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Grade	6.00 out of 10.00 (60%)

Question 1

Incorrect

Mark 0.00 out of
1.00

Cooling tower or spray chamber is used for-----and the principal mode of heat transfer in it is-----
-----.

- ☐ a. Cooling of water, convection
- ☐ b. Cooling of water, evaporation
- ☐ c. Cooling of refrigerant, evaporation
- ☒ d. Cooling of air, convection 

The correct answer is:

Cooling of water, evaporation

Question 2

Correct

Mark 1.00 out of 1.00

In airways connected in parallel, the correct statement is -----.

- ☐ a. Airflow in airways is directly proportional to square root of their resistances
- ☒ b. Airflow in airways is inversely proportional to square root of their resistances ✓
- ☐ c. Airflow in airways is directly proportional to their resistances
- ☐ d. Airflow in airways is inversely proportional to their resistances

The correct answer is:

Airflow in airways is inversely proportional to square root of their resistances

Question 3

Correct

Mark 1.00 out of 1.00

As per the Kirchhoff's 2nd law, the correct statement is-----.

- ☒ a. Algebraic sum of all frictional pressure drops around a closed mesh is zero ✓
- ☐ b. Algebraic sum of air quantity flowing at a junction is zero
- ☐ c. Algebraic sum of all frictional pressure drops at a junction is zero
- ☐ d. Algebraic sum of mass flow rate of air flowing at a junction is zero

The correct answer is:

Algebraic sum of all frictional pressure drops around a closed mesh is zero

Question 4

Incorrect

Mark 0.00 out of
1.00

-----method is suitable for the ventilation network analysis of an extensive and complex mine ventilation network.

- ☐ a. Successive approximation technique
- ☐ b. Direct analysis using Kirchhoff's laws
- ☒ c. Equivalent resistance technique ✖
- ☐ d. Using physical mine models

The correct answer is:

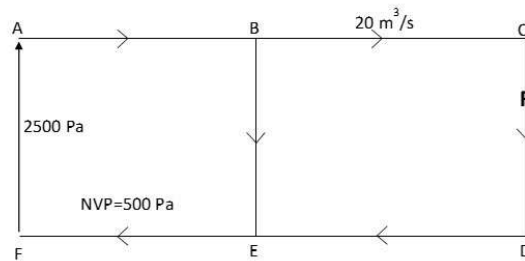
Successive approximation technique

Question 5

Correct

Mark 1.00 out of 1.00

In the mine ventilation network shown in figure below, the minimum no. of meshes required to solve the ventilation network is-----.



- ☐ a. 1
- ☐ b. 4
- ☐ c. 3
- ☒ d. 2 ✓

The correct answer is:
2

Question 6

Incorrect

Mark 0.00 out of
1.00

In a vapour-compression refrigeration system, the extraction and rejection of heat takes place in-----
-----and -----, respectively.

- ☒ a. Compressor, expansion valve ✖
- ☐ b. Condenser, evaporator
- ☐ c. Expansion valve, compressor
- ☐ d. Evaporator, condenser

The correct answer is:

Evaporator, condenser

Question 7

Correct

Mark 2.00 out of 2.00

Air is flowing at a flow rate of $50 \text{ m}^3/\text{s}$ in a 250 m long mine airway of $4 \text{ m} \times 3 \text{ m}$ cross-sectional area. Coefficient of friction (f) of the airway is 0.02. Assuming the flow to be compressible and considering the density of air in the airway as $1.25 \text{ kg}/\text{m}^3$, the frictional pressure drop in the airway, in Pa, is-----.

- ☐ a. 101.27
- ☐ b. 14583.33
- ☐ c. 1215.28
- ☒ d. 63.30 ✓

The correct answer is:

63.30

Question 8

Correct

Mark 1.00 out of 1.00

In a longwall panel, the field specific energy (FSE) is taken into account for estimating the heat generated by-----.

- ☒ a. Shearer ✓
- ☐ b. AFC
- ☐ c. Gate belt
- ☐ d. Stage loader

The correct answer is:
Shearer

Question 9

Incorrect

Mark 0.00 out of
1.00

In mine ventilation network analysis, Kirchhoff's 1st law is applied in-----and Kirchhoff's 2nd law is applied in -----of the network.

- ☒ a. Mesh, loop ✖
- ☐ b. Junction, mesh
- ☐ c. Loop, mesh
- ☐ d. Loop, junction

The correct answer is:

Junction, mesh