

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Third Semester B.Tech Degree (S,FE) Examination December 2020 (2015 Scheme)

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 | a) What is automobile? How they are classified? | (7) |
| | b) What is the role of automotive industry in the development of GDP of India? | (3) |
| 2 | a) What are the advantages of front engine rear wheel drive? | (2) |
| | b) Draw the layout of a front engine front wheel drive and explain its working. | (8) |
| 3 | What are the different types of frames? Explain with suitable sketches. | (10) |
| 4 | What are the various types of bodies used for passenger cars? Explain with suitable examples. | (10) |

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

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| 5 | a) What are the various loads acting on the live axle? Explain. | (6) |
| | b) What are the functions of sliding joint and slip joint? What is the requirement of constant velocity Universal Joint? | (4) |
| 6 | a) What is the need of a differential in a vehicle? | (2) |
| | b) What is differential lock? Explain the construction and working of self locking differential with neat sketch. | (8) |
| 7 | a) What are the objectives of good suspension system? | (4) |
| | b) What is the need of torsion bar? How it works? Explain. | (6) |
| 8 | a) What is the function of a shock absorber? | (2) |
| | b) How air suspension system works? Explain with the help of a suitable diagram. | (8) |

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

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| 9 | a) What are the different types of stub axle arrangements? | (2) |
| | b) Why davis steering is not practically used? | (2) |
| | c) Explain the concept of Ackermann steering with a neat sketch. | (6) |

- 10 a) What is the function of a steering gear box? (2)
b) Why recirculating ball nut steering is preferred over worm and nut? Explain its construction with a neat sketch. (8)
- 11 a) What is reversible, semi reversible and irreversible steering? Which is preferred? (4)
b) What do you mean by understeering and oversteering effect? Explain. (4)
c) What is slip angle? (2)
- 12 a) What are functions of a braking system? (3)
b) What is the difference between leading brakes and trailing brakes? (3)
c) Why front wheels of new generation cars are fitted with disc brakes and rear with drum brakes? Explain. (4)
- 13 a) What do you mean by braking efficiency? (2)
b) What is the purpose of ABS? How it works? Explain. (8)
- 14 a) What are servo brakes? (2)
b) Explain the construction and working of vacuum servo brakes with the help of a diagram. (8)
