

PROVISIONAL ANSWER KEY

Question 6/2024/OL

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Exam: Mate (Mines)

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Department Kerala Minerals and Metals Ltd

Question1:-The drill machine that can drill holes from 65 to 230 mm diameter is hard rocks is

A:-Electric drill

B:-Wagon drill

C:-DTH

D:-Churn drill

Correct Answer:- Option-C

Question2:-The percussive drilling is applicable up to maximum depth of

A:-200 m

B:-300 m

C:-500 m

D:-700 m

Correct Answer:- Option-B

Question3:-The device used to prevent unnecessary swinging of the bucket in sinking shaft is

A:-Spider

B:-Kibble

C:-Scaffold

D:-Rider

Correct Answer:- Option-D

Question4:-The quantity of ventilating air shall be provided in sinking shaft is _____, if depth exceeds 25 m.

A:-100 m^3

B:-200 m^3

C:-300 m^3

D:-400 m^3

Correct Answer:- Option-C

Question5:-The method of sinking shaft through alternate loose and tough strata up to 60 m is

- A:-Piling method
- B:-Open caisson method
- C:-Forced drop method
- D:-Cementation method

Correct Answer:- Option-C

Question6:-For a coal seam of moderate dip, the shaft may be located in the _____ of the property.

- A:-Rise side
- B:-Middle
- C:-Dip side
- D:- $\frac{1}{3}rd$ from outcrop

Correct Answer:- Option-B

Question7:-In cementation method of sinking shaft, the purpose of treating holes with chemicals like silicate of soda and aluminium sulphate is

- A:-To reduce the friction
- B:-To seal cracks
- C:-To Quick setting of cement
- D:-To defreeze

Correct Answer:- Option-A

Question8:-_____ is the process of treating holes with chemicals in cementation method.

- A:-Defreezing
- B:-Silicatisation
- C:-Pre-silicatisation
- D:-Thawing

Correct Answer:- Option-B

Question9:-The composition of charcoal : sulphur : potassium nitrate (%) in Gunpowder is _____

- A:-15 : 10 : 75
- B:-25 : 10 : 65
- C:-10 : 15 : 65
- D:-15 : 75 : 10

Correct Answer:- Option-A

Question10:-PETN stands for

- A:-Pentaerythritol trinitrate
- B:-Polyerythritol tetranitrate
- C:-Pentaerythritol tetranitrate

D:-Pentaerythritol trinitro

Correct Answer:- Option-C

Question11:-Which of the following statement is correct with respect to permitted explosives :

A:-P1 - used for delay blasting in solid blasting and in gassy coal seams

B:-P2 - used for delay blasting in solid blasting and in gassy coal seams

C:-P3 - used for delay blasting in solid blasting and in gassy coal seams

D:-P5 - used for delay blasting in solid blasting and in gassy coal seams

Correct Answer:- Option-D

Question12:-_____ is a chemical component having three properties. High explosive and oxidising agent and cooling agent.

A:-Nitroglycerine

B:-Liquid oxygen

C:-TNT

D:-Ammonium nitrate

Correct Answer:- Option-D

Question13:-Detonating fuse consist core of _____

A:-PETN

B:-TNT

C:-ASA

D:-AN

Correct Answer:- Option-A

Question14:-The value of 'spacing' is dependent upon

A:-the hold depth, relative primer locations between adjacent charge columns, and the delay type being used

B:-the burden, hold depth, relative primer locations between adjacent charge columns, and the delay type being used

C:-the burden, stemming length, relative primer locations between adjacent charge columns, and the delay type being used

D:-the burden, hold depth, relative primer locations between adjacent charge columns, and the explosive type being used

Correct Answer:- Option-B

Question15:-The general observations during too wide spacing :

A:-Cause too much crushing and cratering between holes

B:-toe problems between holes

C:-blast vibration and air-blast problem

D:-boulders in the burden region

Correct Answer:- Option-B

Question16:-Is a technique where a row of parallel holes closely spaced, along the excavation perimeter or final excavation are fired simultaneously prior to the primary blast using decoupled charges or low strength and energy explosives

A:-Line drilling

B:-Smooth blasting

C:-Post-splitting

D:-Pre-splitting

Correct Answer:- Option-D

Question17:-The depth of hole is restricted to 50% - 60% of the width of the drift in

A:-Fan cut

B:-Drag cut

C:-Burn cut

D:-Pyramid cut

Correct Answer:- Option-D

Question18:-Which of the following statement is correct with respect to transportation of explosives?

