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**Question Paper Code: 59703**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2020

Elective

Mechanical Engineering

15UME903 - AUTOMOBILE ENGINEERING

(Regulation 2015)

Duration: 1:15 hours

Maximum: 30Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

1. In the diesel engine, the compression ratio is as high as CO1- R  
(a) 10:1                      (b) 15:1                      (c) 5:1                      (d) 12:1
2. The automobile chassis consists of the engine, frame, power train, wheels, steering and CO1- U  
(a) The doors                      (b) Luggage boot                      (c) Wind shield                      (d) Braking system
3. Ignition quality of petrol is expressed by CO2-R  
(a) Octane number                      (b) Cetane number  
(c) Calorific value                      (d) Self-ignition temperature
4. Supercharging is essential in CO2-R  
(a) Diesel engines                      (b) Gas turbines                      (c) Petrol engines                      (d) Aircraft engines
5. The torque tube is a tubular member which encloses the CO3- U  
(a) Propeller shaft                      (b) Half shafts                      (c) Differential                      (d) Axle
6. The distance between adjacent meshing teeth of mating gears is called CO3- R  
(a) Clearance                      (b) Back lash                      (c) Flank                      (d) Heel
7. In the air brake, air pressure is supplied by CO4- U  
(a) Engine manifold                      (b) Compressor                      (c) The diaphragm valve                      (d) Cylinder head
8. The laminated spring, which is in common use, is of the type CO4- R  
(a) Full elliptic                      (b) Semi elliptic  
(c) Three quarter elliptic                      (d) One quarter elliptic

9. About how fast does a motor-generator crank the internal combustion engine CO5- U  
(a) About 1000 RPM (b) About 2000 RPM  
(c) About 150–300 RPM (d) About 400–600 RPM
10. Which type of hybrid electric design costs the least? CO5- U  
(a) Strong hybrid design (b) Series hybrid design  
(c) Parallel hybrid design (d) BAS design

PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. Identify the engine components, materials, and their functions of TATA CO1- Ana (8)  
NANO car
12. Examine the engine emission control by three way catalytic converter CO2- Ana (8)  
system in modern vehicles.
13. Construct with suitable sketches the operational features of sliding mesh CO3- App (8)  
gear box.
14. Distinguish about vehicle traction control and Airbag with neat CO4- Ana (8)  
diagrams
15. Summarize the working principle of a fuel cell car in details. CO5- U (8)