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|---|---|
| **Started on** | Saturday, 13 September 2025, 5:30 PM |
| **State** | Finished |
| **Completed on** | Saturday, 13 September 2025, 5:46 PM |
| **Time taken** | 15 mins 47 secs |
| **Grade** | **10.00** out of 10.00 (**100**%) |

**Question 1**

Correct

Mark 1.00 out of 1.00

In an underground mine environment, if the relative humidity and WBT were measured 100% and 30°C, respectively, the DBT of the environment under this condition, in °C, would be-----------.

○ a.  100

○ b.  50

○ c.  0

◉ d.  30 ✔

The correct answer is:
30

**Question 2**

Correct

Mark 1.00 out of 1.00

In a vapour compression refrigeration system, the heat gain takes place at------------and heat rejection takes place at------------.

○ a.  Condenser, Expansion valve

○ b.  Evaporator, Compressor

◉ c.  Evaporator, Condenser ✔

○ d.  Condenser, Evaporator

The correct answer is:
Evaporator, Condenser

**Question 3**

Correct

Mark 1.00 out of 1.00

The average velocity of airflow in a duct of 3.0 m diameter is 2.5 m/s. If the density of air is 1.2 kg/m$^3$ and the dynamic viscosity of air is 18.3 × 10$^{-6}$ Pa.s, the Reynolds number is -----------and nature of airflow is -----------.

- a. 491803, turbulent ✔
- b. 803491, laminar
- c. 409836, laminar
- d. 941803, turbulent

The correct answer is:
491803, turbulent

**Question 4**

Correct

Mark 1.00 out of 1.00

The relation between the emissivity of a dull surface and that of a shiny surface is------------------

- a. Emissivity of dull surface = Emissivity of shiny surface

- b. Emissivity of dull surface < Emissivity of shiny surface

- c. Emissivity of dull surface > Emissivity of shiny surface ✔

- d. None of the above

The correct answer is:

Emissivity of dull surface > Emissivity of shiny surface

**Question 5**

Correct

Mark 1.00 out of 1.00

The ratio of mass of water vapour to the unit mass of moist air is known as------------------

- ○ a.   Specific humidity ✔
- ○ b.   Relative humidity
- ○ c.   Density
- ○ d.   Mixing ratio

The correct answer is:
Specific humidity

**Question 6**

Correct

Mark 1.00 out of 1.00

With increase in temperature, the viscosity of water----------------and viscosity of air--------------.

- ○ a.   Decreases, decreases
- ○ b.   Increases, decreases
- ○ c.   Increases, increases
- ○ d.   Decreases, increases ✔

The correct answer is:
Decreases, increases

**Question 7**

Correct

Mark 1.00 out of 1.00

Convective heat transfer coefficient is utilised in the estimation of --------------------

- ○ a.   Latent heat transfer
- ○ b.   Radiative heat transfer
- ○ c.   Convective heat transfer
- ○ d.   Both in convective and latent heat transfer ✔

The correct answer is:
Both in convective and latent heat transfer

**Question 8**

Correct

Mark 1.00 out of 1.00

The geothermal gradient of a place mainly depends on---------------

- ○ a.   Earth core temperature
- ○ b.   Surface temperature
- ○ c.   Underground temperature
- ◉ d.   Thermal conductivity of rock ✔

The correct answer is:
Thermal conductivity of rock

**Question 9**

Correct

Mark 1.00 out of 1.00

Calculation of Nusselt number is based on----------------------

- ○ a.   Stefan-Boltzmann constant
- ○ b.   Friction factor
- ◉ c.   Reynolds number and friction coefficient ✔
- ○ d.   Reynolds number

The correct answer is:
Reynolds number and friction coefficient

**Question 10**

Correct

Mark 1.00 out of 1.00

In underground mine ventilation, ----------------takes place in UC shaft and--------------takes place in DC shaft.

- ○ a.   Adsorption, desorption
- ○ b.   Diffusion, dissipation
- ○ c.   Auto compression, auto expansion
- ◉ d.   Auto expansion, auto compression ✔

The correct answer is:
Auto expansion, auto compression