Exam Name

FINAL ANSWER KEY

Paper Name: Scientist B (MINING ENGINEERING)	Paper Code: SB - MIN

Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key
01	B	**12**	A	**23**	B	**34**	C	**45**	B	**56**	B
02	B	**13**	A	**24**	D	**35**	A	**46**	C	**57**	C
03	C	**14**	A	**25**	B	**36**	B	**47**	C	**58**	C
04	B	**15**	B	**26**	C	**37**	D	**48**	D	**59**	B
05	A, C	**16**	A	**27**	A	**38**	C	**49**	D	**60**	B
06	B	**17**	A	**28**	B	**39**	B	**50**	C	**61**	C
07	A	**18**	B	**29**	D	**40**	**MTA**	**51**	C	**62**	D
08	B	**19**	D	**30**	D	**41**	D	**52**	C	**63**	C
09	B	**20**	C	**31**	C	**42**	B	**53**	B	**64**	D
10	C	**21**	B	**32**	D	**43**	A	**54**	D	**65**	C
11	D	**22**	A	**33**	C	**44**	D	**55**	D	**66**	D

Exam Name

Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key
67	B	**78**	C	**89**	C	**100**	A	**111**	A		
68	A	**79**	A	**90**	C	**101**	A	**112**	D		
69	C	**80**	B	**91**	B	**102**	A	**113**	B		
70	B	**81**	B	**92**	A	**103**	C	**114**	C		
71	A	**82**	D	**93**	B	**104**	D	**115**	C		
72	D	**83**	B	**94**	B	**105**	C	**116**	C		
73	D	**84**	B	**95**	B	**106**	B	**117**	B		
74	B	**85**	A	**96**	B	**107**	A	**118**	C		
75	B	**86**	B	**97**	A	**108**	C	**119**	A		
76	C	**87**	D	**98**	D	**109**	B	**120**	B		
77	B	**88**	C	**99**	A	**110**	A				

Note: **MTA** stands for **Marks To All**.

Question Paper

Question Paper Name :	Scientist B Mining
Subject Name :	Scientist B Mining
Creation Date :	2021-09-08 13:19:39
Duration :	120
Total Marks :	120
Display Marks:	Yes
Calculator :	Scientific
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console? (SA type of questions will be always auto saved) :	No

Scientist B Mining

Group Number :	1
Group Id :	267236132

Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	120
Is this Group for Examiner? :	No

Scientist B Mining

Section Id :	267236260
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	120
Number of Questions to be attempted :	120
Section Marks :	120
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	267236378
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 26723610341 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Noise pollution has been inserted as pollution in the Air Act in:

(A) 1981

(B) 1987

(C) 1986

(D) 1974

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 2 Question Id : 26723610342 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The Water (Prevention and Control of Pollution) Act was enacted in the year:

(A) 1981

(B) 1974

(C) 1986

(D) 2000

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 3 Question Id : 26723610343 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

What is the most abundant greenhouse gas in the atmosphere?

(A) Methane

(B) Nitrogen dioxide

(C) Water vapor

(D) Carbon dioxide

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 4 Question Id : 26723610344 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the following is responsible for reducing global CFC production by half?

(A) Copenhagen Protocol

(B) Montreal Protocol

(C) Kyoto Protocol

(D) Convention on Long-Range Transboundary Air Pollution

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 5 Question Id : 26723610345 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

$NO_2 + O_2 \rightarrow 2NO$

$2NO + O_2 \rightarrow 2NO_2$

$NO_2 \rightarrow NO + O$

$O + O_2 \rightarrow O_3$

The above reactions describe the chemical process that forms:

(A) Photochemical smog

(B) Acid precipitation

(C) Ozone

(D) Peroxyacetyl nitrate

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 6 Question Id : 26723610346 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

5th June is observed as

(A) World forest day

(B) World environment day

(C) World wildlife day

(D) World population day

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 7 Question Id : 26723610347 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the following types of electricity generation produces the least amount of greenhouse-gas emissions from cradle to grave?

(A) Nuclear

(B) Natural gas

(C) Biomass

(D) Oil

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 8 Question Id : 26723610348 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In which of the following ecosystems do tree roots serve as important havens for biodiversity?

