

Unit 2 - Week 0 : Prerequisite

Course outline

How does an NPTEL online course work?

Week 0 : Prerequisite

Quiz : Assignment 0

Week 1: Fundamentals of Nuclear Power

Week 2 : Radioactivity and nuclear Reactions

Week 3 : Nuclear Fission

Week 4:Chain Reaction in Reactors

Week 5 : Reactor Thermalhydraulics

Week 6:Reactor Control

Week 7:Thermal Reactors

Week 8:Breeder Reactors

Week 9:Nuclear Fusion

Week 10:Biological Effects of Radiation

Week 11:Reactor Safety & Security

Week 12:Waste Management

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Assignment 0

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

Due on 2020-01-26, 23:59 IST.

1) In an ambient condition of 1.013 bar & 25 °C, water vapor exists in surrounding as 1 point

- compressed vapor
 saturated vapor
 superheated vapor
 supercritical vapor

No, the answer is incorrect.
Score: 0

Accepted Answers:
superheated vapor

2) The slope of an isotherm at the critical point on P-v plane is 1 point

- zero
 one
 R_u (universal gas constant)
 infinity

No, the answer is incorrect.
Score: 0

Accepted Answers:
zero

3) A Carnot heat engine with thermal efficiency of 55% rejects heat to a 15 °C reservoir at a rate of 800 kJ/min. The temperature of the source in K is 1 point

- 34
 523
 640
 771

No, the answer is incorrect.
Score: 0

Accepted Answers:
640

4) Isentropic process involving a perfect incompressible substance is also 1 point

- isobaric
 isochoric
 isenthalpic
 isothermal

No, the answer is incorrect.
Score: 0

Accepted Answers:
isothermal

5) Ratio of momentum to thermal diffusivity is known as 1 point

- Rayleigh number
 Prandtl number
 Biot number
 Mach number

No, the answer is incorrect.
Score: 0

Accepted Answers:
Prandtl number

6) With increase in temperature, 1 point

- viscosities of both liquid & gas increase.
 viscosities of both liquid & gas decrease.
 viscosity of liquid decreases, but viscosity of gas increases.
 viscosity of liquid increases, but viscosity of gas decreases.

No, the answer is incorrect.
Score: 0

Accepted Answers:
viscosity of liquid decreases, but viscosity of gas increases.

7) Critical thickness of insulation of a thermally-conducting wire corresponds to 1 point

- maximum thermal resistance
 maximum heat transfer
 minimum compressive stress
 minimum material requirement

No, the answer is incorrect.
Score: 0

Accepted Answers:
maximum heat transfer

8) For laminar flow of a fluid with $Pr > 1$ over a horizontal flat plate, the ratio of the thickness of thermal boundary layer and velocity boundary layer is 1 point

- 0,5
 1
 greater than 1
 less than 1

No, the answer is incorrect.
Score: 0

Accepted Answers:
less than 1

9) In a heat exchanger, the exit temperature of the cold fluid is lesser than the exit temperature of the hot fluid. — This statement is true for 1 point

- parallel-flow heat exchanger
 counter-flow heat exchanger
 cross-flow heat exchanger
 any heat exchanger

No, the answer is incorrect.
Score: 0

Accepted Answers:
parallel-flow heat exchanger

10) For a finned surface, the ratio of the fin heat transfer rate to the rate of heat transfer without the fin is known as 1 point

- fin effectiveness
 fin efficiency
 overall surface efficiency
 shape efficiency

No, the answer is incorrect.
Score: 0

Accepted Answers:
fin effectiveness

11) The dimensionless concentration gradient from a surface is defined as 1 point

- Nusselt number
 Sherwood number
 Lewis number
 Schmidt number

No, the answer is incorrect.
Score: 0

Accepted Answers:
Sherwood number

12) For laminar fully-developed flow of a fluid through a circular duct with constant surface temperature, the Nusselt number is 1 point

- 1.33
 2.98
 3.66
 4.36

No, the answer is incorrect.
Score: 0

Accepted Answers:
3.66

13) Grashof number is a ratio of 1 point

- inertial and viscous forces
 buoyancy and viscous forces
 buoyancy and gravitational forces
 inertial and gravitational forces

No, the answer is incorrect.
Score: 0

Accepted Answers:
buoyancy and viscous forces

14) Critical heat flux during pool boiling is associated with the 1 point

- minimum heat flux during film boiling
 maximum heat flux during film boiling
 minimum heat flux during nucleate boiling
 maximum heat flux during nucleate boiling

No, the answer is incorrect.
Score: 0

Accepted Answers:
maximum heat flux during nucleate boiling

15) A hot fluid enters a counter-flow heat exchanger at 90 °C & exits at 35 °C. The cold fluid enters at 25 °C and leaves at 80 °C. Corresponding LMTD will be 1 point

- 10 °C
 45 °C
 55 °C
 65 °C

No, the answer is incorrect.
Score: 0

Accepted Answers:
10 °C

16) Bernoulli's equation is applicable along a 1 point

- heat line
 streamline
 path line
 streak line

No, the answer is incorrect.
Score: 0

Accepted Answers:
streamline

17) Hydraulic efficiency of a turbine is maximum when the ratio of bucket speed to jet speed is 1 point

- 0.1
 0.5
 0.9
 1

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.5

18) Cavitation occurs when the suction pressure drops below the _____ of liquid corresponding to its temperature. 1 point

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) vapor pressure

19) Throttling of a fluid through an insulated valve is an example of constant _____ process. 1 point

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) enthalpy

20) Joule-Thompson coefficient for an ideal gas is _____.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) zero

1 point