

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Third semester B.Tech examinations (S) September 2020

Course Code: AU205**Course Name: AUTOMOTIVE CHASSIS**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer any three full questions, each carries 10 marks.*

Marks

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| 1 | Explain four wheel drive layout with a neat diagram. List down its merits and demerits. | (10) |
| 2 | a) What are the various systems and subsystems in automobiles?
b) Explain the various loads acting on a vehicle frame. | (5)
(5) |
| 3 | a) Explain the construction of X- frames.
b) Explain the different cross –sections used in frames. | (5)
(5) |
| 4 | What is perimeter frame? Explain with a neat sketch. How it is different from ladder frame construction? | (10) |

PART B*Answer any three full questions, each carries 10 marks.*

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| 5 | a) What are the various types of stub axle? On what factor we select the suitable stub axle?
b) List Down and explain the various forces acting on the driving axle. | (5)
(5) |
| 6 | Explain the construction and working of a differential with a neat sketch. | (10) |
| 7 | a) Explain the functions and requirement of an automobile tyre.
b) What are the different types of wheels used in automobiles? Briefly explain. | (5)
(5) |
| 8 | Explain the different types of rubber springs used in the suspension. | (10) |

PART C*Answer any four full questions, each carries 10 marks.*

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| 9 | What are the various salient features of Hotchkiss drive? Explain with the help of a sketch. | (10) |
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- 10 What are the different terms related to front wheel geometry? Comment on the effect of each of these geometries on the vehicle systems. (10)
- 11 Explain the following steering gearboxes with a neat sketch (10)
i) Rack and pinion; ii) Worm and worm wheel
- 12 a) How the torque transmitted by a leading shoe is different from trailing shoe? (5)
b) Why is the vehicle fitted with disc brake in the front and drum brake in the rear and not vice versa? (5)
- 13 Explain the working of a hydraulic servo braking system with a neat sketch. (10)
- 14 How fail safe brake works? Explain the construction and working of dual reservoir fail safe braking system. (10)
