

Notations :

- Options shown in green color and with ✓ icon are correct.
- Options shown in red color and with ✖ icon are incorrect.

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Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 2310981351 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Indicate the range of methane-air mixture to become an explosive characteristic in nature.

Options :

1. ✖ 10.4 to 16.4

2. ✖ 7.8 to 16.8

3. ✓ 5.4 to 14.8

4. ✖ 4.4 to 8.8

Question Number : 2 Question Id : 2310981352 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The rate of increase of temperature with the depth inside of a mine is termed as:

Options :

1. ✖ endothermic gradient

2. ✖ exothermic gradient

3. ✔ geothermal gradient

4. ✖ thermal gradient

Question Number : 3 Question Id : 2310981353 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The firedamp is largely constituted with:

Options :

1. ✔ methane

2. ✖ carbon monoxide

3. ✖ carbon dioxide

4. ✖ nitrogen dioxide

Question Number : 4 Question Id : 2310981354 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The gas that is introduced in the vicinity of goaf areas to combat the fire or spontaneous heating is:

Options :

1. ✓ nitrogen
2. ✗ carbon dioxide
3. ✗ hydrogen
4. ✗ sulphur dioxide

Question Number : 5 Question Id : 2310981355 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The acid rain is caused due to which of the following two important gaseous pollutants?

Options :

1. ✗ Carbon dioxide and NO_x
2. ✗ NO_x and O_3
3. ✓ SO_2 and NO_x
4. ✗ Carbon dioxide and H_2S

Question Number : 6 Question Id : 2310981356 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If the measured sound pressure level at a distance of 10 m from a conveyor belt system is 120 dB, the sound pressure level (dB) at a distance of 60 m from the conveyor belt system is:

Options :

1. ✗ 135.45
2. ✗ 129.78

3. ✖ 121.45

4. ✔ 104.44

Question Number : 7 Question Id : 2310981357 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The value of COD is related to the value of BOD as:

Options :

1. ✔ COD > BOD

2. ✖ COD < BOD

3. ✖ COD = BOD

4. ✖ COD = 1 / BOD

Question Number : 8 Question Id : 2310981358 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The Mines Act came into force on:

Options :

1. ✖ 1st July 1952

2. ✖ 27th May 1952

3. ✔ 15th March 1952

4. ✖ 15th April 1952

Question Number : 9 Question Id : 2310981359 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Among the following persons, who is not an official but a competent person?

Options :

1. ✖ Undermanager
2. ✔ Shotfirer or blaster
3. ✖ Overman or foremen
4. ✖ Mining sirdar or mate

Question Number : 10 Question Id : 2310981360 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the below-mentioned apparatus/equipment is NOT recommended to be kept at the rescue room?

Options :

1. ✔ Scissors
2. ✖ Breathing apparatus
3. ✖ Smoke
4. ✖ Reviving apparatus

Question Number : 11 Question Id : 2310981361 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which apparatus is called as intrinsically safe?

Options :

1. ✖ That is safe in operation so as not to result in the production of hot gases
2. ✖ That is operated at a lower level of temperature

3. ✓ That is inherently incapable of creating spark of sufficient intensity to ignite firedamp

4. ✗ That has an overload protection

Question Number : 12 Question Id : 2310981362 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is the minimum percentage of oxygen to be required at any place inside the mine where persons are required to work and carry out more movements?

Options :

1. ✗ 19.8%

2. ✗ 19.6%

3. ✗ 19.3%

4. ✓ 19%

Question Number : 13 Question Id : 2310981363 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which one of the below-mentioned criteria is NOT considered to locate the places for measuring the air velocity in the underground mines?

Options :

1. ✓ The resistance of the roadway must be fairly high

2. ✗ The roadway should possess uniform cross-section and should be preferably straight

3. ✗ The roadway should be away from bends

4. ✗ The cross-section of roadways shall be such that the area can be easily determined

Question Number : 14 Question Id : 2310981364 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An engine of a diesel locomotive produces exhaust gas in varied concentrations. Spell out the concentration level of carbon monoxide in the exhaust gas.

Options :

1. ✖ 50 to 70 ppm

2. ✖ 20 to 40 ppm

3. ✔ 201 to 400 ppm

4. ✖ 100 to 200 ppm

Question Number : 15 Question Id : 2310981365 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Indicate the percentage of methane concentration that should not be exceeded in the return of a ventilation district.

Options :

1. ✖ 1.25%

2. ✖ 1.0%

3. ✔ 0.75%

4. ✖ 0.25%

Question Number : 16 Question Id : 2310981366 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In human cardiovascular control, working under the hot and humid conditions in the mine causes, more blood supplied to the skin and increased cardiac output, which may result into:

Options :

1. ✖ high blood circulation

2. ✖ blood vomiting

3. ✖ skin becoming hot

4. ✔ cardiac failure

Question Number : 17 Question Id : 2310981367 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The sound pressure level is measured as $5 \times 10^{-4} \text{ N/m}^2$. What is the noise level?

Options :

1. ✖ 25 dB

2. ✖ 30 dB

3. ✖ 28.7 dB

4. ✔ 27.9 dB

Question Number : 18 Question Id : 2310981368 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A mineral soil contains:

Options :

1. ✔ minerals, organic matters, water and air

2. ✖ organic matters, water and air

3. ✖ minerals, water and air

4. ✖ sand, silt and clay

Question Number : 19 Question Id : 2310981369 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The term 'ground water' refers to the:

Options :

1. ✖ installation of wells

2. ✖ water quality determination

3. ✖ water regulation

4. ✔ aquifer location

Question Number : 20 Question Id : 2310981370 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The indication of fatigue for the persons employed in a mine is determined by the:

Options :

1. ✖ lower initial recovery of pulse rate

2. ✖ higher initial recovery of pulse rate

3. ✖ No recovery of pulse rate

4. ✔ fast return of heart towards resting level

Question Number : 21 Question Id : 2310981371 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following certificates is considered as a valid first-aid certificate for any person working inside of a mine?