(A) Coral reefs

(B) Mangrove forests

(C) Estuaries

(D) Freshwater wetlands

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 9 Question Id : 26723610349 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The total salary of A, B, C is Rs. 444. If they spend 80%, 85%, 75% of their salaries, respectively, their savings are as 7 : 6 : 9. The salary of B is

(A) Rs. 140

(B) Rs. 160

(C) Rs. 144

(D) Rs. 156

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 10 Question Id : 26723610350 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A sum of money invested at compound interest amounts to Rs. 650 at the end of first year and Rs. 676 at the end of second year. The sum of money is:

(A) Rs. 600

(B) Rs. 540

(C) Rs. 625

(D) Rs. 560

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 11 Question Id : 26723610351 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

What is the height of a solid cylinder of radius 5 cm and total surface area is 660 sqcm?

(A) 10 cm

(B) 12 cm

(C) 15 cm

(D) 16 cm

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 12 Question Id : 26723610352 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In a test paper there are total 10 questions. In how many different ways can you choose 6 questions to answer?

(A) 210

(B) 540

(C) 336

(D) None of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 13 Question Id : 26723610353 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A box contains 5 defective and 15 non-defective bulbs. Two bulbs are chosen at random. Find the probability that both the bulbs are non-defective.

(A) 21/38

(B) 3/20

(C) 5/19

(D) None of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 14 Question Id : 26723610354 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The average rainfall in the months of January and February is 6 cm and in the months of March to June is 5 cm and July to October is 10 cm and, in the months of November and December, it is 6 cm. The average rainfall for the whole year is:

(A) 7

(B) 5.5

(C) 7.5

(D) None of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 15 Question Id : 26723610355 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The average age of all the 100 employees in an office is 29 years, where 2/5 employees are ladies and the ratio of average age of men to women is 5 : 7. The average age of female employees is:

(A) 18 years

(B) 35 years

(C) 25 years

(D) 27 years

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 16 Question Id : 26723610356 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The Narendra Modi Stadium was previously known as

(A) Motera Stadium

(B) Ahmed Patel Stadium

(C) Ahmedabad Stadium

(D) Morar ji Stadium

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 17 Question Id : 26723610357 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Carbon dioxide constitutes about _____ percentage of the air?

(A) 0.03

(B) 0.3

(C) 3

(D) 30

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 18 Question Id : 26723610358 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

When India got independence, the Prime Minister of England was:

(A) Winston Churchill

(B) Clement R. Atlee

(C) Neville Chamberlain

(D) Harold Macmillan

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 19 Question Id : 26723610359 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Gandhiji's Champaran Movement was for:

(A) The security of rights of Harijans

(B) Maintaining the unity of Hindu Society

(C) Civil Disobedience Movement

(D) Solving the problem of the indigo workers

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 20 Question Id : 26723610360 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

India liberated Goa from Portuguese in

(A) 1950

(B) 1965

(C) 1961

(D) 1947

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 21 Question Id : 26723610361 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Who among the following won the highest number of National film awards in acting?

(A) Amitabh Bachhan

(B) Shabana Azmi

(C) Satyajit Ray

(D) Kamal Haasan

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 22 Question Id : 26723610362 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which among the following is the largest Hindu temple in the world?

(A) Angkorwat (Cambodia)

(B) Akshardham (Delhi)

(C) Belur Math (Howrah)

(D) Brihadeshwar (Jhanjavar)

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 23 Question Id : 26723610363 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Tsunami is the result of?

(A) Shrining of Earth's crust

(B) Submarine Earthquakes

(C) Cyclones

(D) Tides

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 24 Question Id : 26723610364 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The instrument used for recording earthquake wavers is:

(A) Barograph

(B) Hydrograph

(C) Pantograph

(D) Seismograph

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 25 Question Id : 26723610365 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The Tropic of Cancer does not pass through:

(A) Gujarat

(B) Odisha

(C) Tripura

(D) West Bengal

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 26 Question Id : 26723610366 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Water stored in a dam possesses:

(A) No energy

(B) Kinetic energy

(C) Potential energy

(D) Electrical energy

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 27 Question Id : 26723610367 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the following is best conductor of electricity?

(A) Silver

(B) Mercury

(C) Platinum

(D) Copper

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 28 Question Id : 26723610368 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

-40° Fahrenheit is equal to:

(A) -20° centigrade

(B) -40° centigrade

(C) -10° centigrade

(D) -80° centigrade

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 29 Question Id : 26723610369 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A family consists of six members. There is at least one married couple in the family.

I. Venkat is not the husband of Savita.
II. Charan is the brother of Jyothi.
III. Jyothi is not the wife of Ravi.
IV. Sekhar is the grandfather of Charan.
V. Jyothi is Savita's daughter.
VI. Savita's husband is living with her.

