1, In percussive drilling the rock is broken by following action?, crushing, chipping, both, noneofabove, 2

2, The drilling rods are made of?, castiron, steel, Ni-cr, caststeel, 3

3, Which is used for raising and lowering the rods of square section?,BUlldog,sludger,retainingkey,none of the above,3

4, Which is used for raising and lowering the rods of circular section?,Bulldog,sludger,corebarrel,retainingkey,1

5, The sludge or cuttings in the borehole are removed withe help of ?,corebarrel,sludger,retainingkey,bulldog,2

6, The device used to catch broken rods under a joint in the borehole?,crow's foot or spiral worm,sludger,screwfeed,bulldog,1

7, The operation of tracing the broken and lost parts in the hole and withdrawing them to the surface is known as ...?,lining the borehole,drilling,borehole survey,fishing the borehole,4

8, What is the purpose of lining the borehole?,to prevent caving of sides,to prevent water percolation,to easy drilling operation,none of the above,1

9, The percussive drilling is applicable upto max depth of ....m?,200,300,500,700,2

10,Diamond drilling is applicable upto a max depth of .....m?,500,1000,3000,5000,3

11,Manual drilling is possible upto max depth of.....m?,15,30,45,60,2

12,The core(dia in mm) size obtained with NX size?,21,28,40,54,4

13,The feed mechanism is not necessary beyond the depth of....m?,30,40,50,60,4

14,Single tube core barrel is suitable for recovering core from rocks of ?,soft,friable,homogeneous,hard,3

15,Double tube core barrel is suitable for rocks of ?,hard,homogeneous,soft and friable,none of the above,3

16,Bore hole deviation is .....deg for 30m?,1,2,3,4,2

17,Bore hole survey means..?,Measurment of deviation,Measurment of depth,Measurment of time taken,None of the above,1

18,In etch method which acid is used to measure borehole deviation?,sulfuric acid,hydrocloric acid,nitric acid,Hydrofloric acid,4

19,Bentonite chemical is used for ?,sealing cracks,preparing mud flush,surveying bore hole deviation,none of the above,2

20,The improved technique of removal of core during drilling without raising the drill rods?,Double tube core barrel,X-ray drilling,wireline drilling,side coring,3

21,Controlling the course of a borehole so as to follow predetermined path is ...?,Deviation of borehole,wireline drilling,control drilling,directional drilling,4

22,The starting point of shaft at the ground surface is called..?,collar,pithead,platform,scaffold,1

23,Ventilation by mechanical means is provided in sinking shaft exceeding depth of...m?,30,25,40,15,2

24,The device used to prevent undue swinging of the bucket in sinking shaft?,spider,kibble,scaffold,rider,4

25,The safety device is provided in sinking shaft in case of overwind?,spider,kibble,detaching hook,rider,1

26,In blasting in shaft sinking the number of holes are....times the dia of the shaft in m?,2,3,4,1,2

27,The quantity of ventilating air(cu.m) shall be provided in siking shaft if depth exceeds 25m?,100,200,300,400,3

28,Upward drivage of shaft is carried out for a distance upto ...m?,15,25,35,45,1

29,A permanant lining where running sand is encountered during sinking is..?,Cementation,piling,concrete lining,tubbing,4

30,The method of sinking through loose deposits of sand upto 20m is ?,piling system,open caison,tubbing,cementation,1

31,The method of sinking through loose deposits of sand upto 60m is ?,piling,open caison,forced drop,cementation,2

32,The method of sinking through alternate loose and tough strata upto 60m?,piling,open caison,forced drop,cementation,3

33,The method of sinking where there is ground filling problem or considerable inrush of water uptp depth of 30m?,piling,open caison,Pneumatic caison,forced drop,3

34,The method of sinking in unstable or friable strata with heavy inrush of water?,tubbing,forced drop,cementation method,freezing method,4

35,In freezing method of shaft sinking which is used for circulation?,HCl,HNo3,CaCl2,NaCl,3

36,In freezing method os sinking the removal of ice wall after completion of siking by sending hot brine through holes is known as ..?,defreezing,silicatisation,postfreezing,thawing,4

37,The method of sinking tused through any fissured water bearing strata except in running sand is..?,pneumatic caison,cementation,forced drop,piling,2

38,The process of treating holes with chemicals in cementation method is called?,defreezing,silicatisation,presilicatisation,thawing,2

39,The holes treated with chemicals are called?,treating holes,test holes,product holes,weeping holes,3

40,In cementation method the purpose of treating holes with chemicals-silicate of soda and alluminium sulfate is ..?,To reduce the friction,To seal cracks,quick setting of cement,none,1

41,The usual inclination for the inclines is ..?,1in3,1in2,1in4,1in1,3

42,An underground roadway through stone connecting 2 or more coal seams is ..?,tunnel,crossmeasuredrift,crosscut,staplepit,2

43,For a coal seam of moderate dip the shaft may be located in the .... of the property?,rise,middle,dipside,1/3from outcrop,2

44,The mode of entry shall be by shaft if the coal seam lying depth of more than by minimum.....m?,20,30,40,50,2

45,As per indian standerds thick seam means having seam thickness ..?,1.5-4.5m,0-1.5m,4.5-9m,above 9m,3

46,As per indian standerds steep mines means having seam dip(in deg)..?,0-5,5-18,18-40,above 40,3

47,As per indian standerds deep mines means if the seam lying depth from surface is..?,Less than 200m,200-450,450-600m,above 600m,2

48,In deg I mines the % of inflammable gas is ..?,lessthan 0.1,0.1to1,1-10,above10,1

49,A gallery which cuts acroos the pillers due to its drivage along an apperent dip is called..?,crosscut,leval,dip,drift,1

50,The max width of the gallery in indian coal mines is ....?,3m,4m,4.8m,5.5m,3

51,The travelling road height should not be less than ...?,1m,1.8m,2.5m,3m,2

52,The minimum piller to piller distance if the depth of seam is 250m and gallery width is 4.2m?,34.5m,30m,39m,45m,3

53,The minimum piller to piller distance if the depth of seam is 150m and gallery width is 3.6m?,16.5m,19.5m,25.5m,13.5m,2

54,The min pillar distance from center to center;if the depth of seam is 450m and gallery width is 4.8m?,39m,45m,48m,52m,3

55,The % of extraction if the depth of seam is 300m and gallery width is 4.2m?,11,15,17,20,4

56,The % of extraction if the depth of seam is 200m and gallery width is 4.8m?,33,25,20,40,2

57,The max length of the trailing cable is .....m?,50,90,150,200,2

58,Capacity of slusher is ..tph?,30-40,40-60,10-20,70-100,1

59,A landing or platform in a shaft including an excavation between top and bottom of the shaft is called?,midsetlanding,inset,collar,cover,2

60,The process of conversion of chemical energy into heat and mechanical energy is called...?,oxidation,combustion,detonation,none of the above,1

61,The amount of energy released by an explosive during blasting is called..?,Density,Strength,Sensitivity,VOD,2

62,The rate at which the detonation wave passess thorough the column of explosive is called?,Density,Strength,Sensitivity,VOD,4

63,Shuttering effect is obtained with the explosive having ?,higher VOD,medium VOD,slower VOD,without VOD,1

64,Which is the low density explosive?,Gunpowder,NG,slurry,ANFO,1

65,Hazard performance initiation propagation are related to one of the characteristics of an explosive?,VOD,Stability,Sensitivity,Density,3

66,The important characteristic of an explosive which will give an idea about heat and humid condition and time of explosure?,resistance,stability,sensitivity,density,2

67,The composition of Gunpowder is(charcoal:sulphur:potasium nitrate in %)?,15:10:75,25:10:65,10:15:65,15:75:10,1

68,Which explosive is blasted by safety fuse?,ANFO,slurry,NG,Gunpowder,4

69,To avoid freezing of NG explosive which agent is mixed?,PETN,TNT,DI-NITRO-GLYCOL,ASA,3

70,The VOD of premix is?,5000 m/s,7000 m/s,3500 m/s,3200 m/s,2

71,A chemical component having 3 properties-High explosive and Oxidising agent and cooling agent is?,NG,Liquid oxygen,TNT,AN,4

72,The VOD of OCG is ?,5000 m/s,7000 m/s,6000 m/s,3500 m/s,3

73,In ANFO explosive the % of diesel oil is mixed for effective oxygen balanced explosive mixture is?,4-5%,5-6%,6-7%,7-9%,2

74,The VOD of ANFO is ?,3500 m/s,3000 m/s,6000 m/s,3200 m/s,4

75,The amount of diesel oil mixed for 100kg of AN is(dryseason and wet seanson)?,5 and 6,6 and 7,7 and 9,10 and 12,3

76,What excess % of diesel oil will lower the sensitivity?,6 %,7 %,8 %,9 %,3

77,In ANFO the water content should not be more than?,6 %,7 %,8 %,9 %,4

78,The constuients in slurry explosivie(TNT:AN:Water)?,20:15:65,20:65:15,15:20:65,65:15:20,2

79,The reducing agent in slurry explosive is ?,TNT,AN,Water,starch,1

80,The gelling agent in slurry explosive is..?,TNT,AN,Water,starch,4

81,Atleast how much % the packed explosives are less effective than bulk explosives?,10,15,20,25,2

82,The sensitiser in Emulsion explosive is ?,AN,TNT,starch,microsphers,4

83,The VOD of Emulsion explosive is?,5 km/s,3 km/s,3.5 km/s,7km/s,1

84,The VOD of slurry explosive is ?,5 km/s,3 km/s,3.3 km/s,7km/s,3

85,With permitted explosive the duration of flame is?,1/100th second,1/100th minute,1/1000 th second,none,3

86,Sheathed explosive coated with a sheath of?,Nacl,caco3,NaHCo3,NaCo3,3

87,In the detonator the priming charge is?,PETN,TNT,ASA,AN,3

88,Safety fuse consist core of..?,AN,Gunpowder,TNT,none of the above,2

89,The burning speed of the safety fuse is?,100-120 m/s,100-120 s/m,100-120 m/min,100-120 min/m,2

90,Detonating fuse consist core of..?,PETN,TNT,ASA,AN,1

91,The VOD of Detonating fuse is...?,2000 m/s,3200 m/s,6000 m/s,6500 m/s,4

92,The VOD of Nonel is.......?,2000 m/s,3200 m/s,6000 m/s,6500 m/s,1

93,The detonator used in electrical storms where static electricity is there?,Nonel,Raydet,Ordianary detonator,none of the above,1

94,An instrument to test the continuity of an electric circuit for firing system is?,galvanometer,exploder,blastometer,ammeter,3

95,The tool that is used for cleaning and detection of crack in a shot hole is ?,crimper,scraper,pricker,primer,2

96,The length of shot firing cable in OCP should not be less than..?,18m,30m,40m,50m,2

97,Magazine should be away from all building atleast.........m?,50,75,95,120,3

98,The hole should terminate ....m below if immediate roof is shale?,0.3m,0.2m,0.1m,0.15m,1

99,The depth of hole is restricted to 50%-60% of the width of the drift in ..?,fan cut,drag cut,burn cut,pyramid cut,4

100,The pattern of cut mostly preffered in tunnels and drifts of small area is ?,fan cut,pyramid cut,burn cut,coramant cut,4

101,For irregular ore bodies the preffered drilling pattern is?,Ring drilling,fan cut,pyramid cut,burn cut,1

102,The pattern of cut mostly preffered for laminated strata is?,Ring drilling,fan cut,pyramid cut,burn cut,2

103,In general each shot hole in round u/g covers an area of(sq.m)?,0.1,0.1-0.2,0.3-0.5,0.5-1,3

104,The powder factor with solid blasting is(te of coal/kg of explosive)?,1-2,1.5-2.5,2-3,2.5-3.5,2

105,In hard rocks the spacing and burden vary from ......times the height of the bench?,0.3-0.4,0.5-0.6,0.7-0.8,0.9-1,1

106,while using non incentive delay detonators in BOS the max delay period(milliseconds) btw 1st and last shot in deg 1 and 2 is 'X' and deg 3 is 'Y'.Then X:Y is?,150:100,100:150,200:150,150:200,1

107,The delay period btw 2 consecutive shots with different delay numbers will not exceed ?,50ms,60ms,70ms,80ms,2

108,Relieving hole should be drilled atleast ....m away from the misfired hole in u/g?,1,0.5,0.3,0.2,3

109,The VOD of LOX?,5000 m/s,3500 m/s,7000 m/s,6000 m/s,1

110,The explosive charge per hole in BG method?,2 - 3 kg,1 - 2 kg,3 - 4 kg,4 - 5 kg,1

111,The elements in the delay element of short delay detonator?,Antimony and potasium permanganate,Redlead and silicon,silicon and Antimony,none of the above,2

112,The main element in Fuse head of detonator is..?,AN,DI-nitlo glycol,TNT,Lead Mononitro resorcinal,4

113,In controlled blasting the fly rock should not go height more than?,3m,4m,5m,6m,1

114,The PETN booster occupies only ....% of the total explosive charge?,1 - 2,2 - 3,3 - 4,4 - 5,1

115,The peak particle velocity should not increased ...mm/sec?,10,20,30,40,1

116,The permitted explosive used in u/g in BOS of all gassimines?,Ajax-G,Unisax-G,Soligex,Solimax,3

117,To control the fly rock the blasting technique adopted is?,cushion blasting,muffled blasting,coyote blasting,pop shooting,2

118,To get lumpy coal or to minimize th coal dust the blasting technique adopted is?,cushion blasting,muffled blasting,coyote blasting,pop shooting,1

119,The current required for the ignition of the fuse head is?,2 amp,1 amp,0.5 amp,3.5 amp,3

120,Safety tests carried out for?,slurry explosive,emulsion ,NG,ANFO,1

121,If the bedded planes are seperated by more than 1.2 m apart then the rocks are said to be ?,Massive,Bedded,Flaggy,rubble,1

122,The rocks said to be flaggy if the bedded planes are seperated by..?,more than 1.2m,1m-1.2m,75mm-1m,less than 75mm,4

123,The weight of the rocks in coal mining areas exerts a pressure nearly per metre depth from the surface is ..?,1 kg/sq.cm,0.5 kg/sq.cm,0.2 kg/sq.mm,0.2 kg/sq.cm,4

124,The immediate roof is called..?,3m above the seam,6m above the seam,6m below the seam,3m below the seam,2

125,Phenomena of the rocks in imediate roof bend downwards under their own weight and tend to separate from one another is known as ..?,subsidence,pressure arch,bed separation,roof bending,3

126,The pressure arch in L/W workings have its aprex or crest at a min height above the seam at nearly .... times the length of face?,1,2,3,4,2

127,The depression of ground surface and the structures is called?,subsidence,pressure arch,bed separation,roof bending,1

128,L/W faces with caving have caused difficulties in roof control ar depth of less than nearly..?,100m,200m,300m,400m,1

129,For testing a speciman in laboratory the length:dia ratio should be..?,more than 1:2,more than 2:1,less than 2:1,less than 1:2,2

130,The best method of mining for controling the subsidence is..?,Bord and piller,Longwall with stowing,Longwall with caving,Hormonic mining,4

131,Compressive strength of coal is?,13.5 kg/sq.mm,2.25 kg/sq.mm,2.25 kg/sq.cm,13.5 kg/sq.cm,2

132,Crushing strength of sand stone is?,13.5 kg/sq.mm,2.25 kg/sq.mm,2.25 kg/sq.cm,13.5 kg/sq.cm,1

133,By tappering the prop at the foot or top by providing a lid on the top of the prop.....could be obtained?,max strength,Yield,max life of the prop,none of the above,2

134,The maximum height of the roof that can be tested by bamboo?,2.5m,3m,1.5m,3.5m,1