Options :

1. ✖ Certificate from Medical Council of India
2. ✖ Certificate from Ambulance Association of India
3. ✖ Certificate from an area-level hospital
4. ✔ Certificate from St. Johns' Ambulance Association (India)

Question Number : 22 Question Id : 2310981372 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The percentage of employees working in the mine who should undergo initial medical examination every year is:

Options :

1. ✖ 40%
2. ✖ 30%
3. ✔ 20%
4. ✖ 10%

Question Number : 23 Question Id : 2310981373 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Why the outlets from a mine are not provided closer than 13.5 m?

Options :

1. ✔ Closer outlets will weaken the shaft pillar causing possibility of leakage
2. ✖ To provide quick communication between the working places
3. ✖ For providing easier approach with surface

4. ✖ To avoid the chance of possible subsidence

Question Number : 24 Question Id : 2310981374 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What should be the maximum temperature of the white metal pouring into the socket for the purpose of capping?

Options :

1. ✖ 525°C

2. ✖ 420°C

3. ✔ 363°C

4. ✖ 300°C

Question Number : 25 Question Id : 2310981375 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

How many rescue-trained persons should be appointed in a rescue station to maintain a rescue bridge?

Options :

1. ✖ 12

2. ✔ 18

3. ✖ 14

4. ✖ 16

Question Number : 26 Question Id : 2310981376 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The average temperatures in upcast and downcast shaft in a mine are 40°C and 30°C respectively. The shafts are 300 m deep. What will be the motive column of air (downcast shaft air) causing natural ventilation?

Options :

1. ✖ 7.83 m

2. ✔ 9.83 m

3. ✖ 11.83 m

4. ✖ 15 m

Question Number : 27 Question Id : 2310981377 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In an underground coal mine, intake air to a longwall panel has 10 ppm of CO, 20.5% of oxygen, whereas the return air has 30 ppm of CO, 20.10% of oxygen. What would be the Graham's ratio (%) for oxidation process in the panel?

Options :

1. ✖ 0.2

2. ✔ 0.5

3. ✖ 0.7

4. ✖ 0.9

Question Number : 28 Question Id : 2310981378 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A fan drift of size of 4.0 m × 3.0 m, having an air flow of 60 cu.m/s, experiences a shock loss of 15 Pa. Determine the shock factor for the drift.

Options :

1. ✔ 1.0

2. ✖ 1.5

3. ✖ 1.75

4. ✖ 1.90

Question Number : 29 Question Id : 2310981379 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A fan running at 200 rpm develops a pressure of 50 mm water gauge. Then the fan speed is increased to 300 rpm. What is the water gauge developed due to increased fan speed?

Options :

1. ✖ 97 mm

2. ✖ 102.5 mm

3. ✔ 112.5 mm

4. ✖ 65 mm

Question Number : 30 Question Id : 2310981380 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The sound level of the Audio Visual Alarm (AVA) should be at least _____ higher than the ambient noise level.

Options :

1. ✔ 5 to 20%

2. ✖ 10 to 18%

3. ✖ 20 to 28%

4. ✖ 5 to 10%

Question Number : 31 Question Id : 2310981381 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The voltage limit for general lighting in the opencast mines shall not exceed:

Options :

1. ✖ 125 V

2. ✖ 440 V

3. ✔ 250 V

4. ✖ 650 V

Question Number : 32 Question Id : 2310981382 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The foam-type extinguisher is NOT permitted to deal with Class 'C' fires due to which of the following reasons?

Options :

1. ✖ The foam is inflammable

2. ✔ The foam is conductor of electricity

3. ✖ The foam produces toxic chemicals

4. ✖ The foam contains soda powder

Question Number : 33 Question Id : 2310981383 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Cyclone, bag filter and scrubber are generally used to control:

Options :

1. ✔ air pollution

2. ✖ water pollution

3. ✖ soil pollution

4. ✖ noise pollution

Question Number : 34 Question Id : 2310981384 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following hazards occurs if the roof exposure during depillaring operation becomes more than 90 m²?

Options :

1. ✖ Subsidence

2. ✔ Air blast

3. ✖ Explosion

4. ✖ Coal bump

Question Number : 35 Question Id : 2310981385 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

No person shall act or be appointed as manager of more than one mine, except with the previous permission in writing of the C.I. Such a permission shall have effect for a period not exceeding:

Options :

1. ✖ 6 months

2. ✔ 12 months

3. ✖ 18 months

4. ✖ 24 months

Question Number : 36 Question Id : 2310981386 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What should be the minimum number of employment when the owner, agent or manager shall remain bound to designate three suitably qualified employees of the mine as 'workmen's inspectors' of the mine concerned?

Options :

1. ✖ 250

2. ✔ 500

3. ✖ 750

4. ✖ 1000

Question Number : 37 Question Id : 2310981387 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The Hoskold formula is used for:

Options :

1. ✖ ore reserve calculation

2. ✖ Finding out depreciation

3. ✔ speculative rate of return

4. ✖ Indicating the salting

Question Number : 38 Question Id : 2310981388 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The net present value of ₹400 at the end of 5 years at 10% discount rate is:

Options :

1. ✖ ₹221

2. ✓ ₹248

3. ✗ ₹284

4. ✗ ₹212

Question Number : 39 Question Id : 2310981389 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The "sum of the years' digit method" is normally used for:

Options :

1. ✗ The amount of salting

2. ✗ speculative rate of return

3. ✗ ore reserve calculation

4. ✓ Determining the depreciation

Question Number : 40 Question Id : 2310981390 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

As per DCF analysis, a project report prepared for a mine is acceptable if the:

Options :

1. ✗ discounting rate > IRR

2. ✓ discounting rate < IRR

3. ✗ discounting rate = IRR

4. ✖ discounting rate = $1 / \text{IRR}$

Question Number : 41 Question Id : 2310981391 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The payback period is defined as the time required:

Options :

1. ✔ from the start of the project to the time to recover the total initial investment

2. ✖ for the cash income from a project to get back the initial cash investment

3. ✖ in which internal rate of return is generated

4. ✖ from the start of the project to the start of the production

Question Number : 42 Question Id : 2310981392 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

As per MMR 1961, mine plan of a mine having large opencast working shall be on a scale having a representative factor of:

Options :

1. ✖ 1000:1

2. ✔ 2000:1

3. ✖ 4000:1

4. ✖ 200:1

Question Number : 43 Question Id : 2310981393 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An underground mine is highly preferred when:

Options :

1. ✖ equipment procurement is easy

2. ✔ operating cost is least

3. ✖ rehabilitation is suitable

4. ✖ demand profile is maximum

Question Number : 44 Question Id : 2310981394 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The size of the panel for depillaring is influenced by which one of the following factors?