If Sekhar has his two children living with him, which of the following pairs can be siblings?

(A) Ravi & Venkat

(B) Sekhar & Ravi

(C) Venkat & Savita

(D) Either A or C

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 30 Question Id : 26723610370 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Seven villages A, B, C, D, E, F and G are situated as follows:
E is 2km to the west of B.
F is 2km to the north of A.
C is 1km to the west of A.
D is 2km to the south of G.
G is 2km to the east of C.
D is exactly in the middle of B and E.

A is in the middle of:

(A) E and C

(B) F and E

(C) F and G

(D) G and C

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 31 Question Id : 26723610371 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The statement given below is followed by two arguments numbered I and II. You have to decide which of the following arguments a "strong" argument is and which a "weak" argument is.

Statement: Should the Government introduce Gross Happiness Index on the lines of that introduced in Bhutan?

Arguments: I. Yes. It will greatly help India in becoming a prosperous nation.
II. No. Bhutan has not gone anywhere even after introducing GHI over four decades ago.

(A) If only argument I is strong

(B) If only argument II is strong

(C) If neither I nor II is strong

(D) If both I and II are strong

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 32 Question Id : 26723610372 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Choose the most appropriate answer

Statement (1): Due to deforestation, the chances of flooding have increased in city X.
Statement (2): City X suffered from disrupted water flow.

(A) I is the cause and II is the effect

(B) II is the cause and I is the effect

(C) Both I and II are independent causes

(D) Both I and II are effects of common causes

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 33 Question Id : 26723610373 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In the following questions, the first and the last parts of the sentence are numbered 1 and 6. The rest of the sentence is split into four parts and named P, Q, R, and S. These four parts are not given in their proper order. Read the sentence and find out which of the four combinations is correct. Then find the correct answer.

1.A dictionary
P.arranged words
Q.about which information
R.containing alphabetically
S.is a book
6.is given.

(A) RPQS

(B) RPSQ

(C) SRPQ

(D) SPRQ

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 34 Question Id : 26723610374 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Choose the option that exhibits the same analogy.
Artist : Canvas ::

(A) Driver : Car

(B) Pedestrian : Road

(C) Composer : Symphony

(D) Surgeon : Operation

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 35 Question Id : 26723610375 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Choose the alternative which best expresses the meaning of the idiom/.phrase printed in bold type.

To hold somebody to ransom

(A) To keep captive and demand concession

(B) To humiliate somebody

(C) To offer bribe

(D) To blackmail and extract money

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 36 Question Id : 26723610376 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In following questions, groups of words are given. In each group, one word is correctly spelt. Find the correctly spelt word.

(A) Asassin

(B) Assassin

(C) Assasin

(D) Assassen

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 37 Question Id : 26723610377 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

If A and B are two matrices such that rank of A = m and rank of B = n, then

(A) rank (AB) = m + n

(B) rank (AB) ≥ rank (A)

(C) rank (AB) ≥ rank (B)

(D) rank (AB) ≤ min (rank A, rank B)

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 38 Question Id : 26723610378 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

If A is a square matrix of order n x n., then adj (adj A) is equal to

(A) $|A|^{n}A$

(B) $|A|^{n-1}A$

(C) $|A|^{n-2}A$

(D) Identity matrix

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 39 Question Id : 26723610379 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

From the matrix equation AB = AC we can conclude B = C provided

(A) A is singular

(B) A is non-singular

(C) A is symmetric

(D) A is square

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 40 Question Id : 26723610380 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

If a matrix A is such that $3A^3 + 2A^2 + 5A + I = 0$

(A) $-(3A^2 + 2A - 5I)$

(B) $3A^2 + 2A + 5I$

(C) $3A^2 - 2A - 5I$

(D) $-3A^2 - 2A - 5I$

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 41 Question Id : 26723610381 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

If A is a square matrix such that $AA^T = I = A^TA$, then A is

(A) A symmetric matrix

(B) A skew symmetric matrix

(C) A diagonal matrix

(D) An orthogonal matrix

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 42 Question Id : 26723610382 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The image of the interval [-1, 3] under the mapping f : R → R given by f (x) = $4x^3 - 12x$ is

(A) [8, 72]

(B) [-8, 72]

(C) [8, -72]

(D) [-8, -72]

