



12168

13141

3 Hours/100 Marks

Seat No.

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- Instructions:** (1) **All questions are compulsory.**
(2) **Illustrate your answers with neat sketches wherever necessary.**
(3) **Figures to the right indicate full marks.**
(4) **Assume suitable data, if necessary.**
(5) **Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.**

MARKS

1. A) Attempt **any three** of the following : **(4×3=12)**
- a) Write four difference between S.I. and C.I. engine.
 - b) Describe four properties at S.I. engine fuel.
 - c) State four additives used in S.I. engine fuels. State the purpose of using the same.
 - d) What are the effect of engine variables on flame propagation ?
- B) Attempt **any one** of the following : **(6×1=6)**
- a) What is Diesel knocking ? How is it control ?
 - b) Draw neat sketch of D-MPFI system and write its working.
2. Attempt **any two** of the following : **(8×2=16)**
- a) Compare MPFI and carburetor fuel system.
 - b) Explain with neat sketch top feed electronic fuel injector.
 - c) What is EGR ? Explain its working with sketch.
3. Attempt **any two** of the following : **(8×2=16)**
- a) Compare performance characteristics of S.I. and C.I. engines.
 - b) Explain the stages of combustion in S.I. engines with sketch.
 - c) What is Hybrid Vehicle ? Explain working with the help of layout of a series Hybrid Vehicle.

P.T.O.

**MARKS****(4×3=12)**4. A) Attempt **any three** of the following :

- a) Why compression ratio of C.I. engine is required more than S.I. engine ? Justify your answer.
- b) Explain the construction and working of Throttle Body Injection (TBI).
- c) What is detonation ? Explain at least two factors which control detonation.
- d) What are the effect of engine maintenance on exhaust emission ?

B) Attempt **any one** of the following :**(6×1=6)**

- a) Explain CRDI system with block diagram.
- b) Compare diesel and gasoline emission.

5. Attempt **any two** of the following :**(8×2=16)**

- a) Draw neat sketch of electronic fuel injector and write its working.
- b) Write eight properties of C.I. engine fuel.
- c) Name the pollutants present in diesel fuel and state the effect of pollutant on human being.

6. Attempt **any four** of the following :**(4×4=16)**

- a) What are the basic requirements considered for designing the combustion chamber ? Explain in brief.
 - b) Explain the effect of engine variables on Ignition lag.
 - c) Write four advantages of CRDI system over conventional fuel ignition system.
 - d) State four inputs and outputs of electronic control module.
 - e) What it catalytic converter ? Draw sketch of three-way catalyst system and write its working.
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