Options :

1. ✖ Depth of cover

2. ✖ Systematic support of the panel

3. ✖ Construction of artificial panels

4. ✔ Incubation period of coal seam

Question Number : 45 Question Id : 2310981395 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The coal seams with bad roof, having strata control problems, is suitable for:

Options :

1. ✖ hydraulic mining

2. ✔ longwall mining

3. ✖ bord & pillar mining

4. ✖ blasting gallery

Question Number : 46 Question Id : 2310981396 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The probabilistic nature of activity times in PERT network is described by which of the following distributions?

Options :

1. ✖ Exponential

2. ✖ Normal

3. ✖ Uniform

4. ✔ Beta

Question Number : 47 Question Id : 2310981397 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The activity durations in PERT and CPM are decided on which of the following considerations?

Options :

1. ✔ PERT-stochastic; CPM-deterministic

2. ✖ PERT-stochastic; CPM-stochastic

3. ✖ PERT-deterministic; CPM-deterministic

4. ✖ PERT-deterministic; CPM-stochastic

Question Number : 48 Question Id : 2310981398 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a PERT network, the critical path is the path that has:

Options :

1. ✓ the longest time
2. ✗ the shortest time
3. ✗ no dummy
4. ✗ the accelerated time

Question Number : 49 Question Id : 2310981399 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In PERT analysis, the expected time to complete an activity is computed from the three time estimates: a most likely time (m), an optimistic time (a), and pessimistic time (b). Which expression from below is used for this computation?

Options :

1. ✓ $(a + 4m + b)/6$
2. ✗ $(4a + m + b)/6$
3. ✗ $(a + m + 4b)/6$
4. ✗ $(a + m + b)/3$

Question Number : 50 Question Id : 2310981400 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Quick production can be achieved from which one of the following methods?

Options :

1. ✗ Retreating longwall mining method
2. ✗ Jankowice method

3. ✓ Advance longwall mining method

4. ✗ Bord and pillar method

Question Number : 51 Question Id : 2310981401 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following actually determines the periodic weighting length in longwall working?

Options :

1. ✗ Compressive strength of immediate roof

2. ✗ The stratigraphic sequence

3. ✗ Thickness of immediate roof

4. ✓ Physical properties of main roof

Question Number : 52 Question Id : 2310981402 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In the underground mine planning, which of the following factors is considered for estimating the appropriate air requirement?

Options :

1. ✗ Exact daily tonnage output

2. ✓ Persons employed in the district and daily tonnage output

3. ✗ Exact manpower employed in the district

4. ✗ Size of the mine

Question Number : 53 Question Id : 2310981403 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In an opencast mine, for the removal of overburden using the shovel-dumper combination, the optimum size of the dumper depends on the:

Options :

1. ✓ distance of the haul and the size of shovel

2. ✗ distance of the shovel

3. ✗ size of the shovel

4. ✗ tonnage to be handled

Question Number : 54 Question Id : 2310981404 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An opencast mine has four benches. The height, width and face angle for each bench are 13 m, 30 m and 70° respectively. The overall slope angle of the benches is:

Options :

1. ✗ 19.5°

2. ✗ 20.5°

3. ✓ 25.5°

4. ✗ 33.5°

Question Number : 55 Question Id : 2310981405 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In underground coal mining, the Bord & Pillar method is not permitted in which of the following conditions?

Options :

1. ✗ Any rise face

2. ✓ Rise face of op heading and dip face of bottom most heading

3. ✗ Rise face in the top most heading

4. ✗ Dip face of any heading

Question Number : 56 Question Id : 2310981406 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

When evaluating the final pit dimensions based on the reserves expressed in the form of a grade block model, the overall objective is to find a grouping of blocks such that the _____ parameter is maximised.

Options :

1. ✗ production

2. ✗ depreciation

3. ✓ profit

4. ✗ excavation

Question Number : 57 Question Id : 2310981407 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The maximum area that can be granted in any one state of our country to obtain prospecting licence for one and associated minerals is

Options :

1. ✗ 20 sq.km

2. ✗ 22.5 sq.km

3. ✓ 25 sq.km

4. ✖ 30 sq.km

Question Number : 58 Question Id : 2310981408 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A government company is a company in which not less than _____ paid-up share capital is held by the Central Government.

Options :

1. ✖ 49%

2. ✔ 51%

3. ✖ 61%

4. ✖ 45%

Question Number : 59 Question Id : 2310981409 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which method assumes that the volume of ore surrounding a sample has the same assay value as the sample?

Options :

1. ✖ Gradual change method

2. ✔ Area influence method

3. ✖ Triangular method

4. ✖ Polygonal method

Question Number : 60 Question Id : 2310981410 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The present value of an annuity of ₹ 1000 per year for 8 years with the redemption of capital at market interest rate of 5% and with risk rate of 12% is:

Options :

1. ✓ ₹4507.1

2. ✗ ₹4705.1

3. ✗ ₹4207.1

4. ✗ ₹5207.1

Question Number : 61 Question Id : 2310981411 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Using Hoskold's formula, the present worth (in rupees) of annuity of ₹1 per year for the 10 years after the deferment period of 5 years and allowing the purchaser 10% interest is:

Options :

1. ✓ 3.81

2. ✗ 4.81

3. ✗ 5.81

4. ✗ 8.41

Question Number : 62 Question Id : 2310981412 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A company invested ₹4 lakhs in a machine. The net income expected from the operation of the machine is ₹80,000 per annum. The payback period for the machine (in years) is:

Options :

1. ✓ 5

2. ✗ 6

3. ✖ 7

4. ✖ 8

Question Number : 63 Question Id : 2310981413 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In an opencast mine, loading and transporting has been carried out by shovel and dumper combination. Only one shovel is in operation. Dumpers arrive at the rate of 10 dumpers per hour, and it takes shovel on an average 5 minutes to load a dumper. Assume arrival is Poisson-distributed and service time is exponentially-distributed. Estimate the proportion of the time that the shovel is busy.