A:-10 T or half the carrying capacity of railway wagon whichever is less

B:-10 T or half the carrying capacity of a road van whichever is less

C:-10 T or full the carrying capacity of railway wagon whichever is less

D:-10 T or full the carrying capacity of railway van whichever is more

Correct Answer:- Option-A

Question19:-Which of the following statement is 'NOT' correct with respect to transportation of explosives?

A:-A vehicle transporting explosives shall not be driven at a speed exceeding 25 km/hour

B:-No trailer shall be attached to a vehicle transporting explosives

C:-A vehicle transporting explosives shall be taken into garage or repair shop in emergencies

D:-A vehicle transporting explosives shall be refueled except in emergencies and then only when its engine is stopped and other precautions taken to prevent accidents

Correct Answer:- Option-C

Question20:-The drill machine used for drilling vertical holes of 150 - 300 mm diameter specially in medium hard rocks is

A:-Churn drill

B:-Jackhammer drill

C:-Diamond drill

D:-Well hole drill

Correct Answer:- Option-A

Question21:-This type of drill machine is used for drilling holes ranging from 60 mm to 150 mm diameter at a shallow depth

A:-Down the hold drills

B:-Wagon drill

C:-Jackhammer drill

D:-Churn drill

Correct Answer:- Option-B

Question22:-The following is not classified under types of surface mining

A:-Highwall mining

B:-Open-cast mining

C:-Adit mining

D:-Quarrying

Correct Answer:- Option-C

Question23:-Which of the following statement is correct about advantage of surface mining method over underground mining method?

A:-Higher flexibility of operation

B:-Problems of ground vibration

C:-Handling of less quantity of unproductive material

D:-Less reclamation cost

Correct Answer:- Option-A

Question24:-Which of the following is independent variable affecting rock penetration during drilling process?

A:-Drill hole

B:-Drill rod

C:-Rock

D:-Circulation fluid

Correct Answer:- Option-C

Question25:-Match the following

- | | |
|----------------------|---------------|
| i. Mechanical attack | P. Freezing |
| ii. Thermal | Q. Cavitation |
| iii. Fluid | R. Hammer |

A:-i-P; ii-Q; iii-R

B:-i-R; ii-P; iii-Q

C:-i-Q; ii-R; iii-P

D:-i-P; ii-R; iii-Q

Correct Answer:- Option-B

Question26:-The following is not the main functional components of a drilling system

A:-Drill

B:-Bit

C:-Circulation fluid

D:-Rock type

Correct Answer:- Option-D

Question27:-Cutting sequence of a percussion drill bit

A:-radial cracks-large chips-crushed powder-final outline of crater

B:-radial cracks-crushed powder-large chips-final outline of crater

C:-large chips-radical cracks-crushed powder-final outline of crater

D:-large chips-crushed powder-radical cracks-final outline of crater

Correct Answer:- Option-B

Question28:-The wagon drill machine can drill hole of _____ diameter.

A:-upto 40 mm

B:-40 - 100 mm

C:-60 - 125 mm

D:-150 - 300 mm

Correct Answer:- Option-B

Question29:-The removal of ice wall after completion of sinking by sending hot brine through holes in freezing method of sinking shaft is known as

