

**Code No: 126EH**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**  
**B. Tech III Year II Semester Examinations, October/November - 2016**  
**AUTOMOBILE ENGINEERING**  
(Common to ME, MCT)

**Time: 3 hours****Max. Marks: 75**

**Note:** This question paper contains two parts A and B.  
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A**

**(25 Marks)**

- 1.a) How are automobiles classified? [2]
- b) Describe the different shapes of an automobile. [3]
- c) What is the function of contact points inside the distributor? [2]
- d) What are the basic requirements of an ignition system for an I.C. engine? [3]
- e) What is the function of a stabilizer? [2]
- f) Define bouncing, pitching and rolling? [3]
- g) What is the function of a proportioning control valve? [2]
- h) What are the basic characteristics of a brake fluid? [3]
- i) What is the basic function of a canister in evaporative emission control systems? [2]
- j) Write three reasons for using monolith three-way catalytic converter. [3]

**PART - B**

**(50 Marks)**

- 2.a) Describe the construction and working of a fuel feed pump used in a diesel engine.
- b) Explain the difference in ignition method of fuel in case of petrol and diesel engines. [6+4]

**OR**

- 3.a) Describe the construction and working principle of a carter carburetor.
- b) What are the air- fuel requirements of a carburetor at different operating conditions? [6+4]

- 4.a) Describe the construction and working of a rotating armature type magneto system.
- b) Compare battery coil and magneto ignition system. [6+4]

**OR**

- 5.a) Why electronic ignition system is preferred over conventional ignition system?
- b) Why is water cooling preferred than air cooling systems? Explain. [6+4]

- 6.a) Explain rigid axle and independent suspension system. Discuss their applications.
- b) Write about shackles. [6+4]

**OR**

- 7.a) Explain the two types of clutch operating mechanisms.
- b) What types of gears are used in sliding mesh transmission and constant mesh transmission? Justify. [6+4]

- 8.a) Explain the working of a tandem master cylinder. Give its merits and demerits.  
b) Write about the power brakes. [6+4]

**OR**

- 9.a) Explain the working of a electronic power steering.  
b) Classify the different types of steering mechanisms for cars. [6+4]

- 10.a) Explain the emission standards for pollution control. Describe Euro-IV norms for passenger cars.  
b) What is stratified charge? Explain its working principle. [6+4]

**OR**

- 11.a) Explain Indian standards for emissions for petrol and diesel vehicles.  
b) Describe the correlation between the three toxic components based on air-fuel ratio. [6+4]

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**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, May - 2017****AUTOMOBILE ENGINEERING****(Common to ME, MCT)****Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A****(25 Marks)**

- 1.a) Define Chassis. [2]
- b) What is MPFI system? [3]
- c) Define thermostat. [2]
- d) What are the requirements of a good spark plug? [3]
- e) Define contact brakers. [2]
- f) What is the function of a propeller shaft? [3]
- g) What is King pin inclination? [2]
- h) What is meant by Toe-in and Toe-out? [3]
- i) Name the different alternative fuels. [2]
- j) Define octane and Cetane numbers. [3]

**PART - B****(50 Marks)**

- 2.a) Classify the different types of carburettors.
  - b) Show and explain with reason the mixture requirement for idling, cruising and high power range at various throttle openings. [5+5]
- OR**
- 3.a) What is the function of Fuel-injection holder?
  - b) Explain the different types of nozzles with neat sketches. [5+5]
- 4.a) What are the advantages of liquid-cooling systems.
  - b) Explain the working of thermo-syphon cooling system. [5+5]
- OR**
- 5.a) What are the factors that affect spark-advance.
  - b) Briefly explain the working of the battery-ignition system with the help of a circuit diagram. [5+5]
- 6.a) What is the principle of differential?
  - b) Differentiate between Torque tube and Hotch-kiss drive. [5+5]
- OR**
- 7.a) What are the function of a shock absorber?
  - b) Explain the construction and working of telescopic type of shock absorber with the help of a neat diagram. [5+5]

- 8.a) Write a short note on Tandem master cylinder.  
b) Explain hydraulic brake system with neat sketch. [5+5]

**OR**

- 9.a) Write a short note on Ackerman steering gear mechanism.  
b) Explain the construction and working of Davis steering gear mechanism. [5+5]

- 10.a) What are the advantages of C.N.G and L.P.G?  
b) Explain the working of a catalytic converter. [5+5]

**OR**

- 11.a) How hydrogen fuel is used as an alternate fuel?  
b) What are the advantages and disadvantages of Bio-diesel? [5+5]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, December - 2017

AUTOMOBILE ENGINEERING

(Common to ME, MCT)

Time: 3 hours

Max. Marks: 75

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A****(25 Marks)**

- 1.a) Write the types of automobile engines. [2]
- b) Write the requirements of diesel injection systems. [3]
- c) Write about antifreeze solutions. [2]
- d) Briefly write the functions of an ignition system. [3]
- e) Write the principle of clutch. [2]
- f) Write about the objects of suspension system. [3]
- g) Define camber and king pin inclination. [2]
- h) Write the requirements of brake fluid. [3]
- i) Write the applications of CNG as alternate fuel. [2]
- j) Write the demerits of Hydrogen as a fuel for IC Engines. [3]

**PART - B****(50 Marks)**

- 2.a) Write about engine lubrication.
  - b) Explain about MPFI and GDI Systems. [5+5]
- OR**
- 3.a) Explain the testing of fuel pumps.
  - b) Write about CRDI and TDI Systems. [5+5]
- 4.a) Explain the evaporative cooling system with the help of neat sketch.
  - b) Explain about electronic ignition system using contact breaker. [5+5]
- OR**
- 5.a) Describe about pressure sealed cooling.
  - b) Write about horn, wiper and engine temperature indicator. [4+6]
- 6.a) Explain the working of cone clutch used in an automobile with a neat sketch.
  - b) Write about torsion bar. [5+5]
- OR**
- 7.a) With the help of a neat sketch, explain the construction and operation of a constant mesh gearbox.
  - b) Write about independent suspension system. [5+5]

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- 8.a) Explain the working of hydraulic brake system with neat diagram. [5+5]  
b) Write about center point steering and steering linkages. [5+5]
- OR**
- 9.a) Write about pneumatic brakes. [5+5]  
b) Explain about Davis steering mechanism with neat sketch. [5+5]
- 10.a) Write about the International Pollution standards. [5+5]  
b) Explain about common rail diesel injection. [5+5]
- OR**
- 11.a) Explain the techniques of pollution control. [5+5]  
b) Write about Biomass, alcohols and LPG as alternate fuels. [5+5]

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