Options :

1. ✖ $1/2$

2. ✖ $3/4$

3. ✔ $5/6$

4. ✖ $7/8$

Question Number : 64 Question Id : 2310981414 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a PERT network, the activities are on the critical path a, b, and c. The standard deviations of the durations of these activities are 2, 2, and 1 respectively. The variance of the project duration is:

Options :

1. ✖ 12

2. ✔ 9

3. ✖ 6

4. ✖ 3

Question Number : 65 Question Id : 2310981415 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The type of organisational structure that is characterised by the wastage of material, manpower and by lack of specialisation is:

Options :

1. ✔ scalar

2. ✖ functional

3. ✖ Divisional

4. ✖ Matrix

Question Number : 66 Question Id : 2310981416 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The series $1, 1/3, 1/9, 1/27, \dots$ converges to:

Options :

1. ✖ 1.14

2. ✖ 1.30

3. ✖ 1.24

4. ✔ 1.50

Question Number : 67 Question Id : 2310981417 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A square matrix of order 3 is non-singular if its rank is:

Options :

1. ✓ 3

2. ✗ 1

3. ✗ 2

4. ✗ 4

Question Number : 68 Question Id : 2310981418 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In mine economics, the term 'At-Mine-Revenue' (AMR) refers to the:

Options :

1. ✗ net value of the ore produced from the mine

2. ✗ net value of the concentrate to the mine

3. ✗ net smelter return value

4. ✓ net smelter return (NSR) minus the realisation cost

Question Number : 69 Question Id : 2310981419 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In mine economics, the measures of dispersion are:

Options :

1. ✗ mean, mode and skewness

2. ✗ mean, range and variance

3. ✓ range, variance and standard deviation

4. ✗ mean, median and variance

Question Number : 70 Question Id : 2310981420 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For use in preparation of feasibility and project reports, the deposit in reference must hold the share of _____ of its total reserves.

Options :

1. ✗ 10%

2. ✗ 20%

3. ✗ 25%

4. ✓ 30%

Question Number : 71 Question Id : 2310981421 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In an underground coal mine, the output from the panel is 360 tonnes/day, having 26 days of working in a month where incubation period of coal is 9 months. The recovery from the panel is 80%, the pillar size is 30 m × 30 m, height of pillar is 3 m, and specific gravity of coal of is 1.8. Find out the number of pillars in the panel.

Options :

1. ✓ 22

2. ✗ 26

3. ✗ 28

4. ✗ 30

Question Number : 72 Question Id : 2310981422 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In-situ ore of 1.5% Cu got diluted with waste rock of value 0.2% Cu. If the resultant extracted ore has 1.2% Cu, what is the percentage of dilution?

Options :

1. ✖ 20%

2. ✔ 23%

3. ✖ 25%

4. ✖ 30%

Question Number : 73 Question Id : 2310981423 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The suitable method of mining a 2 m thick strong sulphide ore deposit within strong wall rocks dipping at 18 degrees and occurring at 60 m below the surface is:

Options :

1. ✔ Breast stoping

2. ✖ Overhand stoping

3. ✖ Underhand longwall stoping

4. ✖ Shrinkage stoping

Question Number : 74 Question Id : 2310981424 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a mine, six trucks are assigned for one shovel. The shovel loading time per truck is 5 minutes and the truck cycle time is 20 minutes. Calculate the match factor.

Options :

1. ✖ 0.56

2. ✖ 1.00

3. ✖ 1.30

4. ✔ 1.50

Question Number : 75 Question Id : 2310981425 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The failure data analysis of a longwall mining system, consisting of three major subsystems, revealed that the failure rate of shearer, face conveyor and stage loader are 0.15/hour, 0.2/hour and 0.1/hour respectively. If all the subsystems must be running for a satisfactory system operation, the reliability of the longwall system for a period of 4 hours is:

Options :

1. ✔ 0.165

2. ✖ 0.185

3. ✖ 0.258

4. ✖ 0.458

Question Number : 76 Question Id : 2310981426 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

As per CMR-2017, Regulation-111, the gallery size permitted in coal seam is:

Options :

1. ✔ height = 3 m, width = 4.8 m

2. ✖ height = 4 m, width = 3 m

3. ✖ height = 3.6 m, width = 4.2 m

4. ✖ height = 3.6 m, width = 4.8 m

Question Number : 77 Question Id : 2310981427 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following terminology is NOT related to the shaft sinking process?

Options :

1. ✖ Scaffold pulley

2. ✖ Rider

3. ✖ Kibble

4. ✔ Dipper shovel

Question Number : 78 Question Id : 2310981428 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which drilling pattern is related to horizontal or incline development in metal mines?

Options :

1. ✖ Rectangular pattern

2. ✖ Staggered pattern

3. ✔ Burn cut pattern

4. ✖ Diagonal pattern

Question Number : 79 Question Id : 2310981429 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What size of hole can be drilled by a jackhammer?