A:-Defreezing

B:-Silicatisation

C:-Post freezing

D:-Thawing

Correct Answer:- Option-D

Question30:-The usual gradient for the inclines is

A:-1 in 4

B:-1 in 3

C:-1 in 2

D:-1 in 1

Correct Answer:- Option-A

Question31:-A competent person means he is attained the age of

A:-18 years

B:-16 years

C:-20 years

D:-23 years

Correct Answer:- Option-C

Question32:-Mines act comes into force on

A:-1st July 1952

B:-27th May 1952

C:-15th August 1952

D:-15th March 1952

Correct Answer:- Option-D

Question33:-Application for an examination conducted by the board shall be made to the board not less than _____ prior to the fixed for the examination

A:-30 days

B:-60 days

C:-15 days

D:-7 days

Correct Answer:- Option-B

Question34:-No person shall act, or be appointed, as manager of more than one mine except with the previous permission in writing of the chief inspector and subject to such conditions as he may specify therein. No such permission shall have effect for a period exceeding

A:-6 months

B:-12 months

C:-18 months

D:-24 months

Correct Answer:- Option-B

Question35:-In every mine the average employment of which exceeds _____ in workings below ground, the manager shall be assisted by assistant managers and/or underground managers.

A:-150

B:-250

C:-350

D:-450

Correct Answer:- Option-D

Question36:-No person shall act as a manager or an official or a blaster or a winding engine man in a mine after attaining the age of _____ unless he has obtained, within the preceding one year, a medical certificate of fitness certifying him fit to carry out the duties prescribed for him in the Act and in the regulations :

A:-62 years

B:-60 years

C:-58 years

D:-55 years

Correct Answer:- Option-B

Question37:-No manager shall vacate his office without giving due notice in writing to the owner or agent atleast _____ before the day on which he wishes to vacate his office.

A:-7 days

B:-15 days

C:-30 days

D:-45 days

Correct Answer:- Option-C

Question38:-The limiting gradient for the conveyor with rubber coating without breaking arrangement is

A:-1 in 3

B:-1 in 4

C:-1 in 5

D:-1 in 6

Correct Answer:- Option-C

Question39:-The inclination of the idlers in belt conveyor is

A:-10 to 20 deg.

B:-20 to 30 deg.

C:-30 to 45 deg.

D:-45 to 60 deg.

Correct Answer:- Option-B

Question40:-In formation of benches the angle of slope should not exceed

A:-80 deg.

B:-30 deg.

C:-45 deg.

D:-60 deg.

Correct Answer:- Option-C

Question41:-The height of the coal bench should not exceed

A:-2 m

B:-3 m

C:-4 m

D:-5 m

Correct Answer:- Option-B

Question42:-In alluvial soil, morum gravel, clay, debris or other similar ground the sides shall be kept benched and the height of any bench shall not _____

A:-exceed 2.5 metres

B:-exceed 1.5 metres

C:-exceed 3 metres

D:-exceed 2 metres

Correct Answer:- Option-B

Question43:-The slope of the high wall is usually _____ off the vertical.

A:-5 deg.

B:-10 deg.

C:-15 deg.

D:-20 deg.

Correct Answer:- Option-D

Question44:-It shall be the duty of a competent person to examine carefully, once at least in every _____, every haulage engine, brake-wheel, rope and other appliance in use.

A:-07 hours

B:-24 hours

C:-48 hours

D:-72 hours

Correct Answer:- Option-B

Question45:-No locomotive shall be used where the gradient of the track exceeds _____.

A:-1 in 15

B:-1 in 12

C:-1 in 10

D:-1 in 8

Correct Answer:- Option-A

Question46:-When 'float' or other similar deposit is worked by manual means on a sloping face, the face shall be benched and the sides shall be sloped at an angle of not _____ degrees from the horizontal.

A:-Less than 60

B:-Less than 45

C:-More than 60

D:-More than 45

Correct Answer:- Option-C

Question47:-Where an excavation which has been formed as a result of any mining operation, extends within a distance of _____ from a public road or any building, substantial fencing shall be erected and maintained around the excavation.

A:-05 metres

B:-15 metres

C:-20 metres

D:-25 metres

Correct Answer:- Option-B

Question48:-Every fence erected on the surface shall, once at least in every _____, be examined by a competent person.