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 43 Question Id : 26723610383 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The function (x) = | x | + | x – 1 | is

(A) continuous at x = 1, but not differentiable

(B) both continuous and differentiable at x = 1

(C) not continuous at x = 1

(D) none of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 44 Question Id : 26723610384 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The equation $y - 2x = c$ represents the orthogonal trajectories of the family

(A) $y = ae^{-2x}$

(B) $x^2 + 2y^2 = a$

(C) $xy = a$

(D) $x + 2y = a$

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 45 Question Id : 26723610385 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The probability that a man will live 10 more years is 1/4 and the probability that his wife will live 10 more years is 1/3. Then the probability that neither will be alive in 10 years is

(A) 5/12

(B) 1/2

(C) 7/12

(D) 11/12

Options :

1. ✔ A
2. ✖ B
3. ✖ C
4. ✖ D

Question Number : 46 Question Id : 26723610386 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The noise level at 10 m from a long conveyor belt is 95 dB(A). What is the noise level at 100 m distance from the conveyor?

(A) 70 dB(A)

(B) 80 dB(A)

(C) 85 dB(A)

(D) 75 dB(A)

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 47 Question Id : 26723610387 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

For transport capacities from 40 t/hr to 400 t/hr, and distances above 300 m, the cheapest mode of transportation is:

(A) Belt conveyors

(B) Trucks

(C) Aerial ropeways

(D) Pipeline transport

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 48 Question Id : 26723610388 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In a point load strength, test a 50 mm diameter core sample ruptured at 500 kg load.

Unconfined compressive strength of the sample is

(A) 500 kg/cm^2

(B) 400 kg/cm^2

(C) 280 kg/cm

(D) 480 kg/cm^2

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 49 Question Id : 26723610389 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The longest path in the network diagram is called

(A) Optimal path

(B) Subcritical path

(C) Best path

(D) Critical path

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 50 Question Id : 26723610390 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A box contains 4 white balls and 3 red balls. In succession, two balls are randomly selected and removed from the box. Given that the first removed ball is white, the probability that the second removed ball is red is

(A) 1/3

(B) 3/7

(C) 1/2

(D) 4/7

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 51 Question Id : 26723610391 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

On a monocable ropeway trestles, the number of sheaves on the loaded side is:

(A) 2

(B) 3

(C) 4

(D) 5

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 52 Question Id : 26723610392 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A rock specimen had moisture content of 1.34 percent. Volume of solids was found to be 89%.

Degree of saturation of the rock sample is

(A) 2.83%

(B) 28.3%

(C) 12.18%

(D) 10.18%.

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 53 Question Id : 26723610393 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The automatic detachable rope grip (box head) has groove curved upwards in a monocable ropeway so as to:

(A) Increase the carriers capacity

(B) Reduce sharp bending of the rope

(C) To increase the rope flexibility

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 54 Question Id : 26723610394 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The ratio of the theoretical power input (P_1/P_2) of two centrifugal fans having the same specific speed and operating at same speed is given by:

(A) $(D_1/D_2)^2$

(B) $(D_1/D_2)^3$

(C) $(D_1/D_2)^4$

(D) $(D_1/D_2)^5$

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 55 Question Id : 26723610395 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

What is the availability of a software with the following reliability figures?

(A) Mean Time Between Failure (MTBF) = 25 days

(B) Mean Time to Repair (MTTR) = 6 hours

(C) 1%

(D) 24%

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 56 Question Id : 26723610396 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

While determining coefficient of permeability of a rock sample, discharge collected in 3 hours was 5 cc. The cross-sectional area of the sample was 50 cm^2 and it was 10 cm long. The discharge took place at a head of 300 cm. The coeff. of permeability of the rock sample is

(A) 3×10^{-8}

(B) 3×10^{-7}

(C) 3×10^{-5}

(D) 3×10^{-9}

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 57 Question Id : 26723610397 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Assuming velocity of flow as 3 m/s and air density as 1.2 Kg/m^3, the pressure developed by a 3m diameter centrifugal fan, bent backward at 35^0, running at 250 rpm and delivering 6000 m^3/min of air is:

(A) 1449 Pa

(B) 1550 Pa

(C) 1649 Pa

(D) 1625 Pa

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 58 Question Id : 26723610398 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The following table shows the time between failures for a software system.