Options :

1. ✖ 55 mm

2. ✔ 33 mm

3. ✖ 105 mm

4. ✖ 69 mm

Question Number : 80 Question Id : 2310981430 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

When differential levelling is done in order to connect a bench-mark to the starting point of the alignment of any project, and no distances are measured along the direction of levelling, it is called:

Options :

1. ✖ cross-sectional levelling

2. ✔ fly levelling

3. ✖ differential levelling

4. ✖ profile levelling

Question Number : 81 Question Id : 2310981431 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The correction due to curvature in levelling is:

(Where, D is the horizontal distance, R is radius of the earth)

Options :

1. ✔ $D^2/(2R)$

2. ✖ $\frac{2}{5}(D^2/2R)$

3. ✖ D^2/R

4. ✖ $D^2/(4R)$

Question Number : 82 Question Id : 2310981432 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

When L denotes latitude and D denotes departure, then the direction of closing error is given by:

Options :

1. ✖ Inverse $\sin(\Sigma d/\Sigma L)$

2. ✔ Inverse $\tan(\Sigma d/\Sigma L)$

3. ✖ Inverse $\cot(\Sigma d/\Sigma L)$

4. ✖ Inverse $\cos(\Sigma d/\Sigma L)$

Question Number : 83 Question Id : 2310981433 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Blasting off the solid is a combination of:

Options :

1. ✖ coal cutting by coal cutting machine, blasting by ANFO

2. ✖ drilling wedge cut pattern, blasting by HANFO

3. ✖ coal cutting by coal cutting machine, blasting by P5 explosive

4. ✓ drilling wedge cut pattern, blasting by P5 explosive

Question Number : 84 Question Id : 2310981434 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Detonating fuse contains:

Options :

1. ✗ ASA

2. ✓ PETN

3. ✗ KMNO₄

4. ✗ gun powder

Question Number : 85 Question Id : 2310981435 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The drill holes drilled in the centre of burn cut pattern for providing free face are called:

Options :

1. ✗ cut holes

2. ✓ relief holes

3. ✗ easers

4. ✗ trimmers

Question Number : 86 Question Id : 2310981436 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which is the most precise delay detonator?

Options :

1. ✖ Non-electric detonator
2. ✖ Electric detonator
3. ✔ Electronic detonator
4. ✖ Plain safety fuse based detonator

Question Number : 87 Question Id : 2310981437 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Emulsion explosive is a mixture of:

Options :

1. ✔ Ammonium nitrate, FO, water, hollow micro-balloons
2. ✖ Ammonium nitrate, TNT, guar gum
3. ✖ Ammonium nitrate, TNT, NG
4. ✖ Ammonium nitrate, NG, water

Question Number : 88 Question Id : 2310981438 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In which contour blasting technique, the blasting area is isolated from the rest of the rock formation by creating an artificial crack along the intended plane?

Options :

1. ✖ Line drilling
2. ✔ Pre-splitting

3. ✖ Smooth blasting

4. ✖ Pop shooting

Question Number : 89 Question Id : 2310981439 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The length of a line measured with a 20 m chain was found to be 250 m. What will be the true length of the line if the chain was 10 cm too long?

Options :

1. ✖ 250.10 m

2. ✖ 251 m

3. ✔ 251.25 m

4. ✖ 252 m

Question Number : 90 Question Id : 2310981440 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is correct for a prismatic compass?

Options :

1. ✔ The graduations are in whole circle bearing system

2. ✖ The graduations are engraved erect

3. ✖ The graduations are 0 degrees at North and South and 90 degrees at East and West

4. ✖ The reading is taken by directly seeing through the top of the glass

Question Number : 91 Question Id : 2310981441 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT correctly defined with respect to a theodolite?

Options :

1. ✖ Vertical axis: the axis about which the instrument can be rotated in horizontal plan

2. ✔

Trunnion axis: the axis about which the telescope and vertical circle rotate in horizontal plan

3. ✖

Line of collimation: the line passing through the intersection of the horizontal and vertical cross-hairs and the optical centre of the object glass and its continuation

4. ✖

Transiting: process of turning the telescope in vertical plane through 180 degrees about the trunnion axis

Question Number : 92 Question Id : 2310981442 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Find the elevation of point B if the elevation of (point A) B.M. = 210.852 m, B.S. = 2.324 and F.S. = 1.836

Options :

1. ✖ 213.176 m

2. ✖ 212.688 m

3. ✔ 211.340 m

4. ✖ 210.852 m

Question Number : 93 Question Id : 2310981443 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements is INCORRECT for contour characteristics?

Options :

1. ✖ Two contour lines of different elevations cannot cross each other

2. ✖

Contour lines of different elevations can unite to form one line only in the case of a vertical cliff

3. ✖

The same contour appears on either sides of a ridge or valley, for the highest horizontal plane that intersects the ridge must cut it on both sides

4. ✔ Contour lines close together indicate mild slope

Question Number : 94 Question Id : 2310981444 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Safety fuse, detonating fuse, ordinary detonators, delay detonators etc. are classified as:

Options :

1. ✖ Class 1 Explosives

2. ✖ Class 3 Explosives

3. ✖ Class 5 Explosives

4. ✔ Class 6 Explosives

Question Number : 95 Question Id : 2310981445 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What size of detonating fuse is mainly used for initiation of primer/nonel in drive face?

Options :

1. ✔ 10 gm/m

2. ✖ 30 gm/m

3. ✖ 50 gm/m

4. ✖ 100 gm/m

Question Number : 96 Question Id : 2310981446 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Calculate the quantity of SME explosive required to fill two-third parts of 12 m long hole, in 105 mm hole diameter.

The density of explosive is 0.8 gm/cc.

Options :

1. ✖ 60.6 kg

2. ✔ 55 kg

3. ✖ 69 kg

4. ✖ 100 kg

Question Number : 97 Question Id : 2310981447 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Why is hydraulic drilling technology preferred over pneumatic drilling technology?

Options :

1. ✖ Higher maintenance cost

2. ✖ Difficult to optimise

3. ✔ Better environmental conditions

4. ✖ Lower drilling capacity

Question Number : 98 Question Id : 2310981448 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which is the correct combination of equipment for excavation of a large size decline?

Options :

1. ✓ Jumbo drill, LHD, LPDT
2. ✗ Jack hammer, LHD, dumper
3. ✗ Jumbo drill, rocker shovel, dumper
4. ✗ Jack hammer, rocker shovel, dumper

Question Number : 99 Question Id : 2310981449 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which factor is responsible for drill hole deviation?