A:-07 days

B:-14 days

C:-30 days

D:-45 days

Correct Answer:- Option-A

Question49:-No tree, loose stone or debris shall unless otherwise permitted in writing by the Chief Inspector be allowed to remain within a distance of _____ from the edge or side of the excavation.

A:-Two metres

B:-Three metres

C:-Four metres

D:-Five metres

Correct Answer:- Option-B

Question50:-Gradients of roads in quarries for tyred vehicular traffic should not exceed

A:-1 in 4

B:-1 in 8

C:-1 in 10

D:-1 in 15

Correct Answer:- Option-C

Question51:-"Heavy Earth Moving Machinery (HEMM)" means machinery used in

A:-Opencast mines for loading or transporting minerals or overburden

B:-Opencast dust suppression

C:-Depillaring in underground

D:-Underground ground for loading or transporting minerals

Correct Answer:- Option-A

Question52:-No belt conveyor shall be used in a mine below ground without the permission in writing of the _____ and subject to such conditions as he may specify therein.

A:-Mine Manger

B:-Chief Inspector

C:-Mine owner

D:-Mine agent

Correct Answer:- Option-B

Question53:-For important haul roads the minimum factor of safety of the slope is

A:-1

B:-1.5

C:-2

D:-2.5

Correct Answer:- Option-B

Question54:-The machine employed for loading fragmented rock from a bench standing on the floor of the bench is

A:-Tractor shovel

B:-Dipper shovel

C:-Surface miner

D:-BWE

Correct Answer:- Option-B

Question55:-The overburden should be so dumped that it does not roll down at the coal benches when it assumes

A:-Its momentum

B:-Its angle of repose

C:-Critical area

D:-Critical height

Correct Answer:- Option-B

Question56:-As per the metalliferous mines regulations 1961, for a shaft, upto what minimum depth can it exist without a winding engine

A:-60 m

B:-more than 150 m

C:-more than 60 m

D:-more than 100 m

Correct Answer:- Option-A

Question57:-As per the metalliferous mines regulations 1961, a shaft or winze in the course of being sunk shall be provided with a ladder way when its angle of inclination (from the horizontal) exceeds

A:-10 degrees

B:-20 degrees

C:-30 degrees

D:-40 degrees

Correct Answer:- Option-B

Question58:-As per The Metalliferous Mines regulations 1961, Sollars shall be provided for the ladder ways when it

A:-exceeds 20 m in depth and inclination of more than 30 degrees with the

horizontal

B:-exceeds 30 m in depth and inclination of more than 30 degrees with the horizontal

C:-exceeds 20 m in depth and inclination of more than 40 degrees with the horizontal

D:-exceeds 20 m in depth and inclination of more than 30 degrees with the horizontal

Correct Answer:- Option-A

Question59:-As per The Metalliferrous Mines regulations 1961 The factor of safety (FOS) of a winding rope in a shaft exceeding 1500 m in depth shall be

A:- $7 < \text{FOS} < 8$

B:- $5 < \text{FOS} < 6$

C:- $6 < \text{FOS} < 7$

D:- $\text{FOS} < 5$

Correct Answer:- Option-D

Question60:-As per The Metalliferrous Mines Regulations 1961, a dethatching bell or plate in connection with a safety hook shall be checked once in

A:-45 days

B:-15 days

C:-30 days

D:-60 days

Correct Answer:- Option-C

Question61:-As per The Metalliferrous Mines regulations 1961, every haulage engine brake wheel and rope shall be checked once in every

A:-24 hours

B:-12 hours

C:-6 hours

D:-4 hours

Correct Answer:- Option-A

Question62:-As per The Metalliferrous Mines regulations 1961, without is safety belt no person shall be allowed to work in an inclination of more than

A:-15 degrees

B:-45 degrees

C:-30 degrees

D:-60 degrees

Correct Answer:- Option-B

Question63:-As per The Metalliferrous Mines Regulations 1961, upto what time before the commencement of a shift shall a mining mate with his assistants check the working places

