

Total No. of Questions—8]

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[5667]-1003

F.E. (I Semester) EXAMINATION, 2019
SYSTEMS IN MECHANICAL ENGINEERING
(2019 PATTERN)

Time : 2½ Hours

Maximum Marks : 70

Course Outcome :—

- (CO3) List down the types of road vehicles and their specifications.
- (CO4) Illustrate various basic parts and transmission system of a road vehicle.
- (CO5) Discuss several manufacturing processes and identify the suitable process.
- (CO6) Explain various types of mechanism and its application.

N.B. :— (i) Solve Q. No. 1 or Q. No. 2, Q. No. 3 Or Q. No. 4,
Q. No. 5 or Q. No. 6, Q. No. 7 or Q. No. 8.
(ii) Assume suitable data, if necessary.
(iii) Figures to the right indicate full marks.

1. (a) Classify automobiles and explain any *two*. [7]
(b) Define specification of vehicle and compare specification of LMV and Multi-axel vehicles (*three* points). [7]
(c) Explain the following Engine Specification : [4]
 - (1) Torque
 - (2) Cubic Capacity.

P.T.O.

Or

2. (a) List specification of vehicle and explain any *three* specifications for two wheeler. [7]
- (b) Explain working of Electric Vehicle with neat diagram. [7]
- (c) Explain Cost analysis of vehicle. [4]
3. (a) Explain working of Disc Brake with neat line diagram. [7]
- (b) Explain telescopic suspension system with neat diagram. [7]
- (c) A two stage spur gear assembly is having teeth number of input gear as 30, intermediate gear as 60 and output gear as 120. If input speed is 1000 rpm, compute speed ration and output speed. [3]

Or

4. (a) Explain with neat diagram Front Engine Front Wheel Drive. Write any *two* advantages. [7]
- (b) Explain working of single plate clutch with neat diagram. [7]
- (c) Write a short note on safety arrangement in vehicles. [3]
5. (a) Explain sand casting manufacturing process with neat diagram. [7]
- (b) List type of joining process and compare welding and soldering process (*three* points). [7]
- (c) Write a short note on 3D-Printing technology. [4]

Or

6. (a) Define Machining operation and explain turning and drilling operation principal with neat diagram. [7]
- (b) Define forging process. Explain open and close forging process with neat diagram. [7]
- (c) Write a short note on micromachining. [4]
7. (a) Explain working of split AC with neat diagram. [7]
- (b) Explain working of Solar Heater with neat diagram. [7]
- (c) Write a short note on use of gear in Clock. [3]

Or

8. (a) Explain working of printer with neat diagram. [7]
- (b) Explain concept of open belt pulley drive with neat diagram and list two applications. [7]
- (c) Write a short note on Electric iron. [3]