135,A timber prop is expected to support in area of about.....all round?,1 - 2 m,0.1 - 0.3 m,0.2 - 0.4 m,0.4 - 1 m,4

136,If the prop has to be set on looseground it should be placed on a flat base piece having thickness not less than..?,2 cm,3 cm,4 cm,5 cm,4

137,The timber prop available max height upto..?,3m,6m,9m,11m,3

138,For equal resistance to crushing and bending the prop should have dia ..?,1/3 of the length,1/6 of the length,1/9 of the length,1/12 of the length,4

139,Freshly exposed roof after blasting is effectively and quickly supported by..?,Timber supports,Roof bolts,Safari supports,Bars,3

140,The phenomena of liftin up of the floor If the floor is weak is called..?,Heave,Creep,Bending,none of the above,1

141,On account of the weight of the rocks the pressure arch is transmitted to abutment if the depth of coal seam is ....the length of the pressure?,Equal,Twice,Thrice,4 times,2

142,The load on a prop when upper member is begins to slide is called?,Load bearing capacity,Setting load,Yeild load,Limit load,3

143,The load at which on axially loaded prop reaches its elastic limit or at which it begins to buckle is called?,Load bearing capacity,Setting load,Yeild load,Limit load,1

144,In hydraulic oil the % of emulsion oil is?,2,3,4,5,4

145,The number of props required to support one square metre of the roof area is?,one,two,three,prop density,4

146,The max gap between two chock shield supports is..?,250mm,200mm,150mm,none of the above,3

147,In roof stiching the face should not be advanced more than ....m from the last tensioned rope?,4m,3m,2.4m,2m,3

148,The anchorage support of the roof stiching is ?,5 te,7 te,10 te,12 te,3

149,In resin capsule the mixture hardens within …. seconds and become solid?,20 - 30,30 - 40,40 - 50,50 - 60,2

150,Bulk strength of the timber prop is ...(kg/sq.cm)?,150-230,100-150,250-300,none of the above,1

151,The inclination of prop to the vertical when set to side support is ?,10 - 14 deg,14 - 20 deg,20 - 25 deg,25 - 30 deg,2

152,The yeilding props which exerts resistance with continuous increase in yield are called?,Early bearing supports,Late bearing supports,Hydraulic supports,none of the above,2

153,The anchorage support of resin capsule is?,6te,8te,10te,12te,2

154,Hand packing is usefull upto max gradienat ?,35 deg,30 deg,25 deg,20 deg,3

155,Hydraulic stowing is not successful where the seam is less than ...m depth and flatter than ...deg?,200 ; 5,100 ; 5,100 ; 10,200 ; 10,2

156,In sand stowing generally the sand required for one te coal extraction in virgin area?,1.3 te,2 te,2.5 te,3 te,1

157,The sand input to bumker is calculated by?,venturimeter,kentmeter,lea recorder,none of the above,3

158,The life of the C.I pipes used in sand stowing is......lac ton of sand?,1 - 4,4 - 8,8 - 12,12 - 16,2

159,The life of the M.S pipe used in sand stowing is......lac ton of sand?,4,6,8,10,2

160,Which portion of pipe damaged more in sand stowing?,upper portion,middle portion,2/3 from the top,lower portion,1

161,The upper portion of the sand stowing pipe is generally changed after the transport of ....lac ton of sand?,1 - 2,2 - 4,4 - 6,6 - 8,2

162,IN sand stowing incorrect profile will effect..?,cavitaiton,wear on pipes,setup pulsation,jamming,1

163,IN sand stowing high local velocity of sand results?,cavitaiton,wear on pipes,setup pulsation,jamming,2

164,In hydraulic sand stowing the H/L ratio for reasonably good stowing rate?,1:5,1:6,7:1,1:7,4

165,In hydraulic sand stowing the pipe end should away from the dip of the boxing is ?,5 m,6.5m,7.5 m,9m,3

166,In hydraulic sand stowing the throw of the sand without nozzle is ...m and with nozzle is ...m?,2 ; 6,3 ; 7,4 ; 8,5 ; 9,2

167,To stop the stowing which is done to avoid the jamming of the pipe ?,water should be stopped first,sand should be stopped first,both should be stop at a time,none of the above,2

168,For deeper mines the sand:water ratio in sand stowing is?,1:1,1:3,3:1,1:1.3,4

169,The required water for 1 te of sand in hydraulic sand stowing?,800 liters,900 liters,1100 liters,1300 liters,3

170,The stowing rate in hydraulic sand stowing is?,60-80 tph,80-100 tph,100-120 tph,120-140 tph,2

171,The size of the largest particle of the sand does not exceed if the dia of the pipe is D is ?,1/2 of D,1/3 of D,1/1.5 of D,D,2

172,The min velocity of the slurry in the pipe should be.....?,1 m/s,2 m/s,3 m/s,4m/s,2

173,In hydraulic sand stowing the operations are conducted such that not more than .....sq.m of roof area is exposed in any working area at a time and not more than.... such places are left unstowed?,60;1,70;2,80;1,80;2,4

174,The line of extraction is best suited for hydraulic sand stowing is?,step diagnal,diagonal 45 deg,parellel,diagnal 60 deg,1

175,The stowing efficiency in hand packing is?,50 %,73 %,60 %,70 %,1

176,The stowing efficiency in pneumatic sand stowing?,50 %,73 %,60 %,70 %,4

177,The stowing efficiency in hydraulic sand stowing?,50 %,73 %,60 %,70 %,2

178,The stowing efficiency in Mechanical sand stowing?,50 %,73 %,60 %,70 %,3

179,The discharge velocity of the sand in pneumatic sand stowing?,2 m/s,10 m/s,15 m/s,20 m/s,3

180,The stowing rate in Mechanical sand stowing?,50-60 tph,60-70 tph,70-80 tph,80-90 tph,1

181,There was no movement at the surface untill the face advances upto....m?,15m,22m,30m,35m,2

182,The face must advance by approximately a distance of ....times the depth of the seam for the full subsidence to take place?,1.4,1.8,2.5,3,1

183,The angle of inclination from vertical of the line connecting the edge of the workings and the edge of the subsidence area is called?,Angle of fracture,Angle of draw,Breaking angle,hade,2

184,If the full subsidence is occured more than one point then the subsidence is called?,critical subsidence,subcritical subsidence,supercritical subsidence,trough subsidence,3

185,The angle of draw in indian coal fields?,upto 25 deg,upto 35 deg,upto 40 deg,upto 45 deg,2

186,With hydraulic sand stowing of the goaf the subsidence can be reduced to about ....of the amount caused by caving?,1/2,1/3,1/4,1/5,4

187,The critical width of extraction at which the subsidence at the bottom of the trough has a maxmimum possible value is?,equal to depth,1.3 X depth,1.8 X depth,2 X depth,2

188,The minimum thickness of the coal seam for adopting Bord and pillar method of mining?,1.0 m,1.5 m,2.0 m,2.5 m,2

189,A face or working place which is parallel to main cleat is said to ?,on end, end cleat,bord cleat,wall,4

190,The water bearing quality of a seam is measured by the ?,quantity of water pumpued in a year,total HP of the pumps installed,rate of pumping per hour,ratio between the quantity of water pumped and tonnes of coal produced,4

191,In Indian mines the ratio of the quantity of water pumped from u/g workings to the quantity of coal produced varies?,1 to 4,1 to 20,1 to 100,1 to 200,1

192,The gradient in the cross cut should not be less than?,1 in 4,1 in 8,1 in 10, 1 in 12,4

193,The average number of faces in a district if number of headings are 'N'?,2N-1,2(N-1),N-2,2(N-2),1

194,Coal mine operations are prohibited if the common boundary is within ?,15m,10m,7.5m,5m,3

195,Coal mine operations are prohibited if the cover is less than ?,20m,15m,30m,25m,2

196,Coal seams said to be contiguous if the two seams are separated by a parting of less than ?,3m,6m,9m,10m,3

197,The minimum distance between two sections should be if one working at floor and one at top?,3 m,4 m,5 m,6 m,1

198,Drivage of two sets of roads and forming of pillar is known is?,Working in the broken,Working in the whole,Longwall retreat,Slicing,2

199,Working coal in the pillars formed in the operation in bord and pillar mining is ?,Working in the broken,Working in the whole,Longwall retreat,Slicing,1

200,The galleries driven through the pillar for forming stooks are called?,stooks,splits,slices,judd,2

201,The pillars formed during development are split into small pillars are called?,stooks,splits,slices,judd,1

202,The pillar is splitted into 2 or more stooks if the pillar size is more than?,15 X 15 sq.m,18 X 18 sq.m,20 X 20 sq.m,25 X 25 sq.m,2

203,Once the pillar extraction is commenced the splitting is of pillars may be done upto.....pillars ahead of the pillar is under extraction?,1,2,3,4,2

204,During development the height of the gallery should not exceed?,2m,3m,4m,5m,2

205,During extraction of coal the minimum thickness of the coal(rib) is left against the goaf is?,1 m,2 m,3 m,4 m,1

206,With a good sandstone roof the area exposed may not more than .....sq.m at one stook extraction and ......sq.m if 3-4 stooks under extraciton?,20 ; 400,30 ; 600,40 ; 900,50 ; 900,3

207,The fall which takes place soon after whithdrawal of supports is called ?,Local fall,Main fall,Air blast,Rock burst,1

208,During depillaring if the roof is laminated local fall occurs ....hours after the props are withdrawn?,1-3,3-6,4-10,10-14,3

209,Main fall occurs When the area of extraction is nearly equal or more than the .....of the depth?,twice,thrice,square,cube,3

210,Upto what gradient the Bord and pillar mining can be adopted withour special arrangements?,1 in 3,1 in 4,1 in 5,1 in 6,2

211,If the pillars are not strong they may be crushed due to sudden pressure is called?,premature collapse,normal collapse,local fall,overriding of pillars,4

212,In which line of extraction one solid stook intervenes between two stooks under extraction at a time?,Diagonal,Step diagonal,parallel to strike,Arrow head,2

213,In which line of extraction the pillar or stook is under excessive pressure and is liable to crush?,Diagonal,Step diagonal,parallel to strike,Arrow head,4

214,If the depillaring is proceeding from dip to rise and seam inclination is not mild so that goaf can be submerged in water then the line of goaf is?,Diagonal,Step diagonal,parallel to strike,Arrow head,3

215,In shallow seams to prevent breathing of air to the depillared area through cracks to the surface the cracks have to be blanketed with a minimum thickness of layer of sand or earth nearly?,1m,1.2m,1.5m,2m,2

216,The sudden release of elastic strain energy stored in the pillars results violent burst of coal pillars is called?,Air blast,Bumps,Rock burst,Main fall,2

217,Headings advancing in a direction at right angels to the main cleat are called?,bords,end places,walls,splits,1

218,The method suitable for working seam under the workings of another seam which is water logged or on fire is?,Longwall retreat,Bord and pillar,Hydraulic mining,Longwall advancing,2

219,The method suitable for workings seam under the surface containing valuable property water bodies for whose protection some coal is left unworked is ?,Longwall retreat,Bord and pillar,Hydraulic mining,Longwall advancing,2

220,The width of the headings in bord and pillar method of working depends on?,depth of working,size of the pillars,face machinary used,ventilation required,3

221,With strong roof and unyielding floor tends to?,Crush the roof,Heave the floor,Cruch the sides of pillars,Spontaneous heating,3

222,The shape of the pillar that gives maximum percentage of recovery with speed reduced amount of lift for loading is?,square,rectangle,rhombus,circular,2

223,The shape of the pillar in steep seams for haulage and loading and in flat and inclined seam for adoption of high capacity machinary like shuttle cars and locomotive is ?,square,rectangle,rhombus,circular,3

224,For given perimeter the greatest area of support is offered by ?,square,rectangle,rhombus,circular,1

225,In deciding the size of the panel the important factor to be considered is?,thickness of the seam,output required,depth of the seam,incubation period,4

226,The number of panels to be opened at a time is decided by ?,Capacity of the direct rope haulage,Output desired,Thickness of the seam,Incubation period,1

227,In a seam with locomotive haulage system the junctions with main headings are staggered ?,For easy travelling of loco,to minimize roof exposure,to reduce ventilation air loss,none of the above,2

228,Heavy roof fall and even premature collapse may taken place if line of goaf is?,parallel to strike,diagonal,right angle to fault,parallel to fault,4

229,Shuttle cars are the transporting media for ?,Longwall,Bord and pillar,Open cast,Hydraulic mining,2

230,The groove made by coal cutting machine is called as ?,web,cuthole,channel,none,1

231,The minimum factor of safety in design pillar in bord and pillar mining?,1,2,3,4,2

232,For designing pillars.....is used?,coward's diagram,proximate analysis,nomographs,none of the above,3

233,The daily advance in development of galleries by continuous miner?,20m,30m,40m,50m,3

234,Maximum roof exposure for caving is?,30 to 50 sq.m,60 to 90 sq.m,90 to 100 sq.m,100 to 120 sq.m,2

235,Maximum roof exposure for stowing is?,30 to 50 sq.m,60 to 90 sq.m,90 to 100 sq.m,100 to 120 sq.m,3

236,The maxmimum compressive strength of cavable roof?,300 kg/sq.cm,400 kg/sq.cm,500 kg/sq.cm,600 kg/sq.cm,3

237,The limiting depth for the bord and pillar mining is?,200 m,300 m,400 m,500 m,2

238,Heading advancing parallel to cleats are called?,bord,wall,slice,none,2

239,The percentage of extraction of coal from a pillar of 30m x 30 m center to center with roadways 4m wide is ?,30,28,22,25,4

240,While working seams steeper than 1 in 4 except the haulage dip the cross connections between the levels should be?,on mild gradient,provided with steps,straight aligned,staggered,4

241,Overriding of pillars and stooks and premature collapse in the depillaring area is due to presence of?,Weak strata,Water bearing strata,Strong thick massive sandstone,strong coal,3

242,The first indication of roof weighting for regular fracturing roof in goaf is?,Prop when tapped with stick produce dull and dummy sound,lid over the prop bends,rumbling sound in goaf,penetration of prop into floor,1

243,The limiting gradient for longwall method is?,0 to 20 deg,10 to 30 deg,20 to 40 deg,30 to 40 deg,1

244,In longwall advancing the gate roads extend slightly beyond the face and the extended portion of the gate is called?,Buttok,Tail gate,Stable,Packwall,3

245,The walls by which the roof over the goaf is partially or completely supported are called?,Stalls,Ribs,Packwalls,None,3

246,In longwall advancing stables are usually ... ahead of the face?,6 - 8,8 - 10,4 - 6,10 - 12,2

247,A face is along the strike is preferable for stowing in seams dipping more than ?,1 in 10,1 in 8,1 in 6,1 in 5,4

248,Where sand stowing is adopted for stowing the goaf the maximum distance between the packed goaf edge adn the face is restricted generally....m for proper roof control?,3m,5m,6m,8m,3

249,The face formed which is developed on bord and pillar method and extracting in longwall retreating with stowing is called?,Z shape face,Barry face,stable,none of the above,2

250,The width of the workings from the goaf line to the face is called?,stall,span,stable,Buttock,2

251,The portion of the face at its end from where cutting starts is called?,stall,span,stable,Buttock,4

252,The conveyor which recieves coal from the face conveyor for its transport outbye is called?,Gate conveyor,Stage loader,lump breaker,None,2

253,The face adavances towards rise side is possible in Longwall if the seam inclination is ?,less than 10 deg,more than 25 deg,less than 25 deg,less than 30 deg,3

254,Tail gate is supported by hydraulic props with I section channel bars ?,Upto 20 m from the face,Upto 30 m from the face,Upto 100 m from the entrance of tail gate,Upto abutment distance from the face,2