- A:-1 hour
- B:-3 hour
- C:-2 hour
- D:-1/2 hour

Correct Answer:- Option-C

Question64:-As per The Metalliferous Mines regulations 1961, for a competent person to be a blaster the number of persons that are employed under him shall not exceed

- A:-15
- B:-40
- C:-50
- D:-30

Correct Answer:- Option-D

Question65:-As per The Metalliferous Mines regulations 1961, the clearance to be given by a drill in a hole in comparison with the diameter of a explosive cartridge is

- A:-0.2 cm
- B:-0.3 cm
- C:-0.4 cm
- D:-0.5 cm

Correct Answer:- Option-B

Question66:-Two or three compartment raising is done for

- A:-Steep or vertical raises
- B:-Flat deposits
- C:-Winzing
- D:-Raise boring

Correct Answer:- Option-A

Question67:-Alimak raise climber can be used only when the raise is driven at an angle (with the horizontal) of

- A:-30 degrees
- B:-40 degrees
- C:-more than 40 degrees
- D:-50 degrees

Correct Answer:- Option-C

Question68:-The support system used in open stoping is

- A:-timber
- B:-scattered timbering
- C:-steel

D:-roof bolt

Correct Answer:- Option-B

Question69:-In overhand stoping the purpose of the sill pillar is to protect the

A:-main haulage level

B:-auxillary haulage level

C:-lower haulage level

D:-shaft

Correct Answer:- Option-C

Question70:-For a steeply dipping thick ore body with a stable hanging and footwall the method of mining can be

A:-Open stoping

B:-Cut and fill stoping

C:-Sublevel stoping

D:-Long hole stoping

Correct Answer:- Option-C

Question71:-A stoping system where selective mining can be practiced is

A:-Sub level

B:-Shrinkage

C:-Long hole

D:-Cut and fill

Correct Answer:- Option-D

Question72:-Resuing is a method of stoping for

A:-narrow veins

B:-thick and steep deposits

C:-thick and flat deposits

D:-thin and flat deposits

Correct Answer:- Option-A

Question73:-A near horizontal access to a mineral deposit is called an

A:-Incline

B:-Adit

C:-Decline

D:-Drift

Correct Answer:- Option-B

Question74:-A place at the bottom of the stope where the ore can be unloaded by gravity is called a

A:-Cross cut

B:-Cone

C:-Collar

D:-Draw point

Correct Answer:- Option-D

Question75:-A minor connection between two levels driven in the downward direction in a metal mine is called

A:-winze

B:-raise

C:-adit

D:-cross cut

Correct Answer:- Option-A

Question76:-Cracks in rock and water percolation from roof are indicated by

A:-visual methods

B:-vibrations

C:-geophones

D:-blasting

Correct Answer:- Option-A

Question77:-The type of sound given by a good roof is

A:-drumming

B:-ringing

C:-vibratory

D:-varying

Correct Answer:- Option-B

Question78:-As per The Matalliferrous Mines regulations 1961 a competent person need to examine the outlets and shafts once in every

A:-14 days

B:-7 days

C:-21 days

D:-30 days

Correct Answer:- Option-B

Question79:-As per The Metalliferrous Mines regulations 1961, a shaft or winze in which water seeps out shall be provided with

A:-drain pipes

B:-sumps

C:-water garlands

D:-collecting bins

Correct Answer:- Option-C

Question80:-The immediate roof of a roadway or working place in a coal seam consists of

A:-Shale

B:-Sandstone

C:-Coal

D:-Shale/Sandstone/Coal

Correct Answer:- Option-D

Question81:-A reliable roof in coal mining giving warnings before failures can be

A:-Shale

B:-Sandstone

C:-Coal

D:-Fireclay

Correct Answer:- Option-B

Question82:-An unreliable roof that can be treacherous is

A:-Shale

B:-Sandstone

C:-Coal

D:-Fireclay

Correct Answer:- Option-A

Question83:-The approved method of removing a prop is by

A:-hammering

B:-breaking

C:-using a prop withdrawer

D:-pulling

Correct Answer:- Option-C

Question84:-A prop that is said to be under set

A:-when set between the coal seam and its vertical line

B:-when set along the vertical line to the coal seam

C:-when set at 10 degree to the vertical to the coal seam

D:-when set at 20 degree to the vertical to the coal seam

Correct Answer:- Option-A

Question85:-A support which is a crisscross arrangement of wooden sleepers is called as

