

Printed Pages : 2



EAE011

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 148651

Roll No.

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B. Tech.

(SEM. VI) THEORY EXAMINATION, 2014-15
PROPULSION - I

Time : 3 Hours]

[Total Marks : 100

Note : Attempt ALL questions.

- 1** Attempt any **one** part : **20×1=20**
- A. With the help of P-V(Pressure –Volume) compare otto, diesel and dual cycles
- B. An ideal aircraft diesel engine has a clearance volume as 10 percent of the swept volume and the diameter as 20 cm and stroke as 30 cm.. Determine the air standard efficiency and the compression ratio of the engine if the cut-off takes place at 7 percent of the stroke.
- 2** Briefly explain any two : **10×2=20**
- i. Knocking in SI engine. How various anti-knock agents work.
- ii. Effects of altitude on Carburetion.
- iii. Fuel-air ratio requirements with change in load conditions.

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[Contd...

- 3** Attempt any **two** parts : **10×2=20**
- A. Compare air cooling and liquid cooled aircraft engine
 - B. What are the functions performed by lubrication system and explain the various lubrication system
 - C. What do you understand by supercharging. Why it is important in aircraft engines ?
- 4** Attempt any **two** parts : **10×2=20**
- A. Classify aircraft engines based on cylinder arrangements.
 - B. In what way a normally aspirated engine is different to supercharged engine.
 - C. Write short notes (in reference to aircraft engine testing) on any **two** of the following :
 - i. Dynamometer
 - ii. Correction factors
 - iii. Mechanical engine indicators
 - iv. Volumetric efficiency.
- 5** Write short notes on any **four** : **5×4=20**
- i. Strokes-bore ratio
 - ii. Flame travel
 - iii. Effect of inlet air temperature, inlet and outlet pressure on volumetric efficiency.
 - iv. Hemispherical combustion head
 - v. Effect of piston speed on air capacity.
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