255,Bord and pillar method is applied when a seam is?,Outcropping,at shallow depth,at moderate depth,at greater depth,3

256,The most common length of face in longwall mining system is?,30-100 m,60 - 200 m,90 - 300m,100 - 400 m,2

257,The time taken to settle the goaf is ?,1 to 2 years,2 to 3 years,3 to 5 years,5 to 7 years,3

258,Seams with dirt bands are worked by?,Bord and pillar method,Longwall method,Opencast method,Hydraulic mining,2

259,Where the gate belt conveyor is centrally situated to serve two adjacent longwall faces progressing in the same direction the combined face is known as?,Single unit face,Double unit face,Barry face,None of the above,2

260,while working contiguous seams ventilation may be through?,Bore holes,Main shafts,Stable pit,Lower seam only,3

261,Direction of the longwall face advance towards the dip side is possible only when gradient of the seam is ?,slightly or nearly flat,upto 25 deg,45 deg, 60 deg,1

262,With AFC the length of single unit face commonly?,80m,100m,160m,200m,2

263,The optimum length of face from the consideration of the capacity of the face machinary is determined on the basis of?,Type of machinary,Combination,Complete number of cycles per day,Total delays due to breakdown,3

264,The machine which cuts the coal while travelling in one direction and loads on return travel is?,shortwall coal cutter,longwall coal cutter,plough,shearer,3

265,With DERDS the diameter of the drum is ..... of the total extracted height?,30 %,50 %,70 %,90 %,3

266,With DERDS the cut coal is thrown on to the AFC by ?,centrifugal force,by the movement of the machine,by the gummer,Cowl,4

267,If hydraulic sand stowing of the goaf is adopted and the face is along the strike it should be slightly oriented at......to provide drainage of water?,1 in 120,1 in 150,1 in 175,1 in 100,4

268,The seam thickness is suitable for coal plough operation?,0.2 to 1m,0.6 to 2m,1 to 3m,3 to 5 m,2

269,The method of mining which is not suitable for working coking coal seams is?,Longwall mining,Bord and pillar,Room and pillar,Hydraulic mining,3

270,The width of the rooms in the room and pillar method may be normally?,4 - 6 m,5 - 7 m,6 - 9 m,8 - 10 m,3

271,The length of the rooms in room and pillar method is ?,90 m,70 m,50 m,40 m,1

272,The value of the threshold convergence in longwall mining is ......mm / m?,30,40,50,60,2

273,Limiting gradient for the longwall mining is ?,1 in 2,1 in 3,1 in 4,1 in 5,2

274,The roads driven parellel to the strike in horizon mining are called?,Laterals,Cross cuts,levels,none,1

275,The minimum life of the mine should be more than.....years for adopting horizon mining?,10,20,30,40,3

276,The thickness of the one slice in multisection extraction of thick seams?,1.5 - 2m,2 -2.5m,2.4 - 3m,3 -3.5m,3

277,Inclined slicing in decending order is applicable if the seam inclination is ?,less than 35 deg,more than 35 deg,less than 45 deg,none,1

278,Roadway reutilisation is possible in........longwall face ?,single unit,Double unit,Z unit,none,3

279,Maximum voltage is required for the longwall face?,110v,660v,1100v,3300v,3

280,Horizontal slicing method is applied if the seam thickness is?,less than 15m,more than 15m,less than 10m,more than 10m,2

281,The minimum thickness of the seam for adopting Blasting gallery method is?,5m,7m,10m,12m,2

282,The charge per hole in the BG method is?,3 kg,4 kg,5kg,7kg,1

283,The percentage of recovery in BG method is?,50-60,60-70,70-80,80-90,3

284,The holes in BG method are inclined....deg from the vertival towards the goaf?,20,35,45,60,2

285,In BG method the supports are installed upto..........m from the face?,30,40,50,60,2

286,The method of where the mineral is excavated in small open pits but it is transported to the surface through u/g excavations and transport system is called?,hydraulic,Glory hole mining,open pit mining,none,2

287,The stripping ratio for Manual quarrying is?,1.5 : 1,2 : 1,5 : 1,3 : 1,1

288,The stripping ratio for shovel-dumper combination is?,1.5 : 1,2: 1,4 to 5 :1,8 to 10:1,3

289,The stripping ratio for Dragline?,1.5 : 1,2: 1,4 to 5 :1,8 to 10:1,4

290,The stripping ration for Bucket wheel excavator?,2 : 1,4 to 5:1,8 to 10:1,3 to 4:1,4

291,In formation of benches the angle of slope should not exceed?,80 deg,30 deg,45 deg,60 deg,3

292,If the material is loose or alluvium the bench height should be?,more than 1.5m,less than 1.5m,3m,more than 3m,2

293,The height of the coal bench should not exceed?,2 m,3 m,4 m,5 m,2

294,The height of the bench is decided by ?,Drill machine capacity,height of the dumper,height of the boom of shovel above the floor,5m,3

295,The method involves mining and washing together of unconsolidated or semi consolidated rock wear the ground surface is called?,surface mining,hydraulic mining,glory hole mining,placer mining,4

296,Suitable bench height for 2 cu.m shovel is ?,4 - 6 m,6 - 8 m,10 m,12 m,2

297,Suitable bench height for 3.5 cu.m shovel is?,8 m,10 m,12 m,14 m,3

298,The slope of the high wall is usually ....deg off the vertical?,5,10,15,20,4

299,Gradients of roads in quarries for tyred vehicular traffic should not exceed ?,1 in 4,1 in 8,1 in 10,1 in 15,3

300,The output of the shovel with 2 cu.m bucket is......cu.m per year?,2.5 lac,4 lac,5.5 lac,7 lac,1

301,The output of the shovel with 4.5 cu.m bucket is.......cu.m per year?,2.5 lac,4 lac,5.5 lac,7 lac,3

302,The shovel can dig below ground upto..?,2.5 m,4m,5m,6.5m,1

303,The output capacity of the dragline with 4.5 to 7.5 cu.m is......million cu.m per year?,0.1 to 0.2,0.25 to 0.75,1.5 to 1.7,3 to 4.5,2

304,The output capacity of the dragline with 23 to 30 cu.m is......million cu.m per year?,0.1 to 0.2,0.25 to 0.75,1.5 to 1.7,3 to 4.5,4

305,The limiting gradient for the dragline is?,8 deg,12 deg,16 deg,20 deg,2

306,The jack hammer is used for the drill holes(30mm to 40mm dia) ?,upto 3m depth,upto 6m depth,upto 10 m depth,beyond 10 m depth,1

307,Wagon drill is used for the drill holes having depth of?,upto 3m,3 - 15 m,15 - 25 m,beyond 25m,2

308,The limitation for the inclined drilling is?,10 deg off the vertical,30 deg off the vertical,45 deg off the vertical,60 deg off the vertical,2

309,Jet piercing is suitable only for rocks ?,low strength,laminated,good spallability,none,3

310,For every degree of the angle of inclination with the vertical the saving in explosive consumption is?,1 %,2 %,3 %,4 %,1

311,Where dragline is used before starting excavation of coal a clear space of not less than...m shall be created?,3,4,5,6,4

312,For important haul roads the minimum factor of safety of the slope is?,1,1.5,2,2.5,2

313,When 2 discontimues strike obliquely and intersects on the slope face......type failure of slope occurs?,plane ,wedge,circular,none,2

314,The fill factor for the Hydraulic shovel is?,75 %,65 %,80 %,90 %,3

315,The depth to which the extraction of mineral is done economically by OCP is called ?,stripping ratio,Breaeven stripping ratio,Quarriable limit,economical depth,3

316,The method of estimation in which the shape and size of the ore can be estimated is called?,Prospecting,Boring,Exploitation,Exploration,1

317,Ripper can be compared with?,Lawn mover,Former's plough,Tracter,none,2

318,The angle of the slope of the bench wall from the horizontal is called?,Bench slope angle,Ultimate pit slope angle,Angle of draw,none,1

319,Horizontal ledges situated on the non productive side of the open pit and serving to accomodate the transportation roads is called?,Trench,Berm,Haul road,none,2

320,For every 1 deg deviation in slope angle changes the volume of the quarried ground by above?,1 % ,2 %,3 %,4 %,4

321,The limiting dip for the shovel dumper combination?,4 deg,5 deg,6 deg,7 deg,1

322,The limiting gradient for the continuous surface miner is ?,5 deg,7 deg,10 deg,12 deg,2

323,The output from the surface continuous miner is.....million cu.m per year?,2,6,10,15,2

324,The dumped over burden is decoaled are should not roll down at coal benches when it assumes?,its momentum,its angle of repose,critical area,critical height,2

325,The machine used for pushing loose material or for digging in earth and sand is?,scraper,shovel,dragline,dozer,4

326,The most suitable machine for ripping soft rocks and medium hard rocks below hardness 5 on mohr's scale which are laminated and stratified is?,dozer,scraper,ripper,shovel,3

327,The machine employed for loading fragmented rock from a bench standing on the floor of the bench is?,tractor shovel,dipper shovel,surface miner,BWE,2

328,The machine best suited for digging below the level on which it stands and loads the dumper is?,tractor shovel,stripper shovel,back hoe,dipper shovel,3

329,The shovel used stripping top soil and making shallow cuts and trenches upto or depth of 3 to 6 m is?,stripper shovel,dipper shovel,tractor,pull shovel,4

330,In respect of dipper shovel "crowding" means?,raising bucket to dumper height,Piercing the bucket into broken mineral,winging the bucket round,moving the shovel from one place to another,2

331,The machine suitable for digging alluvium sandy soil unconsolidated rock or blasted coal or rock and which can dip below the level at which it stands and casts the material over a wide area is?,Hydraulic shovel,Dipper shovel,Tractro shovel,Dragline,4

332,A mounted drill desinged for horizontal drilling is ?,stoper,airleg,drifter,wagon drill,3

333,The machine used for the excavation and removal of soft unconsolidated overburden coal and soft ores in benches of upto 90m is?,Drag line,Hydraulic shovel,BWE,Tractor shovel,3

334,Generally the length of sub grade drilling is?,upto 0.5 m,0.5 to 3 m,3 to 5 m,5 to 6 m,2

335,Terrace cut is given with the help of?,scraper,continuous miner,BWE,dipper shovel,3

336,For good matching of load haul equipment the truck body to shovel bucket capacity ratio should be?,1 -3 times,4 - 6 times,7 - 9 times,10 to 12 times,2

337,Sandy soil is best suited for ?,BWE,Tractor shovel,Scraper,Ripper,3

338,The drill machine used for drilling for vertical holes of 150-300 mm diameter specially in medium hard rocks?,churn drill,jackhammer drill,diamond drill,well hole drill,1

339,The drill that can drill the holes at any angle adn down to depth of 18 to 45 m is?,Electric drill,Wagon drill,churn drill,hand drill,2

340,The drill that can drill holes from 65 to 230 mm dia in hard rocks is?,Electric drill,wagon drill,DTH,churn drill,3

341,The degree of fragmentation in primary blasting can be increased by increasing the sp.charge and decreasing the?,Spacing,Burden,Height,Density,2

342,Which is the modification of the dipper shovel with a long boom and is used for casting fragmented rock or earth into a dump of OB?,BWE,Tractor shovel,Hydraulic shovel,Stripper shovel,4

343,Which is used for stripping top soil and making shallow cuts and trenches upto a depth of 3.5 to 6m?,dipper shovel,Tractor shovel,Ditching shovel,Stripper shovel,3

344,The hole dia of the jack hammer drill is?,upto 40mm,40 - 100mm,60-125mm,150-300mm,1

345,The hole dia of the wagon drill?,upto 40mm,40 - 100mm,60-125mm,150-300mm,2

346,The maximum size of the boulder that can load by shovel is.....times the bucket capacity?,0.4,0.6,0.8,0.9,3

347,Minimum capacity of the bucket in BWE?,200 lit,350 lit,450 lit,500 lit,2

348,The rock which is predominent in the area and which contains orebody is called?,Bedrock,Country rock,Seam,Orebody,2

349,Specific gravity of the earth...gm/cu.cm?,5.5,3.7,6.5,2.7,1

350,The crystalline form of the quartz is?,Hexagonal,Monoclinic,Cubic,none,1

351,The mineral is not scrached by flourspar and scrached by Orthoclase then the hardness of the mineral is?,5,6,7,4,1

352,The protodyaknov strength index of the lignite is?,1 to 1.5,1.5 to 2,2 to 2.5,3 to 4,2

353,The protodyaknov strength index of the coal is?,1,1.5,2,3,3

354,The chemical formula of the magnetite is?,FeCO3,Fe2O3,Fe3O4,Fe2O4,3

355,Mica is a ?,Metallic minearal,Gangue mineral,Non metallic,Precipitate,3

356,Rocks which have cooled at depth had slow rate of cooling resulting coarse crystals called?,Plutonic,Hypabysal,Volcanic,sedimentary,1

357,The rocks are called acid if the silica % is ?,less than 45 %,45 - 55 %,55 - 65 %,More than 65 %,4

358,It is an irregularity where bed thins out generally due to erosion by a river or stream and the roof of the bed is filled up with sand or other material ?,Washout,Roll,Outcrop,Lacolith,1

359,Gabro is ?,Carbonate rock,Sedimentary rock,Metamarphic rock,Plutonic rock,4

360,Dolarite is a ?,Hypabysal rock,Sedimentary rock,Metamarphic rock,Plutonic rock,1

361,Basalt is a ?,Hypabysal rock,Sedimentary rock,Volcanic rock,Plutonic rock,3

362,From surface to depth of 35km is called?,Crust,mantle,core,none,1

363,An inlier is ?,Spread of older rock on younger rocks,surface erosion,older rock exposed in younger rock,bend in rocks,3

364,If the upper younger rocks spread covering the older rock it is known as ?,Unconfermity,Joints,Inlier,Overlap,4

365,The surface erosion or non deposion occuring with in the sequence of rocks is?,Unconfermity,Joints,Inlier,Overlap,1

366,Archean rocks are also known as?,Metamorphic rocks,Sedimentary rocks,Igneous rocks,none,3

367,In bituminous coal the % of the carbon content is?,less than 50 %,50 to 70%,70 to 90 %,more than 90 %,2

368,The metallic content of the ore is called?,Grade,Tenor,Gangue,none,2

369,To study bed rock lying below soil cover 1m adn max 30m deep pits are made is known as ?,Trenching,Pitting,tracing of float,none,2

370,Diamond crytalline system is?,Isometric,monoclinic,Hexagonal,cubic system,1

371,Parent rock of mica is?,Amphobole,Pegmatite,Orthoclase,none,2

372,Carboniferrous system falls in group?,Keinozoic,Mesozoic,Palaeozoic,Azoic,3

373,Upper gondwana are characterised by?,Glessopteris flora,cyoas,Philonphylum flora,Rajamahal flora,4

374,Saddle reefs are formed by?,Metasomatism,Hydrothermal process,Sedimentation,Magmetic process,2

375,Dykes are?,concordant form,phacoliths,Discordant form,sills,3

376,Silica in the form of very resitant mineral quartzeis the dominent mineral constiuent of?,conglomarate,limestone,dolamite,sandstone,4

377,Hornblende belongs to the group of?,Mica,Amphibole,Pyroxene,Felspar,2

378,Leaching of ore components and their subsequent concentration at lower depths is known as?,Placer deposition,secondary enrichment,Hypothermal deposition,sedimentary deposition,3