A:-Chock

B:-Cog

C:-Chock mate

D:-Chock/cog/chock mate

Correct Answer:- Option-D

Question86:-Hydraulic props are specified by

A:-failure load

B:-setting load

C:-yield load

D:-designed load

Correct Answer:- Option-C

Question87:-The oil pressured in a hydraulic prop can be set by

A:-open circuit system

B:-closed circuit system

C:-open circuit system/closed circuit system

D:-compressor

Correct Answer:- Option-C

Question88:-Prop density is

A:-number of props required to support a square meter of roof

B:-number of props required to support 10 square meters of roof

C:-number of props required to support a 100 square meters of roof

D:-number of props required to support a complete roadway

Correct Answer:- Option-A

Question89:-Self advancing/walking supports are

A:-open circuit hydraulic props

B:-closed circuit hydraulic props

C:-open circuit hydraulic props/closed circuit hydraulic props

D:-operated by pneumatic pressure

Correct Answer:- Option-A

Question90:-A hydraulic prop is superior to the friction prop on the account of

A:-high loads

B:-uniform loads

C:-high and uniform loads

D:-yield loads

Correct Answer:- Option-C

Question91:-A steel prop has the following advantage compared to a wooden prop

A:-greater strength

B:-reuse and recovery

C:-incombustible

D:-greater strength/reuse and recovery/incombustible

Correct Answer:- Option-D

Question92:-Erecting of supports as per a pattern laid down by the directorate general of mines safety is

A:-systematic timbering

B:-organized timbering

C:-optimized timbering

D:-systematic timbering/organized timbering/optimized timbering

Correct Answer:- Option-A

Question93:-For a brick wall used as a support in a coal mine the foundation concrete should have a height of

A:-50 mm

B:-100 mm

C:-150 mm

D:-200 mm

Correct Answer:- Option-C

Question94:-A toxic non explosive gas in an underground mine is

A:-methane

B:-ethylene

C:-hydrogen

D:-carbon dioxide

Correct Answer:- Option-D

Question95:-As per coal mine regulations 1957, underground mine air should contain at least

A:-19.5% of O_2

B:-19% of O_2

C:-19.25% of O_2

D:-20% of O_2

Correct Answer:- Option-B

Question96:-The M.S.A. Methanometer is designed on the principle of

A:-Ohm's law

B:-Kirchoff's law

C:-Wheatstone bridge

D:-Coulomb's principle

Correct Answer:- Option-C

Question97:-Pressure loss in a mine roadway is proportional to

A:-Quantity

B:-Square of quantity

C:-Cube of quantity

D:-Fourth power of quantity

Correct Answer:- Option-B

Question98:-For airways in series the total resistance is given by

A:- $R_1+R_2+R_3 \dots\dots\dots + R_n$.

B:- $\frac{1}{\sqrt{R_1}} + \frac{1}{\sqrt{R_2}} + \frac{1}{\sqrt{R_3}} + \dots\dots + \frac{1}{\sqrt{R_n}}$

C:- $R_1 \cdot R_2 \cdot R_3$

D:- $\frac{1}{\sqrt{R_1}} + \frac{1}{\sqrt{R_2}} + \frac{1}{\sqrt{R_3}} + \dots\dots + \frac{1}{\sqrt{R_n}}$

Correct Answer:- Option-A

Question99:-A parallel split of the same cross section helps in

A:-Reducing the quantity

B:-Reducing the ventilation power

C:-Reducing the resistance

D:-Doubling the quantity

Correct Answer:- Option-D

Question100:-A door is made to close by itself

A:-By installing it 10° to the vertical

B:-By installing it 10° to the horizontal

C:-By installing it 0° to the vertical

D:-By installing it 0° to the horizontal

Correct Answer:- Option-A