Error Number	1	2	3	4	5
Time since last failure(hours)	6	4	8	5	6

The reliability of the system for one hour of operation assuming an exponential model is

(A) 0.45

(B) 0.63

(C) 0.84

(D) 0.95

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 59 Question Id : 26723610399 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Simplex method of solving linear programming problem uses

(A) all the points in the feasible region

(B) only the corner points of the feasible region

(C) intermediate points within the infeasible region

(D) only the interior points in the feasible region.

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 60 Question Id : 26723610400 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

When it is required to change the direction of a ropeway, we provide:

(A) Intermediate station

(B) Angle station

(C) Loading station

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 61 Question Id : 26723610401 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A 250 KW main pump underground is pumping 5000 litres/minute of water through a head of 158 m. Assuming the density of water as 1 Kg/litre, the amount of heat added to the mine air by the pump is:

(A) 250 KW

(B) 129 KW

(C) 121 KW

(D) None of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 62 Question Id : 26723610402 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Cracks along which of the fractured rock masses appear to have suffered no relative displacement are known as

(A) Fracture

(B) Cracks

(C) Fissures

(D) Joints

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 63 Question Id : 26723610403 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

If there are m sources and n destinations in a transportation matrix, the total number of basic variables in a basic feasible solution is

(A) $m+n$

(B) $m+n+1$

(C) $m+n-1$

(D) m

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 64 Question Id : 26723610404 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A 300 m long airway passes 10 m^3/s of air. A new airway of the same cross section and similar surface but 250 m long is added in parallel to it. The total quantity of air now passing is:

(A) 18 m^3/s

(B) 15 m^3/s

(C) 25 m^3/s

(D) 21 m^3/s

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 65 Question Id : 26723610405 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The noise levels measured during the operation of three machines are 80 dB(A), 75 dB(A) and 85 dB(A) respectively. The equivalent noise level for the above three machines are:

(A) 81.5

(B) 93.0

(C) 86.5

(D) 122.5

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 66 Question Id : 26723610406 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The volume flow of air for a coal mine district is 10 m^3/s. At the entrance, the oxygen content is 21% and at the exit, oxygen content is 20.8%. The density of oxygen is given as 1.3 Kg/m^3. The oxygen depletion rate in Kg/s is:

(A) 0.023

(B) 0.024

(C) 0.025

(D) 0.026

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 67 Question Id : 26723610407 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A minimal spanning tree in network flow models involves

(A) all the nodes with cycle/loop allowed

(B) all the nodes with cycle/loop not allowed

(C) shortest path between start and end nodes

(D) all the nodes with directed arcs

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 68 Question Id : 26723610408 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Washability curve based on float and sink test enables an assessment to be made of the possibility of cleaning a coal fraction based on

(A) density separation

(B) size

(C) differential wettability

(D) volatile matter content

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 69 Question Id : 26723610409 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A screen is said to be blinded when

(A) oversizes are present in undersize fraction

(B) undersize are retained in oversize fraction

(C) the screen is plugged with solid particles

(D) its capacity is abruptly increased

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 70 Question Id : 26723610410 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Match List-I (Techniques) with List-II (Application) and select the correct answer using the codes given below the lists:

List-I (Techniques)	List-II (Application)
a. Linear programming	1. Warehouse location decision
b. Transportation	2. Machine allocation decision
c. Assignment	3. Product mix decision
d. Queuing theory	4. Project management decision
	5. Number of servers decision

(A) a-1, b-2, c-3, d-5

(B) a-3, b-1, c-2, d-5

(C) a-1, b-3, c-4, d-5

(D) a-3, b-2, c-1, d-4

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 71 Question Id : 26723610411 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Mean, median, and mode, are measures of

(A) Central tendency

(B) Dispersion

(C) Probability

(D) Statistics

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 72 Question Id : 26723610412 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

For determining shear strength of a rock mass, in situ shear test was done. If rock block failed at an inclined load of 100 kN, estimate shear strength of the rock mass if applied normal load was 50 kN and the inclination of shear load was 20^0 with horizontal. Loading area for both normal and shear load may be taken as 0.2 m x 0.2 m.