379,The streak of graphite is?,black,cherry red,green,none,1

380,The streak of hematite is?,black,cherry red,green,none,2

381,The metamorphic form of orthoclase is?,schist,gneiss,china clay,talc,3

382,The augite belongs to ?,Amphibole,Pegmatite,Pyroxene,none,3

383,Olivine belongs to?,Amphibole,Pegmatite,Pyroxene,Peridote,4

384,The metamorphic form of sandstone is?,Quartzite,slate,marble,talc,1

385,The metamorphic form of shale is?,Quartzite,slate,marble,talc,2

386,The metamorphic form of limestone is?,Quartzite,slate,marble,talc,3

387,The metamorphic form of granite is?,Quartzite,slate,talc,Geiss,4

388,The metamorphic form of basalt is?,amphibole,schist,marble,talc,1

389,The metamorphic form of dolamite is?,Quartzite,slate,marble,talc,4

390,The metamorphic form of slate is?,Quartzite,schist,marble,talc,2

391,Rank of the coal is?,wood;peat;lignite;bituminous coal;anthracite,anthracite;lignite;bituminous;wood;peat,wood;peat;lignite;antracite;bituninous,none,1

392,The sp.gravity of the anthracite coal is?,1.2,1.5,2,2.5,2

393,The sp.gravity of the lignite coal is?,1.2,1.5,2,2.5,1

394,The calorific value of the lignite....kcal/kg?,2000,2400,3000,3500,2

395,If the coal size is 25mm to 50 mm then it is called?,Steam coal, Rubble coal,Slack coal,none,2

396,The core of earth consist of?,Manganese,Nickel and iron,Megnesium,Sulpher,2

397,The process of decay disintegration and decomposition of rocks under the influence of certain physical and chemical agencies of the atmoshere is?,Weathering,Erosion,Denudation,Sedimentation,1

398,The folds which are characterised with a downward warping of strata and the curvature becomes upwards is?,Anticlines,Symmetric fold,Overturned fold,Synclines,4

399,Garnet crystalline system is?,Isometric,Orthorhombic,hexagonal,tetragonal,1

400,Proximate analysis of coal gives?,% of elements present,% of ash;voltile matter etc,Thermal value of coal,none,2

401,Protodyaknov strength number of gabro is?,5 -10,10 - 15,0 - 5,20 - 25,4

402,Bord and pillar method mining of working coal seams is applicable in?,Geologically disturbed coal seams,Gassy seams,Seams at depth,Seams exposed to surface,1

403,Searching for ore is called?,Mining,Exploration,Prospecting,Exploitation,2

404,The cut holes are called?,easers,trimmers,sumpers,none,3

405,A system of mining applicable to inclined and undulating seams and also inclined seams is called?,Opencast mining,Horizon mining,Hydraulic mining,Bord and piller mining,3

406,Corner props are to be erected to the chock when the floor is steeper than ?,1 in 3,1 in 5,1 in 7,1 in 10,2

407,Minerals are formed due to ?,Mixing of elements,Heating of liquids,sedimentary process,Crystalisation,4

408,In order to avoid formation of the 'toe' in hard rocks the depth of shot hole should be?,0.5 times the height of the depth,0.5 to 1 m deeper below the level of the bench,same at the level of bench,2 m below the level the bench,2

409,The fill factor for the dragline is ?,85 %,80 %,65 %,75 %,3

410,The ratio at which the cost of opencast mining equals that of underground mining is called?,Breakeven stripping ratio,Limiting stripping ratio,Quarrible limit,stripping ratio,1

411,The stress due to weight of the strata is called?,Induced stress,Residual stress,Lateral stress,Burden stress,4

412,The abutment load reaches its maximum value about.......m?,5,10,15,20,3

413,The span detressed zone irrespective of depth is........m?,10,20,30,40,3

414,The front abutment exerts a peak pressure ....m in advance of the L/W face?,0 to 1,1 to 3,3 to 5,5 to 7,2

415,The main fall on the L/W faces has generally occured after the face advance of ....m?,30,45,60,25,2

416,The relative distance between roof and floor in a vertical plane is called........?,Convergence,Bed separation,Strain,Subsidence,1

417,The prop builds up(hydraulic prop) its full bearing load with an yield of less than..........cm?,1.5,2,2.54,3.5,3

418,Chock shields can work in steeply inclined seams upto maximum.......deg?,45,60,70,85,3

419,The roof is easily cavable if the protodyaknov index is........?,4-6,6-7,7-8,8-9,1

420,Rhino explod1,The oxygen percentage in intake air is?,20.28 %,78.04 %,20.93 %,25 %,3

2,The oxygen percentage in return air is?,20.28 %,78.04 %,20.93 %,25 %,1

3,Decay of timber by fungus growth is caused by?,CH4,O2 absorption,N2 depletion,CO2,2

4,Each 1 % reduction in the O2 % results in about the depletion from the light is?,10 %,20 %,30 %,40 %,3

5,The light of oil lamps is extiguished when O2 % is falls to?,19 %,17.5 %,21 %,20 %,2

6,Mining laws in India require that mine air should contain minimum % of O2 is?,25 %,21 %,19 %,17 %,3

7,CO2 is mostly found at?,roof ,middle of the roadway,dip areas of depillaring areas,anywhere in the mine,3

8,The permissible limit of CO2 is?,0.5 %,1.25 %,0.75 %,1 %,1

9,Flame safety lamp is extinguished at CO2 %?,1 - 2,2 - 3,3 - 4,4 - 5,3

10,Black damp is mixture of?,CO2+N2,CO2+H2,CO2+02,CO2+CO,1

11,Black damp is also called as?,stink damp or stythe,Marsh gas,choke damp,white damp,3

12,For every 5% of black damp the light is diminished by ?,20 %,30 %,40 %,50 %,2

13,The light is extinguished when black damp % is?,17 %,17.5 %,21 %,20 %,1

14,Co is aslo called as?,Black damp,Marsh gas,Stink damp,White damp,4

15,CO forms an explosive mixture with air when present within the range of nearly(by vol)?,5 - 15,4.5 - 45,12 - 75,4.5 - 75,3

16,Incomplete oxidation of coal result?,CO2,CO,CH4,None,2

17,The permissible limit of the CO is?,10 ppm,50 ppm,7 ppm,5 ppm,2

18,Hopcolite is used to detect ?,CO,CO2,CH4,SO2,1

19,Hopcolite is a mixture of?,Manganeese diaoxide + copper oxide,Potasium superoxide + copper oxide,silica gel +potasium pelladiam sulphate,Iodine pentaxide + sulphuric acid,1

20,Hoolamite is a mixture of?,Manganeese diaoxide + copper oxide,Potasium superoxide + copper oxide,silica gel +potasium pelladiam sulphate,Iodine pentaxide + sulphuric acid,4

21,The minimum ppm of CO detected by CO detectors is?,3,5,10,50,2

22,In M.S.A CO detector which tubes are used?,P.S detector tubes,Hopcolite,Hoolamite,None,1

23,Which is formed in stangnent water in old workings in the areas of gob?,CH4,SO2,H2S,CO2,3

24,H2S is aslo called as?,stink damp,Marsh gas,choke damp,white damp,1

25,when mixed with air H2S forms on explosive mixture the limits of inflamability is ?,5 - 15,4.3 - 45,12 - 75,4.5 - 75,2

26,Which can be found by blotting paper soaked in lead acetate changes its color to black?,SO2,H2,H2S,CH4,3

27,The permissible limit of the H2S is ?,10 ppm,50 ppm,7 ppm,5 ppm,3

28,The permissible limit of the SO2 is ?,10 ppm,50 ppm,7 ppm,5 ppm,1

29,When mixed with air H2 forms on explosive mixture the limits of explosibility is ?,5 - 15,4.3 - 45,12 - 75,4 - 75,4

30,The permissible limit for the nitrous fumes is?,10 ppm,50 ppm,7 ppm,5 ppm,4

31,Methane gas is also called as?,stink damp,Marsh gas,choke damp,white damp,2

32,Methane can be found at?,roof,floor,Any place in the roadway,Exhaust gases of the locomotive,1

33,M.S.A methanometer is worked on the principle of?,Formation of gas cap,Wheatstone bridge,Infraradiation,Optical properties,2

34,Spiralaram is worked on the principle of?,Formation of gas cap,Wheatstone bridge,Infraradiation,Optical properties,1

35,Ring rose detector works on the principle of?,Formation of gas cap,Wheatstone bridge,Diffusion-combustion-contraction,Optical properties,3

36,Interferometers works on the principle of?,Formation of gas cap,Wheatstone bridge,Infraradiation,Optical properties,4

37,One kg of methane in burning evolves .....kcal of heat?,10000,12000,13600,15000,3

38,The minimum voltage at which the methanometer works with accuracy is?,1 v,1.5 v,2.2 v,3 v,3

39,The wetbulb temparature in development faces should not exceed?,30 deg c,33.5 deg c,35 deg c,38 deg c,2

40,The minimum quantity of air per person in deg III mine is?,6 cu.m/min,8 cu.m/min,10 cu.m/min,12 cu.m/min,2

41,If the wet bulb temparature exceeds 30.5 deg c at any place air current should be faster than ?,1 m/s,2 m/s,3 m/s,0.5 m/s,1

42,whirling hygrometer is rotated with a speed of?,100 rpm,200 rpm,300 rpm,400 rpm,2

43,The value of the kata factor is ?,250,300,380,480,4

44,The unit for the kata factor is ?,millicolories/sq.cm/sec,kcal/sec/sq.cm,millicolories/sq.cm,millicolories/sec/sq.cm,3

45,The difference between the atmosphere pressure and the total pressure on the fan drift is called?,Velocity pressure of surface fan,Static pressure,Total pressure of surface fan,none,3

46,Static pressure is measured by?,Barometer,Pitot tube,Venturi meter,U-tube,4

47,Velocity pressure is measured by?,Barometer,Inclined manometer,U-tube,Pitot tube,4

48,Cooling power is a combination of temparature of air ;relative humidity and ...?,Moisture content of air,density of air,velocity of air,Pressure,3

49,For light manual workers the wet kata is?,18,25,30,8,2

50,Ordinary U-tube manometers are not useful for measurment of gas velocities?,below 12 m/s,13 to 20 m/s,20 to 30 m/s,above 30 m/s,1

51,Geothermic gradient in indian coal seam is....?,1 deg c per 15 m,1 deg c per 38m,1 deg c per 50 m,none, 2

52,Upto what depth from the surface the temparature is constant?,10m,15m,20m,25m,2

53,The speed of the centrifugal fan is?,1 to 100 rpm,100 to 300 rpm,300 to 1000 rpm,above 1000 rpm,2

54,The mostly used blade type in centrafugal fan is?,backward,radial,forward,none,1

55,The presence of Nitrous fumes are detected by?,The rotten eggs smell,sweet smell,metallic taste on tongue,head ache,4

56,The noxious and infalmmable gasses of old workings of a coal mine expands when there is?,sudden rise of temparature,sudden heavy roof fall,sudden rise in barometric pressure,sudden drop in barometric pressure,4

57,The instrument that is used to measure the relative humidity is?,pitot tube,aneroid barometer,hygrometer,anemometer,3

58,For comfortable working conditions the reasonable velocity of air at the working face is?,0.5 to 2 m/s,3 to 4 m/s,5 m/s,6 m/s,1

59,cooling power by conduction convection and radiation is given by using the ?,dry bulb temparature,wet bulb temparatute,Average time of wet and dry bulbs,wet and dry bulb time and velocity of air,2

60,Inclined water guage is used for the measurment of water guage for?,smaller than 200 mm,greater than 200 mm,smaller than 50 mm,greater than 50 mm,3

61,The inclined water guage can read upto?,2 mm,1.5 mm,1 mm,0.2 mm,4

62,The velocity of air flowing in a drift where the velocity pressure is 36 mm is?,36 m/s,24 m/s,42 m/s,48 m/s,2

63,In the centrifugal fan smooth flow air and conversion of velocity energy into pressure energy takes place?,In spiral casing,In the blades,At the tip of the blades,In the evasee,4

64,In the centrifugal fan reentry of of the discharged air is prevented by?,spiral casing,blades,evasee,eye,1

65,With a centrifugal fan for a given quantity of air increase of efficiency of the and reduction in cost of power can be obtained with?,well designed blades of the fan,well designed spiral casing,well designed evasee,well designed eye of the impeller,3

66,The maximum permissable speed of the axial flow fan is?,8000 m/min,6000 m/min,5200 m/min,4200 m/min,4

67,The maximum water guage developed in axial flow fan is?,10 cm,12.5 cm,13.5 cm,15 cm,2

68,The water guage developed and quantity circulated with an axial flow fan depend on ?,Size of the fan,Shape of the blades,Design of the evasee,Speed of the blade tips,4

69,with a axial fan direction of travel of air current to the mine is changed by?,changing direction flow of air into fan by means of doors,changing the blades on the rotor,changing the direction of rotation of the motor,not possible with this type of fan,3

70,The pitch of the blades of axial flow fans is?,1 to 5 deg,5 to 10 deg,10 to 15 deg,15 to 20 deg,3

71,By varying the pitch of the blades the pressure generated by axial flow fan is?,remains same,decreases,increases,increases 8 times,1

72,The water guage of a axial flow fan can be increased by?,increasing speed of rotation,changing the pitch of blades,installing 2 or more stages,enlarging the evasee of the fan,3

73,The manometric efficiency of axial flow fan is?,10 to 20 %,70 to 85 %,20 to 30 %,40 to 50 %,3

74,The ovarall efficiency of axial flow fan is?,10 to 20 %,70 to 85 %,20 to 30 %,40 to 50 %,2

75,Modern flame safety lamps can withstand an air velocity of?,5 m/s,10 m/s,15 m/s,20 m/s,3

76,The maximum air velocity at the face is?,1.7 m/s,3 m/s,5 m/s,7.5 m/s,1

77,The maximum air velocity at the main haulage roads is?,1.7 m/s,3 m/s,5 m/s,7.5 m/s,3

78,Air velocities in diesel locomotive sheds sholud not be less than?,4 m/s,2 m/s,1 m/s ,0.75 m/s,4

79,If the quantity of air passing through airway has to be increased from 1200 cu.m/min to 2400 cu.m/min the effect of HP of fan is?,8 times,4 times,2 times,1/2 times,1

80,If the velocity of the air is doubled then the water guage increased will be?,2 times,4 times,8 times,1/2 times,2

81,The area of the regulator required for flow of a certain quantity of air can be calculated from the formula is?,PQ / 75,K*S*Q2/A3,0.385Q/sqrt(P),none,3

82,In a mine of high resistance the series arrangement of fans gives a considerable increase in the quantity of air flowing is?,10 %,20 %,30 %,40 %,3

83,In a mine of high resistance the parallel arrangement fans a considerable increase in the quantity of air flowing is?,10 %,20 %,30 %,negligible,4

84,In a mine of medium resistance both series and parellel arrangement of fans give the same result that the increase in the air quantity is?,20 %,30 %,40 %,50 %,1

85,In a mine of low resistance the parellel arrangement of the fans gives the increase in the air quantity by?,20 %,30 %,40 %,50 %,4

86,When the wet bulb temparature exceeds 33.5 deg then the rise in the body temparature is?,3 deg,2 deg,1 deg,0.5 deg,3

87,Man dies when the body temparature is rise maximum upto ?,38 deg,41 deg,43 deg,48 deg,3

88,For breaking up the methane layer formed in the roof the minimum layering number required is?,4,3,2,1,3

89,While testing with safety lamp for CH_4 if the minimum length of the blue flame is 11.5 mm then the % of methane is?,1.5,2.0,2.5,3.0,4

90,The rise in the pressure due to auto compression is .....per 100 m?,1.1 kpa,2 kpa,2.9 kpa,3.5 kpa,1

91,The rise in the dry bulb temparature of air due to auto compression is.....per 100 m depth?,2 K,1.96 K,1.012 K,0.976 K,4

