

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
THIRD SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

Course Code: AU203

Course Name: AUTO CHASSIS

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any three full questions, each carries 10 marks.

Marks

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|---|----|--|-------|
| 1 | a) | What are the different types of wheels used in an automobile and list down the advantages and disadvantages of each wheel? | (10) |
| 2 | a) | Explain X- frames. | (5) |
| | b) | Explain the different cross –sections used in frames. | (5) |
| 3 | a) | Explain the different loads acting on the axles. | (5) |
| | b) | What are the functions of radius rods and panhard rods in the stability of the vehicle? | (5) |
| 4 | a) | Explain with a neat diagram, Hotchkiss and torque tube drive. | (10) |

PART B

Answer any three full questions, each carries 10 marks.

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| 5 | a) | Before differential, how was the automobiles designed and how was the drive provided? | (5) |
| | b) | For the same vehicle, if we change the rear axle from fully floating to semi floating, will the axle size increase, decrease or remain the same. Provide the reason behind your answer | (5) |
| 6 | a) | List Down the driving forces acting on the driving axle. | (5) |
| | b) | Which are the types of axle housings? Explain with neat diagram | (5) |
| 7 | a) | Why do we require a suspension system in a vehicle? | (5) |
| | b) | What are the functions of a suspension system? | (5) |
| 8 | a) | With a neat diagram, explain the working of a telescopic dampers | (10) |

PART C

Answer any four full questions, each carries 10 marks.

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| 9 | a) | List down the energy conversion happening during braking. Explain how the force is multiplied in the hydraulic braking system | (5) |
| | b) | Why is the vehicle fitted with disc brake in the front and drum brake in the rear and not vice versa? | (5) |
| 10 | a) | Explain the pneumatic braking system with a neat block diagram | (10) |
| 11 | a) | What are the classifications of disc brake? Explain each of them | (10) |
| 12 | | Explain the following: | |

- a) Reversible and irreversible steering (3)
- b) Steering error curve (3)
- c) Oversteer and understeer (4)
- 13 a) Explain the different stub axle types and list the most popularly used one (10)
- 14 a) Explain the working of a recirculating ball type steering gearbox with a neat sketch (10)
