

Unit 4 - Week 3

Course outline

How does an NPTEL online course work?

Week 1

Week 2

Week 3

● Engine Performance - Part 01

○ Engine Performance - Part 02

○ Supercharging and Combustion in SI Engines - Part 01

○ Supercharging and Combustion in SI Engines - Part 02

○ Knocking in SI Engines - Part 01

○ Knocking in SI Engines - Part 02

○ Quiz : Assignment 3

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● Solution - Assignment 3

Week 4

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Lecture Material

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Assignment 3

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-02-19, 23:59 IST.

- 1) The _____ efficiency is the ratio of the mass flow rate of air actually taken into the cylinder through the intake system to the rate at which air could be ideally taken into the cylinder. 1 point
- indicated
 brake
 relative
 volumetric
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
volumetric
- 2) The difference between the indicated mean effective pressure and the brake mean effective pressure is called as _____ mean effective pressure. 1 point
- thermal
 friction
 volumetric
 relative
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
friction
- 3) Which ONE of the following statements is TRUE about specific power output? 1 point
- It increases with increase in both BMEP and mean piston speed.
 It increases with increase in BMEP and decrease in mean piston speed.
 It increases with decrease in BMEP and increase in mean piston speed.
 It increases with decrease in both BMEP and mean piston speed.
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
It increases with increase in both BMEP and mean piston speed.
- 4) Which ONE of the following statements is TRUE about a lean fuel-air mixture? 1 point
- Its equivalence ratio and excess air ratio are both greater than one.
 Its equivalence ratio and excess air ratio are both lower than one.
 Its equivalence ratio is lesser than one and its excess air ratio is greater than one.
 Its equivalence ratio is greater than one and its excess air ratio is lesser than one.
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
Its equivalence ratio is lesser than one and its excess air ratio is greater than one.
- 5) On which ONE of the following parameters, does the indicated mean effective pressure of the Otto Cycle not depend on? 1 point
- Compression ratio.
 Pressure ratio.
 Ratio of specific heats.
 Cut-off ratio.
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
Cut-off ratio.
- 6) Which ONE of the following statements is a limitation of supercharging? 1 point
- The density of intake air increases.
 The mechanical load on the engine components increases.
 The mean effective pressure increases.
 The engine output increases for the same displacement volume.
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
The mechanical load on the engine components increases.
- 7) Which ONE of the following statements is not correct about a turbocharger? 1 point
- It is driven by the engine crankshaft.
 It has a gas turbine.
 The pressure of air coming out of the turbocharger is more than that coming in.
 The temperature of air coming out of the turbocharger is more than that coming in.
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
It is driven by the engine crankshaft.
- 8) The plot of the pressure and crank angle obtained when no combustion takes place is called as the _____ curve. 1 point
- cylinder
 engine
 motoring
 pressure
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
motoring
- 9) The process where a part of the unburnt fuel-air mixture self-ignites in a SI engine is called as _____. 1 point
- afterburning
 knocking
 flame propagation
 expansion
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
knocking
- 10) Which ONE of the following statements is not correct about normal combustion in a SI engine? 1 point
- A self-propagating nucleus of flame is formed in the ignition lag phase.
 The cylinder pressure reaches its maximum at the completion of the after burning phase.
 The spark is typically given before TDC.
 Strong pressure pulsations are not observed.
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
The cylinder pressure reaches its maximum at the completion of the after burning phase.
- 11) The anti-knock characteristic of the fuel used in a SI engine is quantified using the _____ number. 1 point
- Cetane
 Octane
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
Octane
- 12) Supercharging _____ the tendency for knocking in SI engines. 1 point
- increases
 decreases
 does not affect
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
increases
- 13) Increasing the compression ratio _____ the tendency for knocking in SI engines. 1 point
- increases
 decreases
 does not affect
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
increases
- 14) Retarding the spark timing _____ the tendency for knocking in SI engines. 1 point
- increases
 decreases
 does not affect
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
decreases
- 15) Increasing the flame speed _____ the tendency for knocking in SI engines. 1 point
- increases
 decreases
 does not affect
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
decreases