(A) 2.35 kN/mm^2

(B) 23.5 kN/cm^2

(C) 5.87 kN/mm^2

(D) 2.35 N/mm^2

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 73 Question Id : 26723610413 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Cars arrive at a service station according to Poisson's distribution with a mean rate of 5 per hour. The service time per car is exponential with a mean of 10 minutes. At steady state, the average waiting time in the queue is

(A) 10 minutes

(B) 20 minutes

(C) 25 minutes

(D) 50 minutes

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 74 Question Id : 26723610414 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A fan driven by a 100 H.P motor circulates air through a mine at 40 mm water gauge. The quantity of air circulated by the fan, assuming the efficiency of the fan and the drive together to be 60 % is:

(A) 100 m^3/s

(B) 114 m^3/s

(C) 118 m^3/s

(D) 122 m^3/s

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 75 Question Id : 26723610415 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Cyclones are used primarily for separating

(A) solids

(B) solids from fluids

(C) liquids

(D) solids from solids

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 76 Question Id : 26723610416 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A conveyor is 600 m long and carries coal of bulk density 0.8 t/m^3 up a gradient of 1 in 60 at the rate of 220 t/hr. If the belt width (w) is 0.75 m and cross-sectional area of the material 0.1 w^2, determine the belt speed.

(A) 0.04 m/s

(B) 0.96 m/s

(C) 1.36 m/s

(D) 1.80 m/s

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 77 Question Id : 26723610417 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The first algorithm for Linear Programming was given by:

(A) Bellman

(B) Dantzig

(C) Kulm

(D) Van Neumann

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 78 Question Id : 26723610418 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Given the fuel consumption of a diesel equipment is 0.3 litres/KW/Hr. Assume the calorific value of diesel fuel as 34000 KJ/Litre. Then, the heat produced by the diesel equipment is:

(A) 2.80 KW

(B) 1.80 KW

(C) 2.83 KW

(D) 2.52 KW

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 79 Question Id : 26723610419 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A cable belt conveyor is required to carry coal of bulk density 0.8 t/m^3 at a rate 600 t/h up an inclined length of 1200 m. The total vertical lift is 300 m. The power required to raise the material against gravity in kW will be:

(A) 490.5

(B) 392.4

(C) 120.0

(D) 1765.8

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 80 Question Id : 26723610420 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The jobs arrive at a facility, for service, in a random manner. The probability distribution of number of arrivals of jobs in a fixed time interval is

(A) Normal

(B) Poisson

(C) Erlang

(D) Beta

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 81 Question Id : 26723610421 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Coal of bulk density 800 kg/m^3 is carried on a belt conveyor at 60 kg/s on a level roadway. The cross-sectional area of the load is 0.05 m^2, the total mass of the moving components of the conveyor is 27,000 kg, and the frictional coefficient of the idler rollers is 0.03. Neglecting other frictional losses, the component of the total power consumed by the conveyor alone will be:

(A) 14.9 KW

(B) 11.9 KW

(C) 14.75 KW

(D) None of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 82 Question Id : 26723610422 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The material is crushed in a gyratory crusher by the action of

(A) impact

(B) attrition

(C) cutting

(D) compression

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 83 Question Id : 26723610423 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Little's law is relationship between

(A) stock level and lead time in an inventory system

(B) waiting time and length of the queue in a queuing system

(C) number of machines and job due dates in a scheduling problem

(D) uncertainty in the activity time and project completion time

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 84 Question Id : 26723610424 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In an aerial ropeway, the total amount of sag in meters between two trestles 50 m apart considering weight of loaded buckets as 1000 kg, weight of rope as 3.55 kg/m and line tension as 8 tons is:

(A) 1.2503 m

(B) 1.7012 m

(C) 1.9567 m

(D) 2.150 m

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 85 Question Id : 26723610425 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the following is a manually controlled tensioning arrangement in a conveyor system:

(A) motor driven

(B) horizontally pulled

(C) vertically pulled

(D) none of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 86 Question Id : 26723610426 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Fluid coupling is an AFC is used between:

(A) gear box and the sprocket drum

(B) electric motor and gear box

(C) sprocket and chain

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 87 Question Id : 26723610427 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which one of the following is not the solution method of transportation problems?

(A) Northwest corner method

(B) Least cost method

(C) Vogel's method

(D) Hungarian method

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 88 Question Id : 26723610428 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

When the drive unit is parallel to the conveyor, it is called

(A) L-type

(B) T-type

(C) In-line type

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 89 Question Id : 26723610429 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The assignment algorithm is applicable to which of the following combined situations for the purpose of improving productivity?

