Thermal-Fluid lab - Final Exam 26.05.2021 (Final Exam Thermal and fluid sciences laboratory)

1. The heat delivered to the cooling water was from both compressor and condenser.
Immersive Reader

(1 Point)

True

False #

2.The unit has two evaporators, air evaporator and water evaporator

(1 Point)

True

False #

3.The heat absorbed from condenser is less than that absorbed from compressor.

(1 Point)

True

False #

4.The heat absorbed by the evaporator was obtained from air flow drift by a fan

(1 Point)

True #

False

5.The nozzle profile where the experiment conducted on was Convergent-divergent

(1 Point)

True

False #

6.The back pressure is the pressure in the throat area of the pipe.

(1 Point)

True

False #

7.The pressure at the throat can be lower than that for the condition of chocking.

(1 Point)

True

False #

8.The pressure ratio is the back pressure divided by the chest pressure.

(1 Point)

True #

False

9.A honeycomb can be used to reduce turbulence intensity and to achieve a uniform low turbulence flow.

(1 Point)

True #

False

10.Oil mist is formed by the atomization of a heated mineral water in an air stream.

(1 Point)

True

False #

11.The smoke generated by burning fuel.

(1 Point)

True

False #

12.Separation occurs at high angle of attack.

(1 Point)

True #

False

13.Centrifugal pumps are useful for irrigation purposes, water supply to towns and feeding water in boilers.

(1 Point)

True #

False

14.Reynolds number is defined as the ratio between viscous force to inertia force.

(1 Point)

True

False #

15.The flow rate in the positive displacement pump is almost constant.

(1 Point)

True

False #

16.As the flow rate in the centrifugal pump increases the head increases.

(1 Point)

True

False #

17.The flow rate in the reciprocating pump is almost constant.

(1 Point)

True #

False

18.The flow rate in the reciprocating pump generally higher than that of the centrifugal pump under the same speed.

(1 Point)

True #

False

19.The force on the plate is less than the force on the hemispherical cup.

(1 Point)

True

False #

20. The force created by the jet is function of the cross –sectional area of the jet.

(1 Point)

True #

False

21.Only one statement is correct with regards to the heat pump experiment:

(2 Points)

a) Heat pump is considered closed thermodynamic system.

b) The performance of the heat pump is measured using thermal efficiency.

c) Heat pump is an open thermodynamic system.

d) The heat pump used in the lab is Carnot heat pump.

e) All of the above is not true.

22.The type of the nozzle used in the "flow through a nozzle" experiment is:

(2 Points)

a) Convergent-Parallel

b) Divergent-Parallel.

c) Convergent-divergent.

d) Divergent-divergent.

e) None of the above.

23.Only one of the following statement is correct with regards to the Flow through a nozzle experiment:

(2 Points)

a) As pressure increase in the direction of the flow in the nozzle velocity decreases.

b) Both pressure and velocity decrease through the nozzle.

c) Mass flow rate of the air increases as the area of the nozzle decreases.

d) Cross section area of the nozzle increases in the direction of the flow.

e) As the velocity increases in the direction of the flow, pressure decreases.

24.In "comparison of pump characteristic" experiment one of the following statement is correct

(2 Points)

a) For a positive displacement reciprocating pump, the amount of fluid flow rate is independent of pump rotational speed, ω.

b) Pumps extract energy from the fluid passing through.

c) Pressure of the fluid at the exit of the pump is lower than the pressure of the fluid at the inlet of the pump.

d) The performance of the pump is measured using coefficient of performance.

e) All of the above is not correct

25.In " Liquid-vapor saturation curve" experiment only one statement of the following is correct:

(2 Points)

a) Saturation pressure and temperature are independent from each other.

b) Saturation pressure is the pressure at which the liquid changes phase into super-heated phase.

c) Saturation temperature is the temperature at which the liquid becomes compressed liquid.

d) Saturation temperature varies as pressure varies.

e) None of the above is correct.

26."Flow through a nozzle" experiment, one of the following statements is correct:

(2 Points)

a) Throat pressure happens at the point where the spatial pressure change is maximum.

b) Throat pressure is maximum pressure reading inside the nozzle.

c) Throat pressure is minimum pressure reading inside the nozzle.

d) Throat pressure is the gage pressure reading of the air supply tank.

e) None of the above.

27.The specific volume of any fluid is:

(2 Points)

a) An Extensive property

b) An intensive property

c) A Saturated liquid (vf)

d) A Saturated vapor (vg)

e) None of the above

28.For an insulated piston-cylinder system that have work done on it, one of the following could increase:

(2 Points)

a) It`s temperature

b) It`s pressure

c) It`s internal energy

d) All of the above

e) None of the above

29.For an insulated piston-cylinder system that have work done on it, one of the following could increase:

(2 Points)

a) It`s temperature

b) It`s pressure

c) It`s internal energy

d) All of the above

e) None of the above

30.Air enters an adiabatic nozzle steadily at 127°C with a velocity of 100 m/s and leaves the nozzle at 77°C. The velocity at the nozzle exit is:

(2 Points)

a) 561.30 m/s

b) 648.46 m/s

c) 461.11 m/s

d) 333.14 m/s

e) None of the above