92,At 300 K the working efficiency of a worker is ?,100 %,80 %,60 %,50 %,1

93,The angle of the evasee is ?,4 deg,6 deg,8 deg,10 deg,2

94,The ratio between H.P of ventilation and H.P of Fan shaft is called ?,Mechanical efficiency,Manometric efficiency,Ovarall efficiency,Fan efficiency,4

95,The ratio between H.P of ventilation and H.P input to engine is called?,Mechanical efficiency,Manometric efficiency,Ovarall efficiency,Fan efficiency,1

96,The sensitivity of the vertical U-tube manometer is?,1 pa,5 pa,10 pa,15 pa,3

97,The sensitivity of Inclined guage manometer is?,0.2 pa,0.4 pa,1 pa,2 pa,2

98,Heat stroke is caused when the wet bulb temparature is?,294 K,300 K,312 K,320 K,3

99,The efficiency of the workman if the wet bulb temparature in the mine is 310 K?, 100,75,50,25,4

100,For hard workers the dry kata is?,8,18,10,30,3

101,The minimum thickness of the ventilation stoping is?,25 cm,30 cm,38 cm,45 cm,3

102,The ventilation system which takes intake ventilating air to the lowest point of the district or face and allow it to travel to higher levels to ventilate the district before it goes to the return?,Ascential ventilation,Descential ventilation,Homotropal,Antitropal,1

103,Natural ventilation pressure assists the fan ventilation pressure in case of?,Ascential ventilation,Descential ventilation,Homotropal,Antitropal,1

104,When the air and mineral flow in the same direction the ventilation is called?,Ascential ventilation,Descential ventilation,Homotropal,Antitropal,3

105,The effect of splitting the air in parallel is ?,Overall resistance of mine increases,Overall resistance of mine decreases,Pressure produced by fan increases,pressure produced by fan decreases,2

106,The ventilating door should open against the intake air so that?,Air leakage takes from intake to return,The air pressure normally keeps the door closed,Recirculation of foul air avoided,Regulations are compiled with,2

107,Splits reduce the doors on haulage roads but ?,Increase pressure,Decrease quantity,Increase Number of air crossings,none,3

108,The quantity of air to be circulated by an auxiliary fan depends upon?,Length of the heading,Number of persons in the drift,Size of the drift,Rate of emission in the roadway,4

109,The quantity of air drawn by an auxiliary fan from the air way should not exceed?,equal to quantity,1/3 of quantity,3/4 of quantity,1/1.5 of quantity,2

110,The minimum distance between the fan and the corner of the drift to be ventilated should be?,3 m,4 m,5 m,6 m,3

111,The quantity of the air per minute should be..... per sq.m of working area?,2.5 cu.m,6 cu.m,7 cu.m,8 cu.m,3

112,On reversal of air current by axial flow fan the quantity of air reduces to..?,20 %,30 %,40 %,60 %,3

113,If the booster is placed inbye of the neutral line?,Leakage is maximum,Zone of recirculation takes place,Fan will damage,none,2

114,Compressed air jets increased the air flow by ?,10 %,20 %,30 %,40 %,2

115,Venturi tubes increased the air flow by?,10 %,20 %,30 %,40 %,3

116,The increase in the quantity of air due to expansion in the upcast shaft can be roughly taken as?,1 % for every 15 m,1 % for every 50 m,1 % for every 100 m,5 % for every 100 m,3

117,Anemometers are used to measrure air velocities between?,60 - 1000 m/min,0 - 10 m/min,10 -50 m/min,50 - 60 m/min,1

118,The vanes of the anemometes are ....deg to the direction of airflow?,10-20,20-30,30-40,40-50,4

119,For obtaining good results measurment of quantity flowing through an airway on either side of velocity measuring point the roadway should be uniform in cross section for a length of?,2 m,5 m,10 m,15 m,4

120,The minimum reading with a velometer can be taken as ?,0.5 m/sec,0.05 m/sec,0.1 m/sec,0.01 m/sec,2

121,For measuring air velocities less than 1 m/sec........is used?,Anemometer,Velometer,Smoke generator,Pitot static tube,3

122,In smoke generator for measuring air velocity the time taken by the smoke to travel....m is recorded?,4 - 6 m,6 - 8 m,8 - 10 m,10 - 12 m,3

123,In anemometer the angle of yaw should be ?,less than 30 deg,less than 20 deg,less than 15 deg,less than 10 deg,4

124,The accuracy obtained in precise traversing is?,more than 5 %,5 %,3 %, 2 %,4

125,Air lock doors are required to be arranged where pressure on the door is?,more than 250 pa,less than 250 pa,more than 500 pa,less than 500 pa,1

126,In refrigerant circulation system the refrigerant used is?,Ammonia,Calcium chloride,Freon-12,Corbon dioxide,1

127,Good and harmless refrigerent in the following refregerents is?,Corbon dioxide,Methyl chloride,Freon -12,Ammonia gas,3

128,Profilometer is used for measuring?,Air velocity,cross section of irregular shape,Pressure of the air,% of CH_4,2

129,Ammonia should not be used in U/g mines as it forms an explosive mixture with air if present ..... by volume?,30 %,40 %,50 %,20 %,1

130,The best extinguisher for fires involved live electrical equipment is?,CO_2 type,Foam type,Water -CO_2 type,Soda acid type,1

131,The best extinguisher for fires due to oil is?,CO_2 type,Foam type,Water - CO_2 type,Soda acid type,2

132,The best extinguisher for gasseous fires is?,Drypowder,CO_2 type,Foam type,Water - CO_2 type,1

133,If a quarry is abandoned the coal and the OB dump should be seperated by digging a trench ....m wide?,1 - 2 m,3 - 5 m,6 - 10 m,11 - 15 m,3

134,The coal stock should not exceed atleast?,200 te,100 te, 50 te,400 te,1

135,The height of the coal stock should not exceed atleast?,1 to 1.5 m,1.5 to 3 m,3 to 4 m,4 to 5 m,2

136,The ignition temparature of the bituminous coal is?,500 deg,450 deg,398 deg,200 deg,4

137,The coals are more prone to spantaneous heating if the coal having atleast?,25 % V.M,15 % V.M,40 % V.M,50 % V.M,1

138,The coal is not liable to spantaneous heating if the coal has oxygen content?,less than 2 %,4 %,8 %, more than 9 %,1

139,In CO_2 extinguisher the pressure of the CO_2 in liquid form is?,30 kg/sq.cm,50 kg/sq.cm,70 kg/sq.cm,100 kg/sq.cm,3

140,Halon is also called as?,CTC,BCF,TNT,Ammonia sulphate,2

141,Thermal conductivity of shale is ....of sandstone?,equal,1/4 ,1/2,1/3,4

142,The incubation period in SCCL mines is?,6 months,10 months,18 months,24 months,3

143,In spataneous heating the temparature of the initial stage is upto.....deg?,70 ,100 ,130,200,3

144,The coal is more prone to spantaneous heating if the moisture content is?,0-2 %,2 - 4 %,4 - 7 %,7 - 15 %,4

145,Spantaneous heating is more likely to occur in coals of?,vitrian,clarian,durain,fussin,1

146,Spantaneous heating is more likely to occur in coals of?,Peat,Lignite,Bituminous,Antracite,4

147,With CO/O2 deficiency ratio 2 % indicates?,Normal condition,existance of spantaneous heating,Heating in advance stage,Active fire,3

148,Do not allow the burning of fires within .....m from on incline opening?,10,15,20,25,2

149,Isolation stoping in deg I and II gassy coal mine should have minimum thickness of?,1 m,2 m,3 m,4 m,1

150,The isolation stoping should be explosion proof if the minimum CH4 % behind the stoping is ...?,1 %,2 %,3 %,4 %,2

151,The minimum thickness of the explosion proof isolation stoping is?,1 m,3 m,4.5 m,6 m,3

152,Isolation stoping should have minimum depth of locking in shale is?,1 m,75 cm,15 cm,30 cm,4

153,In Gypsum stopings for every cu.m of stoping volume about ...te of gypsum is required?,1.3 ,1.8,2.5 ,3 ,1

154,The sample pipe should pass through the temporary stoping and should extend ....m beyond it towards the fire side?,1 m,2 m,3 m ,4 m,3

155,Isolation stopings are ?,Preparatory stopings,Temporary stopings,Perminent stopings,none,1

156,Temporary stopings are constructed ?,Before depillaring is under taken,After heating or fire is detected,To seal off an area,none,2

157,Stopings should always be ket white washed on the surface and at the roof floor and sides for .....m outbye for every detection of cracks?,1 ,2 ,3 ,4 ,1

158,During the process of seaing fire area below ground the atmosphere near the stoing should be tested frequently for ?,Methane,CO,O2 deficiency,Both CO and O2,4

159,Air samples behind the stoping should be drawn during the periods of?,High barometric pressure,Low barometric pressure,Medium barometric pressure,none,2

160,Air samples from behind the stopings should be collected between?,6 am to 9 am,9 am to 12 noon,12 noon to 2 pm,10 pm to 12 pm,3

161,The blanketing layer which is used to detect cracks in stopings should be ....m thick?,1,2,3,4,3

162,Explosive limit of the CH4 is?,4.3 % to 45 %,4.3 % to 75 %,5 % to 15 %,4.3 % to 12 %,3

163,The maximum explosive violence is produced when the explosive mixture contains firedamp?,5 %,9 %,15 %,45 %,2

164,If the gas air mixture is compressed then the mixtures containing CH4 .....is inflammable?,1 %,2 % to 75 %,75 % to 90 %,above 90%,2

165,The atmosphere becomes non explosive irrespective of any % of firedamp if the minimum % of blackdamp is...?,35 %,25 %,20 %,50 %,1

166,The atmosphere is non explosive if the O2 percentage is?,below 12 %,12 % to 20 %,20 % to 40 %,40 % to 50 %,1

167,Ignition temparature of methane is?,250 - 350 deg c,350 - 650 deg c,650 - 750 deg c,750 - 1000 deg c,3

168,If the CH4 and air mixture is at 1000 deg C then the delay for ignition is?,20 sec,10 sec,5 sec,1 sec,4

169,The amount of heat is required to burn the methane is ?,15 kcal/mole,19.5 kcal/mole,22.1 kcal/mole,25 kcal/mole,3

170,The time interval that elapses between applicatic of a source of heat to firedamp air mixture and the actual moment of ignition of gas air mixture is?,Incubation period,Lag on ignition,Ignition time,Graham's ratio,2

171,The delay eliminates completely if the H2 % in methane is?,10,20,30,40,3

172,For coal dust explosion the quantity of coal is.....g/cu.m ?,10,20,30,40,3

173,Lower limit of inflammability of coal dust is?,1 gm/cc,10 gm/cc,5 gm/cc,2000 gm/cu.m,1

174,The higher limit of inflammability of coal dust is?,1 gm/cc,10 gm/cc,5 gm/cc,2000 gm/cu.m,4

175,The lowest temparature at which a fine dry coal dust cloud can be ignited is ?,250 - 350 deg C,350 - 450 deg C,450 - 650 deg C,700 - 800 deg C,4

176,The coal is not likely to propagate flame for coal dust explosion if the coal containing of V.M ?,Less than 13 %,Less than 25 %,More than 25 %,More than 40 %,1

177,For every 1 % firedamp the additional stonedust is required for efficient stone dusting is?,5 - 10 %,10 - 14 %,15 - 20 %,20 - 30 %,2

178,The size of the coal dust particles dangerous to cause greater inflammability is ?,1/5 - 1/10 mm,1/10 - 1/15 mm,1/2 - 1/5 mm,1/1.5 - 1/2 mm,2

179,The amount of stone dust which must be added to the coal dust to make it non explosive is ?,Index of explosibility,Index of inflammability,Index idnitabolity,Index of wettablity,1

180,Stone dust used for dusting should not coantain.....free silica ?,more than 5 %,less than 5 %,more than 30 %,5 to 30 %,1

181,The % of incombustable dust in the coal dust sample in a mine should be .... for the stone to be effective inpreventing propagation of flame?,10 - 20 %,20 - 40 %,40 - 50 %,50 - 60 %,4

182,The quantity of moisture that would ensure non propagation of flame by coal dust atleat.....of the total mixture?,1/3,1/10,1/30,1/50,3

183,The maximum air velocity preventing escape of moisture from the coal dust at conveyor roads is?,8 m/s,6 m/s,4 m/s,2 m/s,3

184,The maximum air velocity preventing escape of moisture from the coal dust at working faces is?,8 m/s,6 m/s,4 m/s,2 m/s,3

185,The stone dust barrier will fail if it located within minimum..... m from the face?,30- 40,40 - 60,60 - 80 ,80 - 100,2

186,In light stone dust barriers the amount of stone dust is loaded is?,60 kg/m,40 kg/m,30 kg/m,20 kg/m,3

187,In heavy stone dust barriers the amount of stone dust is loaded is?,60 kg/m,40 kg/m,30 kg/m,20 kg/m,1

188,In bord and pillar method of mining the stonedust barriers are places .....m from the face?,50 - 100,100 - 150,150 - 400 ,400 - 500,3

189,In longwall method the light type of stone dust barriers should be placed within the range of ...... m from the nearest point of the face?,50 - 120,150 - 200,200 - 350, 350 - 400 ,1

190,In longwall method the heavy type of stone dust barriers should be placed within the range of ...... m from the nearest point of the face?,50 - 120,150 - 200,200 - 350, 350 - 400 ,3

191,The water barriers must contain atleast ...of water per sq.m of roadway cross section?,50 Liters,100 Liters,150 Liters,200 Liters,4

192,The distance between water barriers must no exceed ....m in gate roads and .....m in main roads?,100 ; 200,200 ; 400,300 ; 500,500 ; 600,2

193,The water barrier must be sited atleast .....m away from the stone dust barrier?,100,200,300,400,1

194,In triggered barrier ...... is used ?,Nitrogen,Ammonia,NaCl,Brine,1

195,Out of 21 % of oxygen in the atmosphere air that is inhaled by a person % of oxygen that is used from between inhalation and exhalation is?,1 - 2 %,2 - 3 %,3 -5 %,5 -7 %,3

196,The quantity of air inhaled per min at normal work is?,8 - 10,15 - 20,30 - 40,40 - 50,3

197,The O2 consumption per min if person is walking ?,0.3 - 0.4 lit,0.6 - 0.9 lit,1.3 - 1.8 lit,1.8 - 2.3 lit,2

198,The self contained oxygen breathing apparatus is of the type?,Open circuit,Portable,Regenarative,Dependable,3

199,The capacity of the protomark Self contained breathing apparatus is?,1 lit,2 lit,3 lit,4 lit,2

200,Protomark apparatus contains ....lit of oxygen with ....kg/sq.cm pressure?,100 ; 200,200 ; 400, 300 ; 400 ,300 ; 150,4

201,The reducing valve in protomark SCBA reduces the pressure of O2 supplied to wearer is ?,1 lit/min,1.5 lit/min,2 lit/min,4 lit/min,3

202,The weight of CO2 abosorbant in a prototype breathing apparatus is?,1 kg,2 kg,3 kg,4 kg,2

203,The CO2 abosorbant used in prototype breathing apparatus is?,Calcium hydroxide and SOdium hydroxide,Calcium corbonate and caustic soda,sodium hydroxide and caustic soda,calcium hydroxide and castic soda,4

204,The protosorb keeps the % CO2 in the breathing circuit?,Below 2 %,2 - 4%,5 %,6 %,1

205,The cooling agent in protosorb breathing apparatus is?,Calcium hydroxide,Sodium chloride,Sodium Phosphate,Methyle chloride,3

206,The cooling agent in the cooler is in crystal form at ordinary temperatures liquefies on usage of the apparatus by wearer at?,28 deg C,30 deg C,32 deg C,35 deg C,4