1. Identification of sales force-market
2. Scheduling of operator-machine
3. Fixing machine-location.

Select the correct answer using the codes given below: Codes:

(A) 1, 2 and 3

(B) 1 and 3

(C) 2 and 3

(D) 1 and 2

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 90 Question Id : 26723610430 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

For armoured face conveyor open-bottom pans are preferable to closed-bottom pans because

(A) These do not sink into soft floor being of lighter weight

(B) The return chain cannot get jammed due to accumulation of coal particles

(C) These can be easily inspected and maintained

(D) These make less noise.

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 91 Question Id : 26723610431 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the following has maximum Rittinger's number?

(A) pyrite

(B) galena

(C) calcite

(D) quartz

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 92 Question Id : 26723610432 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The total number of decision variables in the objective function of an assignment problem of size n × n (n jobs and n machines) is

(A) n^2

(B) 2n

(C) 2n−1

(D) n

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 93 Question Id : 26723610433 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Gold ore concentration is mostly done using

(A) jigging

(B) tabling

(C) froth floatation

(D) elutriation

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 94 Question Id : 26723610434 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

What is the reduction ratio in a fine crushing operation having following feed and product sizes?

	Maximum	Minimum
Feed size (mm)	20	10
Product size (mm)	10	5

(A) 0.5

(B) 2

(C) 5

(D) 10

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 95 Question Id : 26723610435 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

An AFC of length 114 m runs at a speed of 0.535 m/s. The mass of chains and flights is 54 kg/m, and the coefficient of friction between the chain and trough is 0.33. What is the power needed to drive the empty conveyor?

(A) 6.94 KW

(B) 10.68 KW

(C) 21.36 KW

(D) 25.74 KW

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 96 Question Id : 26723610436 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

(*i*) The moisture content of a rock sample is defined as the ratio of weight of water in the voids to the weight of total mass.
(*ii*) Bearing capacity increases air with increase in degree of saturation.
(*iii*) Degree of saturation is defined as the volume of water in the voids to the total volume of the rock sample.
(*iv*) Permeability refers to the ability

Out of the above statements

(A) All are correct

(B) None is correct

(C) Only (*i*) is correct

(D) Only (*iv*) is correct

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 97 Question Id : 26723610437 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A flat steel plate conveyor of width 0.72 m runs at a speed of 0.9 m/s. If the dynamic angle of repose of the material conveyed is 20°, the conveyor theoretical capacity in m^3/hr is

(A) 152

(B) 212.3

(C) 394.6

(D) 1217

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 98 Question Id : 26723610438 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Porosity of a rock sample is defined as ratio of the volume of voids to the

(A) Volume of solids

(B) Volume of air

(C) Volume of water

(D) Total volume of sample

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 99 Question Id : 26723610439 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the these are not the desirable requirements of a belt in a belt conveyor system:

(A) high hygroscopicity

(B) high strength

(C) low self-weight

(D) small specific elongation

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 100 Question Id : 26723610440 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In a point load test on 50 mm diameter core sample, rupture was observed at a load of 5000 kg. The point load strength of the specimen was

(A) 200 kg/cm^2

(B) 300 kg/cm^2

(C) 400 kg/cm^2

(D) 500 kg/cm^2

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 101 Question Id : 26723610441 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

For a 150 m long chain conveyor, the component of power required to move coal against gravity along an inclination 15° is 5 kW. Hourly capacity of the chain conveyor in 't' will be:

(A) 47.2

(B) 37.8

(C) 13.1

(D) 3.4

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 102 Question Id : 26723610442 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In a pressure tunnel test the tunnel was subjected to 20 Kg/cm^2. Determine the diametral deformation if diameter of the tunnel is 2 metres. Modulus of elasticity of rock material may be assumed as 2.4×10^3 kg/cm^2 and Poisson's ratio 0.3.

(A) 2.167 cm

(B) 2.167 metre

(C) 2.167 mm

(D) 20.16 cm

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 103 Question Id : 26723610443 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

(*i*) Competent ground is one that does not require support when a tunnel is excavated through it.
(*ii*) Mantle rock is loose fragments of rock and soil that act as a cover for bedrock.
(*iii*) Rock mass is the in-situ rock made of the rock substance plus the structural discontinuities.
(*iv*) Rock substance is the solid part of the rock mass typically obtained as a drill core.

Out of the above statements:

(A) None is correct

(B) Only (*i*) and (*iv*) are correct

(C) All are correct

(D) Only (*i*) and (*ii*) are correct.

