ENGINEERING

(Mechanical Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

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UNIT-I

1. a) Construct the layout of a generalized automobile and give the functions of different elements in it. [8M]
   b) Outline different lubrication oil pumps used in automobile engines and explain any one of them with neat sketch. [7M]

(OR)

2. a) Classify automobile bodies and explain them in brief with applications. [8M]
   b) Summarize different engine components and give their purpose. [7M]

UNIT-II

3. a) Elaborate different types of air filters used in automobiles and explain any one with neat sketch. [8M]
   b) Illustrate the layout of diesel engine fuel system and explain functions of various components in it. [7M]

(OR)

4. a) With a neat sketch explain working of electric fuel pump. [8M]
   b) How the fuel pump of diesel engine is tested? [7M]

UNIT-III

5. a) Which type of ignition system is used in petrol cars? Explain with neat sketch. [8M]
   b) Explain working of coolant pump with neat sketch? [7M]

(OR)

6. a) Interpret the working of ignition advance and retard mechanisms. [8M]
   b) What is the necessity of antifreeze solutions used in water cooling system? Give some examples of antifreeze solutions. [7M]

UNIT-IV

7. a) List out different types of gear boxes and explain working of manual gear box used in busses. [8M]
   b) Differentiate hotch kiss drive and torque tube drive. [7M]

(OR)

8. a) Outline working of multi-plate clutch with neat sketch. [8M]
   b) Explain working of synchronizing unit. [7M]

UNIT-V

9. a) Demonstrate the construction and working of tandem master cylinder with a neat sketch. [8M]
   b) Identify different parameters to be considered while wheel alignment and explain any three of them with neat sketches. [7M]

(OR)

10. a) Classify suspension systems and explain any one type of independent suspension system. [8M]
    b) (i) Summarize the objectives of suspension system. [7M]
    (ii) What is a torsion bar?

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Code No: R193203H **R19** **SET - 4**

III B. Tech II Semester Regular Examinations, June-2022

AUTOMOBILE ENGINEERING

(Mechanical Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

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UNIT-I

1. a) Illustrate the layout of a 2-wheeler and give the functions of various transmission and control elements in it. [8M]

   b) Summarize different engine components and give material with which they made and also give their method of manufacturing. [7M]

(OR)

2. a) Identify different sources of pollution in automobiles. Enumerate different pollution controlling methods in automobiles. [8M]

   b) Elaborate on crankcase ventilation. [7M]

UNIT-II

3. a) Outline the layout of SI engine fuel supply system and briefly explain various components in it. [8M]

   b) Summarize the functions of carburetor and explain working of simple carburetor with neat sketch. [7M]

(OR)

4. a) Demonstrate the construction and working of CAV fuel pump with neat sketch. [8M]

   b) Show the layout of petrol engine fuel system and explain functions of different components in it. [7M]

UNIT-III

5. a) Illustrate a neat sketch of battery ignition system and explain functions of each component. [8M]

   b) What is the necessity of thermostat valve in water cooling system? Explain in brief with neat sketch. [7M]

(OR)

6. a) Draw a neat sketch of water cooling system and explain its working. [8M]

   b) What is pressure sealed cap? Explain how it is beneficial in water cooling system. [7M]

UNIT-IV

7. a) Which type of clutch widely used in four wheel automobiles and explain its working? [8M]
   b) Outline different types of wheels with respect to their construction. Discuss their advantages and disadvantages. [7M]

(OR)

8. a) Explain working of Differential and necessity of differential lock. [8M]
   b) Sketch a cross sectional view of radial ply tyre and explain. Also give its merits and demerits. [7M]

UNIT-V

9. a) Classify different types of brakes according to actuating mechanisms and explain most widely used brakes in trucks. [8M]
   b) Differentiate Ackerman and Davis steering mechanisms. [7M]

(OR)

10. a) List out different types of steering gear mechanisms and explain any two of them. [8M]
    b) Elaborate the working of Mac Pherson strut type suspension with simple sketch. [7M]

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