Options :

1. ✗ Accurate collaring
2. ✗ Experienced driller
3. ✓ Structural geology
4. ✗ Stability of drill rig

Question Number : 100 Question Id : 2310981450 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The intrinsic equation of an ideal transition curve is given by the expression:

Options :

1. ✗ $\theta = L^2/(2R)$ degrees

2. ✖ $\phi = L/(2R^2)$ minutes

3. ✔ $\phi = L/(2R)$ radians

4. ✖ $\phi = 1/(RL)$ minutes

Question Number : 101 Question Id : 2310981451 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

How is an astronomical triangle formed?

Options :

1. ✔ By joining the pole, zenith and any star

2. ✖ By Napier's rules of circular parts

3. ✖

By intersection of three arcs of great circles and the angles formed by arcs at the vertices of the triangle

4. ✖ When any angle is less than two right angles

Question Number : 102 Question Id : 2310981452 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Express 4 hours 34 minutes 13 seconds in degrees, minutes and seconds.

Options :

1. ✖ 60 degrees 30 minutes 15 seconds

2. ✖ 68 degrees 20 minutes 15 seconds

3. ✔ 68 degrees 33 minutes 15 seconds

4. ✖ 78 degrees 33 minutes 15 seconds

Question Number : 103 Question Id : 2310981453 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A camera having focal length of 20 cm is used to take a vertical photograph of a terrain having an average elevation of 1500 m. What is the height above sea level at which an air-craft must fly in order to get the scale of 1:8000?

Options :

1. ✖ 1500 m above MSL

2. ✖ 1600 m above MSL

3. ✔ 3100 m above MSL

4. ✖ 4600 m above MSL

Question Number : 104 Question Id : 2310981454 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which is the law of static friction?

Options :

1. ✔

The magnitude of the limiting friction bears a constant ratio to the normal reaction between the two surfaces.

2. ✖

The force of friction always acts in a direction, opposite to that in which the body is moving.

3. ✖

The magnitude of kinetic friction bears a constant ratio to the normal reaction between the two surfaces.

4. ✖ For moderate speeds, the force of friction remains constant.

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT part of a typical hydrofrac system?

Options :

1. ✖ Two packers and one injection unit
2. ✖ Pressure transducers and flow meters
3. ✖ Impression packers
4. ✔ Exploder

Correct Marks : 2 Wrong Marks : 0.66

Which parameter is NOT considered in rock quality index (Q-system) given by Barton?

Options :

1. ✖ Rock quality designation
2. ✖ Stress reduction factor
3. ✖ Joint set number
4. ✔ Uniaxial compressive strength

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is a load or stress monitoring device?

Options :

1. ✔ Flat jack

2. ✖ Telltale device

3. ✖ Potentiometer

4. ✖ LVDT

Question Number : 108 Question Id : 2310981458 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is Angle of draw in subsidence profile?

Options :

1. ✖

The angle between the vertical line at the opening edge and the line connecting the opening edge and the point of maximum tensile strain on the surface

2. ✔

The angle subtended between the vertical line drawn at panel edge and a line joining the extraction edge or zero subsidence

3. ✖

The angle between the vertical line at the opening edge and the line connecting opening edge and the point of critical deformation on the surface

4. ✖

The angle between the horizontal and the line connecting the edge of the flat bottom of the subsidence basin

Question Number : 109 Question Id : 2310981459 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which type of slope failure mostly occurs in soil, waste dump and severe weather rock mass?

Options :

1. ✖ Plane failure

2. ✔ Circular failure

3. ✖ Flexural toppling

4. ✖ Wedge failure

Question Number : 110 Question Id : 2310981460 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is the Bieniawski formula for calculating strength of square pillar?

Options :

1. ✔ $S_p = S_l (0.64 + 0.36 \times (w/h))$

2. ✖ $S_p = 0.27h^{0.36} + H(w/h - 1)$

3. ✖ $S_p = k(w^{0.5}/h)$

4. ✖ $S_p = 7.2(w^{0.46}/h^{0.66})$

Question Number : 111 Question Id : 2310981461 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Swellex type rock bolts are:

Options :

1. ✖ mechanically anchored bolts

2. ✖ grouted cable bolts

3. ✔ friction anchored bolts

4. ✖ perfo bolts

Question Number : 112 Question Id : 2310981462 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Weight of 1 kN is lifted by an effort of 125 N by second system of pulleys, having 5 pulleys in each block. Calculate the amount of effort wasted in friction?

Options :

1. ✖ 10 N

2. ✔ 25 N

3. ✖ 240 N

4. ✖ 30 N

Question Number : 113 Question Id : 2310981463 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For frames with one end hinged (or pin jointed) and the other supported on rollers and carrying horizontal loads, the hinged support reaction at the hinged end will be the:

Options :

1. ✔ resultant of vertical and horizontal forces

2. ✖ vertical force

3. ✖ horizontal force

4. ✖ normal to support force

Question Number : 114 Question Id : 2310981464 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The torque acting on a body of moment of inertia (I) and angular acceleration (α) is:

Options :

1. ✖ $0.5 \times I \times \alpha$

2. ✖ $2 \times I \times \alpha$

3. ✔ $I \times \alpha$

4. ✖ $(I \times I)/2$

Question Number : 115 Question Id : 2310981465 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If the elastic modulus and Poisson's ratio of a rock is 5 GPa and 0.3, respectively, then the shear modulus of the rock is:

Options :

1. ✖ 2 GPa

2. ✖ 1.5 GPa

3. ✖ 1.02 GPa

4. ✔ 1.9 GPa

Question Number : 116 Question Id : 2310981466 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In pressure tunnel test, the tunnel was subjected to 20 kg/cm^2 . Determine the diametric deformation if the diameter of the tunnel is 2 m, the modulus of elasticity of rock material is $2.4 \times 1000 \text{ kg/cm}^2$ and Poisson's ratio is 0.3.

