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Code No. : 16542 (B) N/O

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (Mech. Engg.) VI-Semester Main & Backlog Examinations, May/June-2023

Automotive Chassis Components (PE-I)

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	What are the functions of a frame?	2	1	1	1
2.	What is the main advantage of four-wheel drive vehicle?	2	2	1	1
3.	What is the difference between a 'live front axle' and a 'dead front axle'?	2	2	2	1
4.	Define the terms "understeer" and "oversteer".	2	1	2	1
5.	Which type of rear axle is best suited for heavy vehicles? and why?	2	4	3	1
6.	What is double reduction final drive?	2	1	3	1
7.	How the term "unsprung weight" differs from term "sprung weight"?	2	3	4	1
8.	Which type of front suspension used in Maruti Suzuki WAGON R car?	2	4	4	1
9.	How does leading shoe differs from trailing shoe?	2	2	5	1
10.	Why water can not be used as a braking fluid?	2	4	5	1
Part-B (5 × 8 = 40 Marks)					
11. a)	List out the types of chassis layout with reference to power plant locations and drive with neat sketches.	4	1	1	1
b)	Explain the unitized frame body construction with a neat sketch.	4	1	1	1
12. a)	Explain the terms: Camber, Caster, King pin inclination and toe-in with sketches.	4	1	2	1
b)	Discuss in detail the Ackermann steering mechanism.	4	3	2	1
13. a)	Discuss the constructional details of semi-floating type rear axle with a neat sketch.	4	3	3	1
b)	Describe the working principle of a differential with a neat sketch.	4	3	3	1
14. a)	Explain in detail the constructional details of telescopic type shock absorber with a simple sketch.	4	2	4	6
b)	Describe the working principle of a Mac-Pherson strut suspension system with a neat diagram.	4	2	4	6
15. a)	Briefly describe the construction and working of disc brakes. Compare them with the conventional drum type brakes.	4	3	5	6
b)	Explain in detail the necessity and principle of working of an antilock brake system.	4	3	5	6
16. a)	Sketch the layout of transmission system and explain the functions of components in it.	4	1	1	1
b)	Describe the working principle of single plate clutch with a neat sketch.	4	2	2	1
17.	Answer any <i>two</i> of the following:				
a)	Explain with the help of a neat sketch the construction of a Hotchkiss drive.	4	2	3	1
b)	Describe the advantages and disadvantages of independent suspension compared to rigid axle suspension.	4	3	4	6
c)	Describe the working principle of a master cylinder used in hydraulic braking system.	4	2	5	6

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	27.5%
ii)	Blooms Taxonomy Level – 2	32.5%
iii)	Blooms Taxonomy Level – 3 & 4	40%
