

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Scheme for Valuation/Answer Key

Scheme of evaluation (marks in brackets) and answers of problems/key

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: ME463

Course Name: Automobile Engineering

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any three full questions, each carries 10 marks.

- | | | Marks |
|---|---|-------|
| 1 | a) MPFI system Sktech-1 mark ,explanation about MPFI system -1 mark
CRDI system sketch – 1mrak, explanation about CRDI system -1 mark
Major difference between MPFI and CRDI system (any two)- 2 marks | (6) |
| | b) Sketch (schematic diagram of how oil control ring helps in lubrication)-2 mark
Explanation of the working of oil control ring helps in piston lubrication –
2mark | (4) |
| 2 | a) Functions of Piston pin- 1 mark, Connecting rod – 1mark,Push rod – 1 mark ,Fly
wheel- 1 mark, Cylinder liner – 1mark,piezoelectric injector-1mark | (6) |
| | b) Four features: 1 mark each | (4) |
| 3 | a) Any four differences: 1 mark each | (4) |
| | b) Neat sketch of torque converter – 3 mark
Working – 3 mark | (6) |
| 4 | a) Neat sketch – 2 mark, Explanation - 4 mark | (6) |
| | b) Need / function of clutch – 2 mark, Need/ function of gear box – 2 mark | (4) |

PART B

Answer any three full questions, each carries 10 marks.

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|---|--|-----|
| 5 | a) neat sketch of re- circulating ball nut steering gear box -3 mark
Working of re- circulating ball nut steering gear box – 3 mark | (6) |
| | b) Definition- 4 mark | (4) |
| 6 | a) Neat sketch of rack and pinion steering mechanism – 3 mark Working of rack
and pinion steering mechanism – 3 mark | (6) |
| | b) Four advantages of power assisted steering mechanism over without power
assisted steering system– 4 marks | (4) |
| 7 | a) Definition of body roll – 2 mark
Controlling methods (at least three)- 3 marks | (5) |

- b) Functions of double wishbone suspension system – 2 mark (5)
 Advantages of double wishbone suspension system over the other suspension systems – 3 mark
- 8 a) Neat sketch of semi trailing arm suspension system- 3 mark (6)
 Working of semi trailing arm suspension system- 3 mark
- b) Definition of body roll couple and body over turning couple -2 mark (4)
 Difference between body roll couple and body over turning couple (any two) – 2 marks

PART C

Answer any four full questions, each carries 10 marks.

- 9 a) Functions of ABS system – 2 mark (6)
 Working principle of ABS system – 3 mark
 Neat sketch (schematic diagram of ABS system) – 1 mark
- b) Features of ABS system over hydraulic brake system – 2 mark (4)
 Advantages of ABS system over hydraulic brake system – 2 mark
- 10 a) Vacuum brake circuit schematic diagram – 2 mark (6)
 Working of vacuum brake – 4 mark
- b) Comparison between hydraulic and pneumatic system (any four) – 4 mark (4)
- 11 a) Neat diagram (showing brake drum and internal expanding mechanism)- 4 mark (6)
 Working-2 mark
- b) Working of master cylinder assembly- 4 mark (4)
- 12 a) Brief note on under body floor height – 1 mark (5)
 Effect of under body floor height on drag – 2 mark
 Effect of under body floor height on lift – 2 mark
- b) Explanation on profile edge chamfering- 1 mark (5)
 Methods for profile edge chamfering- 2 mark
 Improvements – 3 mark
- 13 a) Brief note on side chamfering – 1 mark (5)
 Effect of side chamfering – 4 marks
- b) Note on square back drag – 5 mark (5)
- 14 a) definition of car drag – 1 mark (5)
 Methods to reduce the car drag – 4 mark
- b) Definition of negative lift aerofoil wings- 1 mark (5)
 Function of negative lift aerofoil wings - 4 mark