207,The duration of usage of protosorb SCBA is ?,1/2 hour,1 hour, 2 hour,3 hour,3

208,Duration of use of Drager SCBA is ?,1 hour,2 hours,3 hours,4 hours,4

209,Drager SCBA contains ....lit of O2 with a pressure .... kg/sq.cm?,100 ; 200,200 ; 400, 400 ; 200 ,300 ; 150,3

210,The oxygen feed rate in drager SCBA is ?,1 lit/min,1.5 lit/min,2 lit/min,3 lit/min,2

211,In drager SCBA the O2 feed to wearer's requirement over and above 1.5 lit/min is supplied by?,Bypass value,pressure guage valve,Lung govern valve,reducing valve,3

212,The duration of usage for chemical oxygen breathing apparatus is?,1/2 hour,1 hour, 2 hour,3 hour,1

213,The chemical used in chemical breathing appratus is?,Calcium hydroxide,Sodium phosphate,potasium super oxide,potasium hydroxide,3

214,The most important constiuent in gas mask is?,charcoal,siliga gel,caustic,hopcolite,4

215,The condition to use gasmask is atmosphere should contain sufficient O2 to support life and should contain more than ....% of CO?,1,2,3,4,2

216,In gas mask silica gel is used ?, To remove dust and smoke,To remove ammonia and water vapour,COnverts CO to CO2,To remove sulphuretted hydrogen,2

217,In gas mask caustic soda is used ?,To remove dust and smoke,To remove ammonia and water vapour,COnverts CO to CO2,To remove sulphuretted hydrogen,4

218,The duration of usage of gas mask is?,1/2 hour,1 to 2 hours,3 hours,4 hours,2

219,In gas mask the use of charcoal is ?,To remove dust and smoke,To remove ammonia and water vapour,COnverts CO to CO2,To remove organic vapours and acidic gases,4

220,The main function of self rescuer is?,To supply 2 lit/min oxygen to wearer,To convert Co to CO2,To supply 30 lit/min of oxygen to wearer,none,2

221,The drying agent in self rescuer is?,calcium chloride,charcoal with calcium bromide and lithium chloride,Silica gel,none,2

222,The smoke helmet or hose mask is used within a distance of?,10 m from FAB,25 m from FAB,50 m from FAB,100 m from FAB,3

223,The apparatus used to administer pure oxygen to an unconscious person or affected by noxious gasses is?,Smoke helmet,Reviving apparatus,Self rescuer,SCBA,2

224,In reviving apparatus the maximum O2 is supplied to person is?,10 lit/min,20 lit/min,30 lit/min,40 lit/min,3

225,A rescue brigade contains .....members?,10,7,5 -6 ,3-4,3

226,Pulmotor is a ?,SCBA,Escaping apparatus,Reviving apparatus,None,3

227,Samples from the sealed off area taken when the pressure behind is?,Negative,Positive,0,either positve or negative,1

228,The main guide for taking decision to reopen a sealed off area is?,Temperature graph,Time elapsed,Graph of analysis of air samples,O2 deficiency,3

229,The fire is extinct in the sealed off area if the oxygen percentage is?,12 %,8 %,6 %,2 %,4

230,The relative amount of luminous energy given by any source of light is?,illumination ,lux,intensity of light,lumen,3

231,Illumination is inversely proportional to ?,distance,square of distance,cube of distance,none,2

232,The unit of light emitted by a light source is?,Lumen,Lux,Candela,None,1

233,1 lumen/sq.m is?,Lumen,Lux,Candela,None,2

234,The unit of illumination in S.I units is?,Lumen,Lux,Candela,None,2

235,In u/g mines the purpose of white washing is?,To prevent coal dust explosion,To prevent spantaneous heating,To improve lighting,Both 2 and 3,4

236,The white washing is not done from the face upto ?,400 m,300,100 m,60 m,3

237,At 2m distance the illumination from lighe source of one candela is?,4 metre candels,2 metre candles,8 metre candles,0.25 candles,4

238,The minimum average lumens/sq.ft of light at pit bottom is?,1.5,1.25,0.4,0.9,1

239,The minimum average lumens/sq.ft of light at roadways is?,1.5,1.25,0.4,0.9,3

240,The minimum light required for reading and writing will be?,10 lumen/sq.m,10 lumen/sq.ft,1 lumen/sq.m,30 lumen/sq.m,1

241,The minimum light required in longwall working face is?,2 lux,5 lux,10 lux,12 lux,3

242,The flame safety lamp used for accumulation test is?,GL-5,GL-50,GL-60,None,1

243,An electric cap lamp with krypton bulb gives and amount of light?,15 lumens,20 lumens,30 lumens,50 lumens,3

244,For depillaring area of gassy coal mines of II and III degree the amount duct of light in addition to cap lamp of individuals required to be provided is?,a cluster of 10 to 12 caplamps,a cluster of 15-20 caplamps ,250 watt bulbs 4 or more,none,2

245,The mesh size in flamesafety lamp is?,30,20,10,5,2

246,The liquid used in GL-60 lamp is?,Petrol,Alcohol,Diesel,K-oil,4

247,The GL-60 flame safety lamp detects?,CO,CH4,CO2,Both 2 and 3,4

248,In the flame safety lamp should be discorded if the battery voltage is?,Below 5,Above 5,Below 2.3,2.3 to 5,3

249,The maximum battery voltage in flame safety lamp is?,2,3,4,5,2

250,The battery in flame safety lamp can relight the lamp ?,600 times,700 times,400 times,300 times,1

251,The wire guage in flame safety lamp should have a total heat radiation area of not less than?,400 sq.m,355 sq.m,250 sq.m,155 sq.m,4

252,The percentage test will be conducted if the methane percentage is?,1 to 2 %,2 to 3 %,3 % or more,Below 1 %,3

253,The minimum oxygen percentage required for supporting human life?,12 %,14 %,16 % ,19 %,2

254,An electric cap lamp of acid type gives?,1 V,2 V,4 V,6 V,3

255,In the charged condition the specific gravity of the acid is ?,1.26,1.18,1.81,1.62,1

256,The acid used in cap lamp is?,Sulphuric acid,Hydrocloric acid,Nitric acid,none,1

257,In the fully charged condition the active material in the positive plates is?,Lead,Antimony,Silicon,Lead peroxide,4

258,The gas produced in the electric cap lamp is?,Nitrogen,Oxygen,Hydrogen,Both 2 and 3,4

259,The life of the cap lamp in the pit is?,300 hours,400 hours,500 hours,600 hours,3

260,The illumination at the pitbottom is?,20 to 40 lumens/sq.m,15 to 20 lumens/sq.m,40 to 60 lumens/sq.m,none,1

261,In electric lighting the power cannot be used at a voltage exceeding ?,30,110,220,250,2

262,It is recommanded that the electric lamps should not be used within a distance of ....from the longwall face?,60 m,80 m,100 m,270 m,3

263,The advantage of flourescent lamp in underground is?,More output,Reduce glare,Shall not produce shadow,All of the above,4

264,The life of the lead acid battery is?,1 year,2 years,3 years,4 years,2

265,The disease caused due to insufficient light is?,Nystagmus,Ankylostomiasis,Silicosis,Asbestosis,1

266,The disease caused due to working in insanitory working conditions by a thread like blood sucking worm which enters the body through the skin is?,Nystagmus,Ankylostomiasis,Silicosis,Asbestosis,2

267,The place is said to be dusty if the dust concentration is?,1 mg/cu.m,5 mg/cu.m,10 mg/cu.m,20 mg/cu.m,3

268,The disease caused to inhalation of iron dust is?,Ankylostomiasis,Silicosis,Asbestosis,Siderosis,4

269,The particles of silica measuring ....microns in dia are most apt to produce damage?,0.5 to 2.5,2.5 to 3,3 to 4,4 to 6,1

270,The diseased caused due to inhalation of hydrated magnesium silicate ?,Ankylostomiasis,Silicosis,Asbestosis,Siderosis,3

271,The diseased caused due to exposed to dusty atmosphere containing large amount of smoke?,Anthracosis,Ankylostomiasis,Silicosis,Asbestosis,1

272,The permitted content of silica dust in mine air should not exceed ?,1 mg/cu.m,2 mg/cu.m,3 mg/cu.m,4 mg/cu.m,2

273,Konimeter dust sampler uses the principle of?,Thermal precipitation,Gravity,Impingment i.e inertia precipitation,Optical method,3

274,P.R.U pump dust sampler uses the principle of?,Thermal precipitation,Impaction,Impingment i.e inertia precipitation,Scattering of light,4

275,The level of tolerence of noice is?,20 to 50 dB,50 to 70 dB,70 to 85 dB,90 to 110 dB,3

276,Personal protective equipment is required if the noise level is?,80 dB,90 dB,125 dB,140 dB,3

277,A worker should not allowed to enter without appropriate ear protection an area in which the noise level is?,90 dB,115 dB,125 dB,140 dB,2

278,No working should be done within a distance of .....from the water logged area or abondoned mine or disused workings?,40 m,50 m,60 m,100 m,3

279,In working of water logged area the gallery should not be more than?,2.4m X 2.4m,3m X 3m,1.5m X 1.5m,4.8m X 3m,1

280,When approach within 60 m from the probable old working place the boreholes should driven atleast ?,5 m,10 m,15 m,20 m ,3

281,The interval of boreholes should not be more than .... while working near waterlogged workings?,3 m,5 m,7 m,10 m,2

282,The length of the bore hole should not be less than ....while working near waterlogged workings?,3 m,5 m,7 m,10 m,1

283,VOLSAFE boring apparatus can drill holes upto .....depth?,15 m,50 m,150 m,250 m,3

284,While approaching a water logged area with safety boring apparatus an emergency shutoff door shall be built away from the site of boring machine at a distance of?,10 m,15 m,20 m,25 m,2

285,The thickness and height of the temparory dam ?,0.5 m ; 1 m, 1 m ;1 m,1 m ; 3m,1 m ;2 m,1

286,The thickness of the permanant water dam is?,3 m,5 m,6 m,8 m,3

287,The electric cap lamp is?,Intrincically safe,Flame proof,Both 1 and 2,Neither 1 nor 2,4

288,The flame of a flame safety lamp while testing for CH4 spires of jumps at the ?,1 %,2 %,3 %,5 %,3

289,Automatic detectors give either audio or visual alarm when the % of inflammable gas exceeds?,0.5 %,0.75 %,1.25 %,2 %,3

290,Tuberculosis is caused due to ?,Insufficient light,Inhalation of iron oxide dust,Inhalation of quartz dust,none,3

291,The method of dealing with fire in mine where heating is in the initial stages and its exact location is known is?,Digging out and extinguishing,Blanketing,Flooding,Sealing off,1

292,Spraying the surface with liquid cement sand mixture (1:3) in dealing with fire is known as?,Plastering,Sealing,Guniting,spraying,3

293,A stone dust barrier may fail to arrest an explosion if there is a ....in roof of ther roadway over the barrier?,Layer of coal dust,timber support,Crack,Layer of methane,4

294,The holes drilled at different angles into sides while approaching water logged area is?,Advance bore holes,Prospecting holes,Flank holes,None,1

295,The ability to cause a flame to spread away form the source of ignition is called?,Index of explosibility,Index of inflammability,Index of ignitability,Graham's index,2

296,Where carbide lamps have to be used for safe working ther air velocity should not exceed?,2.5 m/sec,2.5 m/min,5 m/sec,5 m/min,1

297,In order to avoid permanent sulfating of the plates in lead acid battery the voltage of the lamp on usage must not be allowed to fall below?,1.8 V per cell,2.2 V per cell,4.4 V per cell,1.18 V per cell,1

298,The interval of time for igniting the fire damp air mixture at 650 deg C is ?,1 sec,5 sec,10 sec,30 sec,3

299,In self contained oxygen breathing apparatus the wearer can take more oxygen than he gets through the circuit by the ?,Main valve,Reducing valve,Relief valve,Byepass value,4

300,The shelf life of MSA methanometer is?,6 months,12 months,18 months,24 months,3

301,In metal mines a shaft is always sunk in?,Hanging wall ,the mineral deposit,Across the deposit,foot wall,4

302,The roadways driven from the shaft from different horizons for access to the mineral deposit are?,Winzes,raises,levels or drifts,companion levels,3

303,The interval between levels depending on several points vary from?,5 to 10m,10 to 15 m,15 to 100 m,100 to 120 m,3

304,Level interval is more in the case of?,Ore bodies thicker,Thin ore bodies,moderately thick ore bodies,Thick ore bodies,2

305,As the haulage road has to be straight and wide with smooth curves it is in the?,Foot wall,Hanging wall,Ore body,Across the ore body,1

306,The mineral is transported downwards in different sextions to the lower level and all the ore is carried to crusher at lowest level through?,Mine tubs,Belt,Orepasses,Hoists of small capacity,3

307,The most common method of raising adopted in majority of metal mines is?,Compartment revising,Long hole drilling,Drop raise,Open raising,4

308,The method of raising suitable for moderate lengths and inclination of 40 to 60 deg with horizontal with strong strata and wall rock is?,Open raising,Compartment raising,Longhole raising,Alamak raiser,1

309,Two or three compartment raising is limited to?,10 to 15m,15 to 20 m,20 to 25 m,25 to 30 m,2

310,Raising by longhole drilling is limited to?,10 to 15m,15 to 50m,50 to 100m,100 to 120m,2

311,Alamak raise climber can be used only where inclination of the raise from horizontal is?,10 deg,20 deg,30 deg,40 deg,4

312,In manual method of raise driving the monthly progress is nearly?,10 m,15 m,25 m,40 m,1

313,The open raising is limited to?,6 m,8 m,12 m,20 m,2

314,In vertical crater retreat method the spherical charges are used L:D should not exceed is?,1:4,4:1,6:1,1:6,3

315,Open stope method is used for ore of?,High grade,Low grade,Weak,Strong,2

316,The piller left to support the upper level is called?,Sill piller,Crown piller,Rib piller,Protective piller,2

317,The thickness of the bed in open stoping is?,2 to 3 m,4 to 6 m,7 to 10m,above 10m,1

318,The method of stoping best suited to low grade deposits of horizontal or mild dip and of thickness upto 5m is?,Open stoping,Breast stoping,Sublevel stoping,Shrinkage stoping,2

319,Breast stoping is employed for stoping ore bodies not more than?,1 m,8 m,12 m,15 m,3

320,Among the methods of open stoping method lends to large scale mechanisation in drilling ; blasing ;loading and transporing is?,Rill stoping,Breast stoping,Overhand stoping,Underhand stoping,2

321,The method of stoping suitable for thick ore body strong ore stable handing and foot wall steeply dipping ore is?,Open stoping,Shrinkage stoping,Cut and fill stoping,Sublevel stoping,4

322,The method of stoping suitable for thin ore bodies flat dip and both ore and walls are strong is?,Sublevel stoping,Top slicing,Longwall ,Room and piller mining,4

323,The maximum thickness of the ore body that can be worked with room and piller method is?,2m,6m,10m,12m,4

324,The method of stoping where the orebody is thick veins type ore and walls are strong and steeply dipping ore i.e footwall steeper than angle of repose of the broken ore is?,Open stoping,Shrinkage stoping,Cut and fill stoping,Sublevel stoping,2

325,The method of stoping suitable for steeply dipping reasonably firm ore mixed graded ore with irregular boundaries and where ground surface is to be protected from subsidence is?,Open stoping,Shrinkage stoping,Cut and fill stoping,Sublevel stoping,3

326,Recovery of ore by shrinkage stoping is?,40 to 50 %,50 to 60 %,60 to 75 %,75 to 90 %,4

327,To maintaing suitable working space for workings the muck pile is shrinked in the shrinkage stoping is?,20 %,30 %,40 %,50 %,3

