Q. Code: 593209

Reg. No. | | | | | | | | | | | | | |

B.E / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Fifth Semester

OE18101 – FUNDAMENTALS OF AUTOMOBILE ENGINEERING

(Regulation 2018 / 2018A)

TIME: 3 HOURS **MAX. MARKS**: 100

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO1	Students will be able to outline the layout of conventional chassis, electric and hybrid vehicle and discuss the construction and working of automotive engines.	**3**
CO2	Students will be able to discuss the fuel system and ignition in automotive engines.	**3**
CO3	Students will be able to outline the construction and working of automotive transmission system.	**3**
CO4	Students will be able to describe the types of suspension systems, steering systems and discuss the steering geometry.	**3**
CO5	Students will be able to compare different types of wheel, tyre and brakes used in automobiles.	**3**

PART - A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	On what basis the automotive vehicle can be classified?	**1**	**2**
2.	How will you differentiate Electric vehicles from hybrid vehicles.	**1**	**3**
3.	Compare the carburetion system over fuel injection system.	**2**	**3**
4.	Identify and list out the components used in Battery coil ignition system.	**2**	**2**
5.	Why is a clutch needed in an automotive transmission system?	**3**	**2**
6.	Propeller shafts are made hollow. Yes/No? Justify.	**3**	**3**
7.	Differentiate Sprung weight over Unsprung weight.	**4**	**3**
8.	List the advantages of independent suspension system.	**4**	**2**
9.	Name the light alloys commonly used for automobile wheels.	**5**	**2**
10.	Compare disc brake system over drum brake system.	**5**	**3**

PART - B (5 x 14 = 70 Marks)

		Marks	CO	RBT LEVEL
11. (a)	Name the chassis layout in which all the four wheels will transfer the traction to the road with the help of a transfer case and explain the same with suitable sketch.	**(14)**	**1**	**3**

(OR)

(b)	Find the engine in which heterogeneous fuel mixture is combusted and explain the same on its construction and working with the help of neat sketches.	**(14)**	**1**	**3**
12. (a)	Identify the diesel fuel injection system which works with the operating pressure of around 2000 bar. Explain the construction and working of the same with neat sketches.	**(14)**	**2**	**3**
	(OR)			
(b)	Compare the distributor less electronic ignition system over the magneto coil ignition system on its working and construction and suggest a best ignition system.	**(14)**	**2**	**3**
13. (a)	Describe the construction and working of sliding mesh gear box with a neat sketch.	**(14)**	**3**	**2**
	(OR)			
(b)	With the aid of a sketch, explain the construction and working of a differential unit.	**(14)**	**3**	**2**
14. (a)	Compare the coil spring suspension system with Torsion bar suspension system used in automobile with a neat sketches.	**(14)**	**4**	**2**
	(OR)			
(b)	List out the various types of power assisted steering system. And explain with a neat sketch about any one type of power assisted steering system.	**(14)**	**4**	**2**
15. (a)	Compare in detail about the different types of tires with respect to construction, advantages and disadvantages.	**(14)**	**5**	**3**
	(OR)			
(b)	Identify the braking system which is used in heavy vehicles. Explain the same in detail with the help of neat sketches.	**(14)**	**5**	**3**

PART - C (1 x 10 = 10 Marks)

(Q. No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Discuss in detail with the help of a neat sketch about the braking systems that prevents wheels from locking to avoid skidding or to retain more control while skidding.	**(10)**	**5**	**3**

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