Options :

1. ✔ 2.167 cm

2. ✖ 2.167 m

3. ✖ 2.167 mm

4. ✖ 20.16 cm

Question Number : 117 Question Id : 2310981467 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A rock sample has bulk density of 2.89 gm/cc. Its moisture content was found to be 1.38%. Its dry density will be:

Options :

1. ✖ 2.52 gm/cc

2. ✖ 2.69 gm/cc

3. ✔ 2.85 gm/cc

4. ✖ 2.96 gm/cc

Question Number : 118 Question Id : 2310981468 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For determining the uniaxial compressive strength and deformability of rock material, the load should be applied at the rate of:

Options :

1. ✖ 1 to 2 MPa/s

2. ✔ 0.5 to 1 MPa/s

3. ✖ 2 to 5 MPa/s

4. ✖ 5 to 10 MPa/s

Question Number : 119 Question Id : 2310981469 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements is INCORRECT with respect to support?

Options :

1. ✖ Support is the application of a reactive force to the surface of an excavation
2. ✖ Reinforcement is to improve the overall rock mass properties from within the rock mass.
3. ✖ Active support imposes a predetermined load to the rock at the time of installation.
4. ✔ Passive support installed with an applied load.

Question Number : 120 Question Id : 2310981470 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Coulomb theory states that:

Options :

1. ✖ failure occurs due to both yielding and fracture
2. ✔ failures occurs when the shear stress on the material along the failure plane exceeds the value of shear strength
3. ✖ potential failure in the form of grain boundaries
4. ✖ the maximum principal stress in the material determines failure regardless of the magnitude of other two principal stresses

Question Number : 121 Question Id : 2310981471 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following parameters does NOT affect the magnitude of subsidence?

Options :

1. ✖ Method of working
2. ✖ Thickness of seam

3. ✓ Material transportation system

4. ✗ Depth of working

Question Number : 122 Question Id : 2310981472 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A railway engine of mass 20 tonnes is moving on a level track with a constant speed of 45 km/h. Find the power of the engine, if the frictional resistance is 80 N/t. Take efficiency of the engine as 80%.

Options :

1. ✗ 20 kW

2. ✓ 25 kW

3. ✗ 30 kW

4. ✗ 35 kW

Question Number : 123 Question Id : 2310981473 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements are correct?

(i) Longitudinal waves are body waves

(ii) Shear waves are P-waves

(iii) Rayleigh waves are body waves

(iv) Love waves are surface waves

Options :

1. ✗ Both statements (i) and (ii)

2. ✗ Both statements (ii) and (iii)

3. ✗ Both statements (iii) and (iv)

4. ✓ Both statements (i) and (iv)

Question Number : 124 Question Id : 2310981474 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Stripping ratio is an indicator of:

Options :

1. ✓ volume of overburden removal for unit ore production

2. ✗ ore production

3. ✗ overburden removal

4. ✗ volume of explosive required for unit overburden breakage

Question Number : 125 Question Id : 2310981475 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following opencast terminology is INCORRECTLY defined?

Options :

1. ✗

Berm: horizontal ledges situated on the non-productive side of the open pit and serving to accommodate the transportation roads or to protect the operating equipment from falling lumps of ground

2. ✗

Ultimate pit slope angle: the angle which a plane joining the crest of the quarry with the toe of the bottommost bench makes from the horizontal

3. ✓ Bench slope angle: the angle of the slope of the bench wall from the vertical

4. ✗ Box cut: in-going entrance or opening trench

Question Number : 126 Question Id : 2310981476 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which surface mining equipment is used for loading soft rock, having large wheel with buckets arranged in circumference?

Options :

1. ✖ Dragline
2. ✔ Bucket wheel excavator
3. ✖ Surface miner
4. ✖ Roadheader

Question Number : 127 Question Id : 2310981477 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

As per the provision of regulation of CMR 2017, danger zone is an opencast falling a radius of:

Options :

1. ✖ 300 m
2. ✖ 400 m
3. ✔ 500 m
4. ✖ 600 m

Question Number : 128 Question Id : 2310981478 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Pop shooting or plaster shooting is a type of:

Options :

1. ✖ primary blasting

2. ✓ secondary blasting

3. ✗ muffling

4. ✗ clay capping

Question Number : 129 Question Id : 2310981479 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following factors is NOT significantly related with the controlling of belt conveyor capacity?

Options :

1. ✗ Belt speed

2. ✗ Trough angle

3. ✗ Belt width

4. ✓ Design of chute

Question Number : 130 Question Id : 2310981480 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What are the correct blast design parameters for blast hole diameter of 100 mm in massive limestone bench?

Options :

1. ✓ Burden = 3 m, Spacing = 4 m, Stemming length = 2.5 m, Subgrade drilling = 1 m

2. ✗ Burden = 4 m, Spacing = 3 m, Stemming length = 2 m, Subgrade drilling = 2 m

3. ✗ Burden = 5 m, Spacing = 2 m, Stemming length = 1 m, Subgrade drilling = 1 m

4. ✗ Burden = 3 m, Spacing = 3 m, Stemming length = 1 m, Subgrade drilling = 2 m

Question Number : 131 Question Id : 2310981481 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Select the option that correctly matches the mining methods to the techniques.

Mining methods	Techniques
P. Thick seam extraction	1. Double unit face
Q. Bord and pillar extraction	2. Jet cutting
R. Longwall face development	3. Inclined slicing
S. Hydraulic mining	4. Diagonal line of extraction

Options :

1. ✖ P-3, Q-4, R-2, S-1

2. ✖ P-3, Q-2, R-1, S-4

3. ✖ P-1, Q-4, R-2, S-3

4. ✔ P-3, Q-4, R-1, S-2

Question Number : 132 Question Id : 2310981482 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is a uranium ore mine?

Options :

1. ✖ Rampura Agucha Mine

2. ✖ Panchpatmali Mine

3. ✔ Tummalapalle Mine

4. ✖ Khetri Mine

Correct Marks : 2 Wrong Marks : 0.66

Post and pillar mining method is a variant of:

Options :

1. ✖ sub level method

2. ✖ sub level caving method

3. ✖ resuing

4. ✔ cut and fill method

Correct Marks : 2 Wrong Marks : 0.66

Select the option that correctly matches the equipment to the action processes.