328,The method of stoping for high grade ore with walls of the ore body and back of the stope are so weak which do not stand without support even for a week time is?,Sublevel stoping,Shrinkage stoping,Squareset stoping,cut and fill stoping,3

329,The method of stoping for narrow and steeply dipping ore with any type of ore and walls is?,Square set ,Top slicing,Resuing,Cut and fill,3

330,The method of stoping for massive ore bodies with walls and ore are weak and low grade ore is?,Sublevel stoping,Cut and fill stoping,Block caving,Shrinkage stoping,3

331,The method of stoping for massive ore bodies of high grade ore with walls and ore are weak and the ore is mined out in a series or horizontal slices from the top of the orebody?,Top slicing,Block caving,Squareset stoping,Sublevel stoping,1

332,The dilution in sublevel caving is?,10 to 35 %,35 to 45 %,45 to 60 %,above 60 %,1

333,The length of the back if the dip of the ore is 30 deg?,55 m,38 m,45 m,75 m,4

334,The method of stoping succesfully applied to all dips from horizontal to vertical is?,Rill stoping,Breast stoping,Overhand stoping,Underhand stoping,2

335,The limiting gradient of the slusher haulage is?,20 deg,30 deg,45 deg,60 deg,3

336,The method of stoping is applied for massive deposits of large horizontal extent is?,Top slicing,Cut and fill stoping,Block caving,Shrinkage stoping,3

337,The daily progress of raise by Alamak climber is?,10 m,25 m,30 m,40 m,2

338,Extraction of the ore minerals mechanically or hydraulically from floating vessals is known as?,Placer mining,Marine mining,Leaching,Dredging,4

339,The distance between levels on the plane of the orebody is called?,Length of back,Level interval,Horizontal interval,None,1

340,The process which involves reacting the ore with liquid solvent that will dissolve the mineral at low or moderate temparature and pressure is called?,Pyrometallurgical,Hydrometallurgical,Bio leaching,none,2

341,In drypowder extinguiser which chemical is used?,Soda bicorbonate,Mono ammonium phosphate,corbon tetra chloride,B.C.F,2

342,Overburden heaps should be atleast ....m away from the coal face of a quarry?,5 m,10 m ,15 m,20 m,3

er can blast maximum...........shots?,10,25,35,50,2

1,The property which enables to be drawn into wires is called?,Ductility,Mallability,Toughness,Brittleness,1

2,The property when the material fails to yield and change its shape it subjected to a stress but breaks suddenly is called?,Ductility,Mallability,Toughness,Brittleness,4

3,The stored energy in the material is called?,Mallability,Resilence,Toughness,Brittleness,2

4,The resistance which a body offers to being pulled asunder by tensile force is called?,Ductility,Mallability,Toughness,Tenacity,4

5,The range of the poison's ratio is?,0 to 0.15,0.15 to 0.25,0.25 to 0.34,0.34 to 0.5,3

6,The maximum stress of metal can withstand without breaking or without failure for a specific number of stress reveals is?,Ductility,Tensile strength,Fatigue strength,Shear strength,3

7,The largest load repeatedly applied which a piece will carry without taking permanant set is called ?,Pay load,Proof load,Ultimate load,None,2

8,The alloy of copper and Zinc is ?,Brass,Cast iron,Bronze,Steel,1

9,The strength of the alloys of iron is depends on?,Sulphur content,Carbon content,Manganese content,None,2

10,The carbon content in the cast iron is?,3 to 4 %,0.15 %,1.8 to 5 %,5 to 6 %,3

11,The carbon content in the steel is?,3 to 4 %,0.15 %,1.8 to 5 %,less than 1.8 %,4

12,In steel as well as in wrought iron the percentage of sulphur should not exceed ?,0.06,0.1,0.5,0.8,1

13,In wrought iron the % of phosphourus should not exceed ?,0.06,0.2,0.5,1.0,2

14,The process of heating the metal to normalising temparature and then allowing it to cool slowly and uniformly not in air is called?,Forging,Normalising,Annealing,Hardening,3

15,The objective of annealing is?,To remove internal strains,To reduce the size of crystal grains,To improve the strength,None,1

16,Periodical heat treatment is not necessary if the chains are made of mild steel with a manganese percentage of?,0.06,0.5,1.0,1.5,4

17,The process of heating steel to a temparature slightly above critical temparature and allowing it to cool naturally in air is called?,Forging,Normalising,Annealing,Hardening,2

18,The object of normalising is?,To remove internal strains,To reduce the size of crystal grains,To improve the strength,None,2

19,The process of heating steel gradually uniformely to a temparature higher than the critical temparature and then cooled rapidly by quenching water is called?,Forging,Normalising,Annealing,Hardening,4

20,The elements in the GUNMETAL are?,Copper and zinc,Copper ; tin and zinc,Copper and tunston and nickel,None,2

21,The elements in the WHITE METAL are?,Tin ; Antimony ;Lead;Copper,Copper ; tin ; chromium,Copper ; zinc;Tin,Tungston and chromium,1

22,The percentage of silver content in the GERMAN SILVER is?,10 %,5 %,2.5 %,0 %,4

23,Rods are dipped in diluted H2SO4 or HCL to remove scales is called?,Patenting,Forging,Pickling,Normalising,3

24,The steel rod for wire making becomes homogeneous by the process of?,Patenting or normalising,Forging,Pickling,Annealing,1

25,In stainless steel the chromium percentage is?,10 to 15 %,18 to 20 %,25 to 30 %,less than 10%,2

26,The steel is unweldable if it contains carbon content?,Less than 0.5 %,0.5 to 1 %,1 to 1.2 %,More than 1.25 %,4

27,The ultimate strength of the wires for haulage or winding is....kgf/sq.mm?,160,100,200,400,1

28,The ropes required to carry the burden or load but more or less stationary is called?,Non-stranded,Stranded,Standing,Running,3

29,The ropes which undergoes frequent movement or coinling often with varying loads are called?,Non-stranded,Stranded,Standing,Running,4

30,Guy ropes;guide ropes are the example of?,Non-stranded ropes,Stranded ropes,Standing ropes,Running ropes,3

31,The ropes used for winding;haulage;coal cutting machine are the example of?,Non-stranded,Stranded,Standing,Running,4

32,The wires spiral round the core in the same direction as the threads of left hand screw are called?,Non-stranded,Stranded,Right hand ropes,Lefthand ropes,4

33,A number of concentrically twisted wire laid in the form of a helix round a central steel wire is known as?,Lang's lay,Ordinary lay,Strand,Locked coil,3

34,If the wires in the strand and the strands in the rope are laid in the opposite direction is called?,Lang's lay,Ordinary lay,Right hand,Locked coil,2

35,If the wires in the strand and the strands in the rope are laid in the same direction is called?,Lang's lay,Ordinary lay,Right hand,Locked coil,1

36,The wire ropes which offers better wearing surface and more resist to bending fatigue are called?,Lang's lay,Ordinary lay,Right hand,Locked coil,1

37,Internal stresses of the rope can be relieve with the use of?,Normalising the wire,Annealing the wire,Performed wire,Wassington pattern,3

38,Example of non stranded rope is?,Performed rope,Equal lay ropes,Regular lay,Locked coil ropes,4

39,The wire ropes required to be used in wet shafts are?,NOnrusting type,Galvanised,Bronze,Stainless steel,2

40,For winding purpose the locked coil ropes are preffered because?,offers greator resistance,had greater fill factor,permits high factor of safety,can't spliced,3

41,The type of rope most suitable for balancing rope in koepe winding is?,Regular lay,Locked coil,Flattened strand,Spiral strand,3

42,The ropes used for guide ropes are?,Locked coil,Regular lay,Lang's lay,Flattened strand,1

43,The ropes used for CCM are?,Locked coil,Regular lay,Lang's lay,Flattened strand,2

44,The ropes used for dragline are?,Locked coil,Regular lay,Lang's lay,Flattened strand,3

45,The ropes used for winding are?,Locked coil,Regular lay,Lang's lay,Flattened strand,3

46,The space factor for stranded rope is?,30 to 40 %,40 to 50 %,50 to 60 %,75 %,3

47,The space factor for locked coil rope is?,30 to 40 %,40 to 50 %,50 to 60 %,75 %,4

48,IN socketing the rope length under clips is nearly.....times the dia?,10,20,30,40,3

49,Most commonly used capel for rope haulage is?,Split capel,Coned socket,Interlocking wedge type,Bent back wire cone socket,2

50,In coned socket type cappel the metal poured is?,Gunmetal,Brass,Whitemetal,Babbit metal,3

51,In preparation of cone socket type cappel the white metal should not be heated more than?,100 deg c,200 deg c,365 deg c,450 deg c,3

52,In reliance capel the tapping of wedge is?,1 in 5,1 in 10,1 in 15,1 in 20,4

53,The jaws of the reliance capel are about ...times rope diameter in length?,30,24,12,15,2

54,The method of joining two wire ropes permanantly without using special fittings or attachments is called?,Splicing,Socketing,Performing,NOne,1

55,The length of splice for 13 mm dia rope is?,2 to 3m,4 to 5 m,6 to 9 m,10 to 15 m,3

56,The length of splice for 25 mm dia rope is?,2 to 3m,4 to 5 m,6 to 9 m,10 to 15 m,4

57,Example of equal lay ropes is?,Flattend strand,Performed,Warrington pattern,None,3

58,The capacity of the rope to resist the kinetic shock is roughly ?,Proportional to Dia of rope,Inversely Proportional to Dia of rope,Proportional to length,Inversely proportional to length,3

59,No rope should be allowed to remain in use after the wires have lost their diameter by?,10 %,20 %,30 %,40 %,2

60,The ratio between breaking load and total suspended rope is called?,Fill factor,Factor of safety,Capacity factor,Bending factor,3

61,The ratio between drum dia to the rope dia is called?,Fill factor,Factor of safety,Capacity factor,Beding factor,4

62,If the dia of a wire is 'D' then the dia of the simple round stranded rope is?,6D,8D,10D,12D,1

63,The height of the head gear is depend on the?,Skip and cage,Position of the drum,Fleet angle,Depth of the shaft,1

64,The distance between headgear pulley and detaching plate is?,2 M,3 M,4 M,6 M,2

65,A wind pressure on the exposed surface of the head gear frame may be taken as.....N/sq.m ?,100,750,1340,3000,3

66,The diameter of headgear pulley should be atleast.....times the dia of the rope?,60,100,120,150,2

67,Pulleys normally above ....m dia are made in to two halves?,2.5,3.5,4,6,1

68,The diameter of the headgear pulley should be ....of the rope diameter for stranded ropes and.....for locked coil ropes?,80 % ; 100 %,100 % ; 110 %,110 % ; 105 %,105 % ; 110 %,3

69,The angle of fleet should not exceed?,1 deg,1.5 deg,3 deg,5 deg,2

70,The pay load carried by skip is?,6 te,8 te,10 te,12 te,2

71,The ratio of pay load to gross load for skip winding is...and for cage winding is...?,0.6 ; 0.35,0.35 ; 0.6,0.8 ; 0.6,0.6 ; 0.8,1

72,The groove of the head gear pulley should be ....of the circumference of the rope is in contact with the groove?,1/4,1/2,1/3,3/4,3

73,The number of spokes in head gear pulley are?,15,19,21,25,3

74,The cage chains should be anneleaned atleast once in?,3 months,6 months,9 months,12 months,2

75,The components of cage arrachements chanins; links; shackeles; are exempted from periodical heat treatment if they are made of?,wrought iron,Mild steel,0.5 % carbon steel,1.5 % Manganese steel,4

76,The most important role plays in a safety that a component detaching hook is?,Jaws,Centre pivot,Copper pin,D link pin,3

77,All the suspension gear should be renewed after every ..?,5 years,7 years,10 years,15 years,3

78,The levels in safety catches spaced at intervals varying from?,0.1 to 0.3 m,0.3 to 1m,1 to 1.3 m,1.3 to 2 m,2

79,Retractable supports for cages used while loading and unloading being carried at the top of the shaft are?,Safety catches,bell plates,keps,platform,3

80,In case of koepe winding the decking difficulties while loading and unloading the cage are overcome by the use of?,Safety catches,bell plates,Keps,Hinged platform,4

81,The weight of the steel guides is...kgf/m?,5 to 10,10 to 20,20 to 55,60 to 90,3

82,The minimum space between two cages is generally?,20 cm,30 cm,40 cm,50 cm,3

83,The tensioning arrangement weights are about ....KN per 100 m depth of shallow mines and ...KN per 100 m depth for deep mines?,10 ; 5,5 ;10,10 ; 20,20 ; 10,1

84,The life of the guide ropes is?,10 years,20 years,5 years,3.5 years,1

85,The factor of safety for the drum winding is?,6,7,9,10,4

86,The factor of safety for the friction winding is?,6.5 to 8,9,10,12,1

87,While recapping atleast ...m long rope should be cut near the rope cappel?,1 m,2 m,3 m,4.5 m,2

88,The maximum life of the winding rope is?,10 years,7 years,5 years,3.5 years,4

89,The torques on the winding drum due to loaded cage and due to empty may be balanced as far as practicable by?,Use of balancing rope,Use of suitable shape of pulley,Changing the load on the two cages,COntrolling the speed,1

90,The method of nearly balancing the torques on the winding engine in deep shaft winding by the use of?,Balancing rope,Bi cyclo conical drum,Conical drum,Large cylindrical drum,2

91,The two factors i.e torque required to raise the load and the winding speed govern?,Power required for winding engine,Size of the motor for winding,Type of winder,Power rating of winding engine,4

92,The arc of contacting of winding rope in tower mounted friction winding is....deg ?,90 to 120,120 to 150,200 to 230,250 to 280,3

93,The arc of contacting of winding rope in friction winding is....deg ?,90 to 120,120 to 150,185 to 230,250 to 280,3

94,The coefficient of friction between the sheave lining and the rope is minimum of?,0.12,0.2,0.4,0.65,2

95,The rope may slip over the wheel when the ratio T1:T2 exceeds a value?,1.2 to 1.3,1.4 to 1.5,1.5 to 1.6,1.8 to 2,3

96,In very deep mining the method of winding best suited is?,Drum winding,Koepe winding,Tower mounted koepe winding,Blair winding,4

97,The method of speed control and electric winder of large capacity i.e above 800kw is?,sheostatic control,Liquid control,Ward leonard speed control,Electrical breaking,3

98,Automaric contrivances should be provided for every shaft exceeding minimum....m depth?,50,80,100,150,3

99,When men are being hoisted orlowered as the cage appoached pit top or pit bottom decking level its speed should not exceed 1.5 m/sec such arrangement is known as?,Over speed device,Overwind device,Wardleonard control,Slow banking device,4

100,Mechanical breaks are applied upto depth of?,100 m,200 m,300 m,400 m,2

101,Regenarative braking is used when?,Hoising loads,lowering loads,Inspection of the cage,None,2

102,In koepe winding the overwind is prevented by?,Detaching hook,Automatic contrivances,Convergence of the guides,None,3

103,In the event of power failure the brake automatically applied is?,Mechanical brake,Thrustor brake,Regenarative brake,None,2

104,The portion of the rope suffers from most severe shocks is?,Near the capel,Near the drum,The part of the rope that rests on the drum,Part of the rope rests on headgear pulley,1

105,The raising capacity of amine depends on the shaft capacity which in turn depends on?,Speed of winding,Pit top and pit bottom arrangement,Rolling stock,Despatch system,2

106,The pit top and pit bottom arrangement which deals with reasonable output per month and occupies less space is?,Run round arrangement,Back shunt circuit,Turn table circuit,Traverse circuit,3

107,The out put per month for the turn table circuit is?,50000,40000,30000,20000,3

