Unit 3 - Week 2

Assignment 2

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

Due on 2020-02-12, 23:59 IST.

Note to Learners: Take $\gamma = 1.4$. For numerical multiple-choice questions, choose the nearest possible answer(s).

1) In a two stroke SI engine, the _____ port is used to take the fuel-air mixture from the crankcase to the combustion chamber. *1 point*

- inlet
- exhaust
- intermediate
- transfer

No, the answer is incorrect.
Score: 0
Accepted Answers:
transfer

2) Which one of the following is TRUE about a two stroke engine when compared with a four stroke engine? *1 point*

- It has a higher thermal efficiency.
- It has a higher effective expansion stroke.
- It has a higher chance of exhaust gas dilution.
- It has lower specific fuel consumption.

No, the answer is incorrect.
Score: 0
Accepted Answers:
It has a higher chance of exhaust gas dilution.

3) Which one of the following is FALSE about air standard engine cycles? *1 point*

- The working fluid is air.
- All processes are internally irreversible.
- Air is treated as an ideal gas.
- Combustion process is described by a heat addition process.

No, the answer is incorrect.
Score: 0
Accepted Answers:
All processes are internally irreversible.

4) Which one of the following is not a process in the air standard Otto cycle? *1 point*

- Isentropic compression.
- Constant volume heat addition.
- Isentropic expansion.
- Constant pressure heat rejection.

No, the answer is incorrect.
Score: 0
Accepted Answers:
Constant pressure heat rejection.

5) For a compression ratio of 8, the air standard Otto cycle thermal efficiency (in %) is *1 point*

- 56
- 48
- 28
- 32

No, the answer is incorrect.
Score: 0
Accepted Answers:
56

6) For a compression ratio of 8 and a cut-off ratio of 2, the air standard Diesel cycle thermal efficiency (in %) is *1 point*

- 60
- 49
- 40
- 24

No, the answer is incorrect.
Score: 0
Accepted Answers:
49

7) For a compression ratio of 8, a cut-off ratio of 2 and a pressure ratio of 2, the air standard Dual cycle thermal efficiency (in %) is *1 point*

- 62
- 36
- 47
- 51

No, the answer is incorrect.
Score: 0
Accepted Answers:
51

8) Which of the following is constant during the heat addition process of the air standard Diesel cycle? *1 point*

- pressure
- volume
- entropy
- enthalpy

No, the answer is incorrect.
Score: 0
Accepted Answers:
pressure

9) For a compression ratio of 8 and an initial cycle temperature of 300 K, the temperature (in K) at the end of the compression process in an air standard Diesel cycle is *1 point*

- 2400
- 689
- 5514
- 1200

No, the answer is incorrect.
Score: 0
Accepted Answers:
689

10) For a compression ratio of 8, a cut-off ratio of 2 and an initial cycle temperature of 300 K, the temperature (in K) at the end of the heat addition process in an air standard Diesel cycle is *1 point*

- 2400
- 4800
- 1378
- 2757

No, the answer is incorrect.
Score: 0
Accepted Answers:
1378

11) For a compression ratio of 8, a cut-off ratio of 2 and an initial cycle temperature of 300 K, the temperature (in K) at the end of the expansion process in an air standard Diesel cycle is *1 point*

- 792
- 600
- 562
- 396

No, the answer is incorrect.
Score: 0
Accepted Answers:
792

12) If the pressure ratio is equal to one, the thermal efficiency of the air standard Dual cycle becomes equal to that of the air standard _____ cycle. *1 point*

- Otto
- Diesel
- Rankine
- Lenoir

No, the answer is incorrect.
Score: 0
Accepted Answers:
Diesel

13) The _____ power is indicative of the energy obtained as the engine output that can be used to drive the vehicle. *1 point*

- brake
- indicative
- thermal
- friction

No, the answer is incorrect.
Score: 0
Accepted Answers:
brake

14) The ratio of the actual engine thermal efficiency to the air standard cycle thermal efficiency is called as _____ efficiency. *1 point*

- indicative
- brake
- volumetric
- relative

No, the answer is incorrect.
Score: 0
Accepted Answers:
relative

15) The ratio of the brake power to the indicated power is called as _____ efficiency. *1 point*

- relative
- volumetric
- mechanical
- friction

No, the answer is incorrect.
Score: 0
Accepted Answers:
mechanical