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Unit 9 - Week 7: Introduction to Gas Turbines

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Course outline

How to access the portal

Week 0 - Introductory Session

Week 1 - Introduction to IC Engines

Week 2 - Air Standard Cycles

Week 3 - Carburation

Week 4 - Ignition and Lubrication Systems

Week 5 - Alternative Fuels, Combustion in SI and CI Engines

Week 6 - Fuel Injection Systems

Week 7: Introduction to

Assignment 07

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment. **Due on 2019-03-20, 23:59 IST.**

1) In general, flow direction of centrifugal compressor is *1 point*

- a) Radially inward
- b) Radially outward
- c) Axial entry and radial exit
- d) Both (b) and (c)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) Axial entry and radial exit

2) Stage pressure rise in axial compressors is.....that of centrifugal compressors. *1 point*

- a) more than
- b) less than
- c) equal
- d) not above mentioned

No, the answer is incorrect.
Score: 0

Accepted Answers:
b) less than

3) Blade loading coefficient for axial turbine is.....the axial compressor. *1 point*

- a) greater than
- b) equal to
- c) less than

4) The nature of flow around the fan can be assumed as ***1 point***

- a) Sonic
- b) Incompressible
- c) Supersonic
- d) Compressible

No, the answer is incorrect.
Score: 0

Accepted Answers:
b) Incompressible

5) Flow passage of rotor blade in case of reaction type gas turbine is ***1 point***

- a) Diverging
- b) Converging
- c) Constant
- d) First diverging and then converging

No, the answer is incorrect.
Score: 0

Accepted Answers:
b) Converging

6) Steam turbines are used in engines working on ***1 point***

- a) Ericsson cycle
- b) Brayton cycle
- c) Stirling cycle
- d) Rankine cycle

No, the answer is incorrect.
Score: 0

Accepted Answers:
d) Rankine cycle

7) Pressure drop in 50 percent reaction turbines takes place in ***1 point***

- a) Stator
- b) rotor
- c) Both (a) and (b)
- d) None of above

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) Both (a) and (b)

8) Centrifugal compressors are the choice when ***1 point***

- a) Space is not a constraint
- b) High stage pressure rise is required
- c) Both (a) and (b)
- d) None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) Both (a) and (b)

9) The flow velocity..... in the gas turbine diffuser. ***1 point***

- a) decreases
- b) increases
- c) remains same
- d) None of above

No, the answer is incorrect.
Score: 0

Accepted Answers:
a) decreases

10) Blade height of axial compressor decreases in axial direction to maintain ***1 point***

- a) Maximum mass flow rate
- b) Lower mass flow rate
- c) Constant speed
- d) Constant mass flow rate

No, the answer is incorrect.
Score: 0

Accepted Answers:
d) Constant mass flow rate

11) Consider the following processes: ***1 point***
p. Constant pressure heat addition
q. Adiabatic expansion
r. Adiabatic compression
s. Constant pressure heat rejection
The correct sequence of these processes in Rankine cycle is

- a) p, q, r, s
- b) r, p, s, q
- c) r, p, q, s
- d) p, s, q, r

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) r, p, q, s

12) Gas turbines are used for ***1 point***

- a) Aviation
- b) Power generation
- c) Marine propulsion
- d) All of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
d) All of these

13) Thermal efficiency of heat engine cycle is ***1 point***

a) net work input / total heat output

b) net work output / total heat input

c) total heat output / net work input

d) total heat input / net work output

No, the answer is incorrect.
Score: 0

Accepted Answers:
b) net work output / total heat input

14) Which one of the following statements is correct ? ***1 point***

a) Thermal efficiency of the gas turbine power plant is higher than steam turbine power plant for the same turbine work output.

b) Working fluid in a Brayton cycle undergoes phase change while it doesn't in Rankine cycle.

c) Operating pressure ratio is high for the Rankine cycle based power plant than the Brayton cycle.

d) Work ratio is high for the gas turbine than steam turbine.

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) Operating pressure ratio is high for the Rankine cycle based power plant than the Brayton cycle.

15) Extensive property of system is one whose value ***1 point***

a) Does not depend on the mass or size of the system like pressure, temperature etc.

b) Depends on the mass or size of the system like volume, energy etc.

c) Extensive property does not change when a system undergoes any process.

d) Extensive property belongs to system and surrounding both.

No, the answer is incorrect.
Score: 0

Accepted Answers:
b) Depends on the mass or size of the system like volume, energy etc.

16) Properties of substances like pressure, temperature and density, in thermodynamic coordinates are ***1 point***

a) Constants

b) Path functions

c) Point functions

d) Cyclic functions

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) Point functions

17) Consider the following statements ***1 point***

1. Gas turbine is more compact than I.C. engines & steam turbine for same power output.
2. In a gas turbine power plant, a small portion of the turbine work is consumed by the compressor.
3. A gas turbine power plant is very sensitive to turbine and compressor inefficiencies.

Which of these statements are correct?

a) 1 and 2

b) 2 and 3

c) 1 and 3

d) 1, 2, and 3

No, the answer is incorrect.

Score: 0

Accepted Answers:

c) 1 and 3

Previous Page End