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 104 Question Id : 26723610444 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Grouting activities are carried out for

(A) Strengthening

(B) Water sealing

(C) Strengthening and water sealing

(D) Strengthening and/or water sealing

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 105 Question Id : 26723610445 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A sudden stoppage of loaded inclined belt conveyor may cause slipping back of the loaded belt. The safety device to overcome this problem is:

(A) support structure

(B) snub pulley

(C) actuated hold block

(D) plough type of system

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 106 Question Id : 26723610446 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

As per DCF analysis a project is acceptable if

(A) Discounting rate > IRR

(B) Discounting rate < IRR

(C) Discounting rate = IRR

(D) There exists no relation between the two

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 107 Question Id : 26723610447 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In a Brazilian Test, the diameter of the sample was 50 mm and the thickness was 25 mm. If failure occurred at a load of 1964.28 kg, the tensile strength of the rock specimen was

(A) 100 kg/cm^2

(B) 200 kg/cm^2

(C) 50 kg/cm^2

(D) 150 kg/cm^2

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 108 Question Id : 26723610448 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A coal seam 3 m thick lying at an average depth of 100 m has been developed by bord and pillar with square pillars of 28 m centre to centre and gallery of 4 m width. The average density of overlying strata is 24 KN/m^3. If the pillar strength is 4900 KN/m^2 the safety factor of the pillar is

(A) 0.6

(B) 1.0

(C) 1.5

(D) 2.0

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 109 Question Id : 26723610449 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

If the bubble of a spirit level moves 5 mm for a change of inclination of 25 seconds, then the radius of curvature of the spirit level is

(A) 0.2 m

(B) 41.25 m

(C) 125 m

(D) 412.53 m

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 110 Question Id : 26723610450 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Ramp plate is an AFC is used for:

(A) loading the coal left on the mine floor

(B) moving the material from the ramp pan to the connecting pan

(C) moving the material from the connecting pan to the gradient pan

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 111 Question Id : 26723610451 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Square pillars in a bord and pillar panel are of size 30 m centre to centre, and the galleries are of width 4.0 m. The tributary area for each pillar in m^2 is

(A) 224

(B) 256

(C) 676

(D) 884

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 112 Question Id : 26723610452 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Wind rose diagram is used to show

(A) Air blast

(B) Air pollution

(C) Air velocity

(D) Air flow direction

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 113 Question Id : 26723610453 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A fan drift of size 4m x 3m having an airflow of 60 m^3/s experiences a shock loss of 15Pa. The shock factor for the drift is:

(A) 0.1

(B) 1.1

(C) 0.5

(D) 2.3

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 114 Question Id : 26723610454 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Equipment used for overcastting is

(A) Front-end loader

(B) Rope shovel

(C) Dragline

(D) Continuous miner

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 115 Question Id : 26723610455 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The wet kata cooling power for air velocity of 0.5 m/s and wet bulb temperature of 308 K is:

(A) 61.22 Wm^{-2}

(B) 64.22 Wm^{-2}

(C) 67.22 Wm^{-2}

(D) 65.22 Wm^{-2}

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 116 Question Id : 26723610456 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A fan is ventilating a heading through a duct of 600 mm diameter. It circulates 4 m^3/s of air at the face. If the input power of the fan is equal to 2.9 KW and density of air is 1.2 Kg/m^3, then the heat added to the air by the fan is:

(A) 2500 W

(B) 2320 W

(C) 2420 W

(D) 2452 W

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 117 Question Id : 26723610457 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The most commonly used “Running Rope” in a monocable ropeway is

(A) Ordinary lay

(B) Langs lay

(C) Locked coil

(D) Round strand

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 118 Question Id : 26723610458 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

(*i*) The creep phenomenon in rock is explained due to cracking in the rock mass
(*ii*) The creep phenomenon in rock is explained due to mass flow
(*iii*) The creep phenomenon in rock is explained due to cracking and mass flow

Out of the above statements

(A) Only (*i*) is correct

(B) Only (*ii*) is correct

(C) Only (*iii*) is correct

(D) None is correct.

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 119 Question Id : 26723610459 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The sound pressure level is measured as $5x10^{-4}$ N/m^2. What is the noise level in dB?

(A) 27.9

(B) 30.7

(C) 29.7

(D) 25.0

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 120 Question Id : 26723610460 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

337 litres/sec of water flows through a bulk air cooler and absorb 7055 KW of heat from the air. The temperature of the water leaving the cooler is 10.4 ^{0}C. The temperature of water entering the cooler is:

(A) 4.5°C

(B) 5.4°C

(C) 3.5°C

(D) 5.1°C

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D