Equipment	Action Process
P. Dragline	1. Reaming
Q. Bucket wheel excavator	2. Key cut
R. Tunnel boring machine	3. Pulsating impact
S. Hydraulic hammer	4. Terracing

Options :

1. ✔ P-2, Q-4, R-1, S-3

2. ✖ P-1, Q-2, R-3, S-4

3. ✖ P-2, Q-4, R-3, S-1

4. ✖ P-3, Q-4, R-2, S-1

Correct Marks : 2 Wrong Marks : 0.66

In shovel loading of broken iron ore, if loading cycle time of the shovel of 5 cubic metre bucket capacity is 40 seconds, bucket fill ratio is 0.8, rock looseness factor is 1.5, then calculate the hourly output of the shovel in cubic metres.

(Assume 75% shovel working time utilisation)

Options :

1. ✖ 70

2. ✖ 90

3. ✔ 180

4. ✖ 140

Question Number : 136 Question Id : 2310981486 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The decking difficulties in a Koepe winder are overcome by providing:

Options :

1. ✖ keps

2. ✔ hinged platform

3. ✖ rope guide

4. ✖ flexible guide

Question Number : 137 Question Id : 2310981487 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In any workings having an inclination of _____ degrees or more from the horizontal, adequate precautions shall be taken to prevent danger to a person from falling.

Options :

1. ✖ 25

2. ✓ 30

3. ✗ 45

4. ✗ 60

Question Number : 138 Question Id : 2310981488 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT a standard condition for operation of HEMM?

Options :

1. ✗

No road shall be of width less than three times plus 5 m width of the largest vehicle plying on the road

2. ✓ No road shall be of gradient lower than 1 in 16

3. ✗

The maximum speed of a vehicle shall be restricted to 30 km/h by blocking higher gear or other automatic means

4. ✗ The approved type of audio visual alarm shall be provided

Question Number : 139 Question Id : 2310981489 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is the geothermic gradient for Indian coalfields?

Options :

1. ✗ 1K/91.1m

2. ✗ 1K/122.4m

3. ✓ 1K/38.4m

4. ✖ 1K/109.1m

Question Number : 140 Question Id : 2310981490 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements is INCORRECT for hydraulic coupling?

Options :

1. ✖

Transmits motor power through liquid without mechanical linkage between the driver and the driven machinery

2. ✖ It functions as a clutch which gives a perfectly smooth and progressive drive

3. ✖ Also known as fluid coupling

4. ✔ Coupling consists of two main parts that is an impeller and governor

Question Number : 141 Question Id : 2310981491 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements is INCORRECT for primary crushers?

Options :

1. ✖

Used to reduce the run-of-mine ore down to a size suitable for transport and for feeding the secondary crushers or AG/SAG mills

2. ✖ Always operated in open circuit, with or without heavy-duty scalping screens (grizzlies)

3. ✔ The maximum feed size will normally be less than 15 cm in diameter

4. ✖

There are two main types of primary crushers in metalliferous operations—jaw and gyratory crushers

Question Number : 142 Question Id : 2310981492 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which pump has single helical rotor, and can be used at coal face for pumping water having coal particles of various sizes?

Options :

1. ✓ Roto pump
2. ✗ Turbine pump
3. ✗ Submersible pump
4. ✗ Centrifugal pump

Question Number : 143 Question Id : 2310981493 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which problem is NOT related to integrated sublevel caving or 'soutirage' working?

Options :

1. ✗ Methane emission increases
2. ✗ Risk of fire because of crushed coal
3. ✗ Difficult in coal face mechanisation
4. ✓ Supervision

Question Number : 144 Question Id : 2310981494 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT a fragmentation assessment technique?

Options :

1. ✗ Digital image analysis technique

2. ✓ Face profiler

3. ✗ High speed photography

4. ✗ Photogrammetry method

Question Number : 145 Question Id : 2310981495 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which layout avoids loop and brings empties to the full side of cage with the help of a traverser, turn table or shunt back arrangements/switches incorporated in the circuit? This reduces long run round, and also the travel time to a minimum in underground.

Options :

1. ✗ Blind pit bottom

2. ✓ Shunt back system

3. ✗ Loop system

4. ✗ Run round type

Question Number : 146 Question Id : 2310981496 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is the INCORRECT definition for different types of pillars?

Options :

1. ✗

Crown pillar: In order to support the workings of the immediately upper level of a stope, the horizontal pillar left is known as crown pillar

2. ✗

Rib pillar: To limit the size of a stope along its length of a continuous ore body, it needs to be separated by an ore pillar is known as rib pillar

3. ✓

Intervening pillar: Sometimes due to abnormal working conditions, the complete stoping needs to suspend and the portion that has not been worked out is known as intervening pillar

4. ✖

Barrier pillar: These pillars are designed to isolate the panels from each other and applicable to stoping methods, such as bord and pillar, room and pillar etc.

Question Number : 147 Question Id : 2310981497 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following arrangements is NOT related to the development in steep seams?

Options :

1. ✓

The coal pillars should have larger dimensions along the dip and smaller dimension along the strike

2. ✖ The main haulage should be not along true dip but along apparent dip

3. ✖ The level galleries should be joined along apparent dip

4. ✖

The coal tubs or mine cars should be of special design to prevent spillage when hauled along the haulage plane

Question Number : 148 Question Id : 2310981498 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is a coal bump in coal mines?

Options :

1. ✖ It is a roof fall which affects the surface.

2. ✖ It is a sudden displacement in the goaf area resulting dislodges roof supports.

3. ✓

It is a sudden violent collapse of coal from coal pillars due to sudden release of elastic strain energy.

4. ✗ It is a line passing through all the corners of stook under extraction at a time.

Question Number : 149 Question Id : 2310981499 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The direction of the longwall face is influenced by:

Options :

1. ✗ availability of the spare parts of the power supports

2. ✗ shape and size of development roadways

3. ✗ electrical distribution system for the faces

4. ✓ physico-mechanical properties of roof rocks, dip of the seam and direction of cleats etc.

Question Number : 150 Question Id : 2310981500 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In bord and pillar workings, the size of panel depends on:

Options :

1. ✗ depth from the surface

2. ✓ incubation period of the coal seam

3. ✗ time dependent strain

4. ✗ nature of the floor