108,The out put per month for the Backshunt circuit is?,50000,40000,30000,20000,1

109,The simplest system of haulage system for raising the loads?,Direct rope haulage,Endless rope haulage,Main tail rope haulage,Gravity,1

110,The gradient suitable for direct rope haulage is steeper than?,1 in 15,1 in 3,1 in 10,1 in 30,3

111,The general speed in rope haulage is?,2 to 3 Km/h,3 to 7 km/h,8 to 12 km/h,15 km/h,3

112,The limiting gradient for endless rope haulage is?,1 in 6,1 in 4,1 in 10,1 in 15,1

113,The rope speed in the endless rope haulage is?,2 to 3 Km/h,3 to 7 km/h,8 to 12 km/h,15 km/h,2

114,Where continuous movement of loaded and empty tubs are necessary the rope haulage suitable is?,Direct rope haulage,Endless rope haulage,Main tail rope haulage,Gravity,2

115,The surface of the drive pulley in endless haulage is?,Flat,Curved,Tapered,Grooved,3

116,In endless rope haulage the C.I sheets having the tapering of?,1 in 6,1 in 4,1 in 10,1 in 8,4

117,The correct place for tension bogey is?,near the haulage engine,any point on the level roadway,at the point where slack rope is most likely to occur,none,3

118,Smalman clip is the device used to attach?,Direct rope haulage,Endless rope haulage,Main tail rope haulage,Gravity,2

119,In over rope endless haulage system ...... is used for attaching the tubs?,Screw clip,Smallman clip,Cam clip,Lashing chain,4

120,The system of rope haulage most suitable for undulating roadways and where it is not possible or desirable to maintain two tracks is?,Main and tail ,Direct rope ,Endless rope,Gravity,1

121,In main and tail rope haulage the length of the tail rope is.....of the haulage plane?,Equal,1/2 times,2 times,4 times,3

122,The system of rope haulage suitable with least cost to lower the loads to feed to the haulage at lowest level is?,Direct rope haulage,Endless rope haulage,Main tail rope haulage,Gravity,4

123,The factor of safety for the rope haulage is?,10,9,6 to 7,5 to 6,3

124,The weight of the tracks for locomotives of more than 10 te capacity?,28 kgf/m,18 kgf/m,16 kgf/m,10 kgf/m,1

125,The distance between two adjacent sleepers should not exceed?,1 m,0.85 m,0.6 m,0.5 m,2

126,For tubs of 1.1 cu.m capacity the rail section should be of minimum weight of?,28 kgf/m,18 kgf/m,16 kgf/m,10 kgf/m,3

127,The general track guage for 1.1 cu.m tub?,0.3 m,0.6 m,0.9 m,1 m,2

128,The load on the tub axle; haulage speed; wet or dry condition of the mine will decide the selection of?,Type of haulage,width of the track,Weight and section of the rail,Type of ballasting,3

129,The track guage for locomotive is?,1 to 1.2 m,0.9 to 1 m,1.2 to 1.3 m,0.7 to 0.9 m,1

130,The purpose of the sleeper and ballast in the track is?,Distribute the intense bearing pressure of wheels on the rails over a sufficient area of floor,To strengthen the tracks,To prevent the tubs to felldown,None,1

131,The size of the ballast used in rail track is?,30 to 40 mm,40 to 50 mm,50 to 60 mm,60 to 80 mm,3

132,For the speed upto 13 kmph the radius of any curve in a mian haulage road should be?,Not more than 20 times longest rigid wheel base of any vehicle in the train,Not less than 20 times longest rigid wheel base of any vehicle in the train,Not less than 30 m,Not less than 50m,2

133,For bending the rail to suitable curvature the device used is?,Retaining key,Jokey,Creeper,Jim crow,4

134,The safety device consist of steel rail or wooden block pivoted at the end which is used for arresting backward runaway for tubs is?,Back catch,Drop warwick,Back stay,Stop block,1

135,The safety device consist of wooden beam or block lying across the rails to prevent backward running of tubs is?, Back catch,Drop warwick,Back stay,Stop block,4

136,The safety device used behind an ascending set of tubs on direct or endless haulage to arrest runaway of tubs is?,Back catch,Drop warwick,Back stay,Runaway switch,3

137,The safety device used for arresting the forward runaway of tubs is?,Back catch,Drop warwick,Back stay,Runaway switch,2

138,The safety device is used effectivey in case of direct rope haulage in the event of runaway of set of tubs?,Back stay,Dropwarwick,Stop block,Stop block with runaway switch,4

139,The safety device used for slow down the loco in locomotives is?,Hydraulic tub retarder,Drop warwick,Back stay,Runaway switch,1

140,The limiting gradient for the locomotive is?,1 in 10,1 in 6,1 in 15,1 in 25,3

141,The loco is generally employed on the gradient of?,1 in 10,1 in 6,1 in 15,1 in 25,4

142,The design of locos are such that the total weight supported by each axle is?,Not more than 10 te,Not more than 15 te,Not more than 5 te,Not less than 5 te,3

143,The coefficient of adhesion is coeffcient of static friction between?,Wheels of loco and rails,axis and bearings,driving wheels and rails,None,1

144,The coefficient of adhesion is if the surface is dry and free of sand?,0.25,0.2,0.15,0.1,1

146,Theoritical maximum tractive effort of a loco is?,1/4 or 1/5 th of the total weight of loco,1/8 th of weight of loco,1/2 of the weight of loco,same as the weight of loco,1

147,The tractive effort varies with the?,directly weight of the train,inversely weight of the train,directly with the speed of the train,inversely with the speed of the train,4

148,The force required to cause movement is called?,Drawbar pull,Tractive effort,Running force,None,2

149,At starting the coefficient of friction is taken as?,0.01,0.0025,0.1,0.025,1

150,When running the coefficient of friction is taken as?,0.01,0.0025,0.25,0.025,2

151,The resistance to motion of loco itself when in motion is called?,COefficient of friction,Tractive effort,Drawbar pull,Rolling resistance,4

152,The steepest gradient in favour of load in loco is determined by?,Tractive effort required,Load on the train,Braking effort,Drawbar pull,3

153,The loco can barely stop itself and the wheels begin to skid when the gradient is?,1 in 15,1 in 25,1 in 12,1 in 14,3

154,The safe distance for brakes in loco is?,30 m,60 m,90 m,15 m,2

155,The optimaum gradient for the loco is?,1 in 15,1 in 25,1 in 100,1 in 300,4

156,In flame trap of diesel locomotives the plates have a width of ....mm and gap of ...mm between two adjacent plates?,50 ; 0.5 , 40 ;0.4,30 ;0.5 , 20 ;0.5,1

157,The diesel oil should have a flash point of not less than?,50 deg C,60 deg C,65 Deg c,75 deg C,3

158,The maximum percentage of CO in the exhaust gases before they enter the mine atmosphere is?,0.02 %,0.2 %,0.3 %,0.4 %,2

159,Diesel locomotives are not allowed where CH4 percentage exceeds....in general body of air?,0.75 %,1.25 %,0.5 %,1 %,2

160,To remove the oxides and aldehydes from the exhaust gases locomotives are fitted with?,Dust trap,Gas collectors,Exhaust conditioners,None,3

161,In Exhaust conditioner the gases are mixed with about...times thier volume of fresh ait before being exhausted into ventilating current?,20 to 30,30 to 40,40 to 50,70 to 80,2

162,In electrical locomotive the battery consist....of the toal weight?,30 %,40 %,50 %,60 %,4

163,The exhaust gases from the engine amounting in all to about....cu.m per B.H.P per minute?,0.5,0.65,0.85,0.085,4

164,If the track guage is more than 0.6 m then......... are preffered?,Rhombus pillars,Square pillars,Rectangle pillars,Circular,1

165,The haulage used upto 35 hp is called?,Rope haulage,Endless haulage,Tugger haulage,Gravity haulage,3

166,The limiting gradient for the tugger haulage is?,1 in 6,1 in 4,1 in 10,1 in 15,1

167,The size of direct rope haulage used underground generally ?,Less than 250 HP,Less than 200 HP,Less than 150 HP,More than 250 HP,3

168,The direct rope haulage with 150 HP the reasonal output is ?,1000 te/day,800 te/day,600 te/day,400 te/day,3

169,The maximum length of the rope haulage is?,1000 m,800 m,600 m,450 m,3

170,High capacity endless rope haulage may give ...?,1000 te/day,800 te/day,600 te/day,400 te/day,1

171,The maximum length of the endless rope haulage is?,1000 m,800 m,600 m,450 m,1

172,Limiting gradient for the main and tail rope haulage is?,1 in 6,1 in 8,1 in 10,1 in 3,4

173,Under favourable conditions diesel locomotives of 10 te may deal with output of?,2000 te/day,1500 te/day,1000 te/day,600 te/day,2

174,The minimum thickness of the seam for using trolley wire locomotive is?,1.5 m,1.8 m,2 m,3 m,2

175,To slow down the tubs the device used is?,Runaway switch,Back stay,Hydraulic tub retardar,Sprags,4

176,The maxmimum speed of winding drum shaft is?,100 rpm,60 rpm,45 rpm,30 rpm,3

177,When two tubs are in tandom the gap between the inner most ends shall not be less than?,10 cm,20 cm,20 mm,40 mm,2

178,The limiting gradient for the conveyor with rubber coating without breaking arrangement is?,1 in 3,1 in 4,1 in 5,1 n 6,3

179,The limiting gradient for the conveyor with rubber coating with thrustor breaking arrangement is?,1 in 3,1 in 4,1 in 5,1 n 6,1

180,The maximum angle of inclination for conveying coal on piled P.V.C belt is?,20 deg,18 deg,12 deg,16 deg,4

181,The prefferable speed of the belt conveyor is?,20 to 30 m/min,30 to 45 m/min,45 to 60 m/min,45 to 150 m/min,3

182,The maximum width of the belt conveyor is?,1 m,1.5 m,1.8 m,2 m,2

183,The coal carrying capacity of a tough belt of 650mm wide at a speed of 30 m/min is?,30 tph,50 tph,70 tph,105 tph,2

184,The coal carrying capacity of a tough belt of 1000mm wide at a speed of 30 m/min is?,120 tph,50 tph,70 tph,105 tph,4

185,Compared to trough belt the carrying capacity of the flat belt is?,30 %,40 %,50 %,60 %,3

186,The maximum lump size carried by a belt conveyor is limited to about.....of the belt width?,40 %,50 %,60 %,75 %,2

187,The inclination of the idlers is?,10 to 20 deg,20 to 30 deg,30 to 45 deg,45 to 60 deg,2

188,Belt conveyors are extended generally after ....m advance of the roadway?,90 m,150 m,40 m,60 m,1

189,Loop take up arrangements accomodate extension upto?,5 m,9 m,20 m,15 m,2

190,Snub pulleys are placed near the drive head?,to increase the arc of contact,to increase tension on the belt,to accomodate more belt for extension,for safety,1

191,Usually one motor drives a belt for a roadway of upto ?,100 m ,150 m,200 m,250 m,3

192,Where the series of belt conveyors are used for transpost of coal there shall be?,Remote control,Sequence control,Single point control,Multipoint control,2

193,The device used to hold the belt to run downward when the power is cutoff is?,Sequence control,Back stay,Remote control,HOldback,4

194,The inbye conveyor cannot be started unless the outbye recieving conveyor is attained ....of its normal speed?,40 to 50 %,50 to 60 %,60 to 70 %,70 to 80 %,3

195,The safety in belt conveyors to stop the belt conveyor from any position is?,Sequence control,Back stay,Remote control,HOldback,3

196,The speed of the singel chain conveyor is?,10 m/min,35 m/min,45 m/min,60 m/min,2

197,The limiting gradient for the scraper chain conveyor is?,1 in 3,1 in 4,1 in 5,1 n 6,1

198,The limiting length of the scraper chain conveyor is?,100 m,80 m,60 m,40 m,1

199,The capacity of the scraper chain conveyor is?,10 to 15 tph,15 to 20 tph,20 to 30 tph,30 to 40 tph,4

200,Armoured chain conveyors are principally used for?,bord and piller,In gate roads,Prop free front of L/W face,On surface,3

201,The vertical flexibility of Armoured chain conveyor is?,3 to 4 deg,2 to 3 deg,1 to 2 deg,4 to 5 deg,1

202,The horizontal flexibility of Armoured chain conveyor is?,3 to 4 deg,2 to 3 deg,1 to 2 deg,4 to 5 deg,2

203,The capacity of the A.C.C is?,100 tph,200 tph,300 tph,50 tph,1

204,The limiting gradient of A.C.C with flights is?,1 in 3,1 in 1.5,1 in 2,1 in 4,2

205,The limiting gradient of A.C.C without flights is?,1 in 3,1 in 1.5,1 in 2,1 in 4,1

206,The capacity of the cable belt conveyor is?,100 tph,200 tph,300 tph,50 tph,3

207,The loading capacity of gate end loaders is?,1 to 1.5 tph,2 to 4 tph,5 to 7 tph,7 to 9 tph,1

208,The operating length of the shuttle car is?,100 m,150 m,180 m,250 m,3

209,The traveling speed of the shuttle car with load is?,3 to 5 kmph,5 to 6 kmph,7 to 8 kmph,8 to 10 kmph,2

210,The traveling speed of the shuttle car without load is?,3 to 5 kmph,5 to 6 kmph,7 to 8 kmph,8 to 10 kmph,3

211,The limiting gradient for the shuttle car is?,Less than 6 deg,less than 12 deg,Less than 20 deg,More than 20 deg,1

212,The capacity of the shuttle car is?,100 tph,200 tph,300 tph,150 tph,4

213,Usual length of the of the chain conveyor with one drive is?,60 m,90 m,200 m,360 m,2

214,Usual length of the of the chain conveyor with multi drive is?,60 m,90 m,200 m,360 m,4

215,The dia of the eye in centrifugal pump is....times the impeller dia?,3 ,2 ,1/2,1/3,4

216,Centrifugal pumps are suitable for low heads upto?,10 m,20 m,30 m,40 m,2

217,Centrifugal pumps are suitable for water quantities upto?,2 lac lit/min,3 lac lit/min,4 lac lit/min,5 lac lit/min,3

218,The head developed per stage in centrifugal pump is?,5 to 10 m,10 to 15 m,15 to 50 m,50 to 60 m,3

219,The total suction lift of a turbine pumps should not exceed?,2 m,5 m,7 m,9 m,2

220,Turbine pumps are suitable for heads upto?,20 m,100 m,200 m,50 m,3

221,Turbine pumps are suitable for water quantities upt0?,1 lac lit/min,50000 lit/min,5000 lit/min,500 lit/min,3

222,The maximum number of impellers on the pump shaft normally does not exceed?,4,6,8,10,4

223,The valve which is used in the suction pipe to prevent water returning to the pump?,Foot valve,Retaining valve,BYpass valve,Sluice valve,1

224,The valve which is used in delievery column to hold the water if pump stops?,Foot valve,Retaining valve,BYpass valve,Sluice valve,2

225,The valve used for priming before start is?,Foot valve,Retaining valve,BYpass valve,Sluice valve,3

226,The main valve also called as?,Foot valve,Retaining valve,BYpass valve,Sluice valve,4

227,Theoritical suction lift of pump at mean sea level is?,5 m,10 m,20 m,30 m,2

228,End thrust acts?,towards suction end of the pump,towards delievery end of the pipe,On the impellers of the pipe,none,1

229,In balancing disc the loss of energy will be ?,1 to 2 %,2 to 4 %,4 to 6 %,6 to 8 %,1

230,Balancing disc to countaract the end trust is keyed to ?,Suction end of the shaft,Delievery end of the shaft,Middle of the delievery column,Middle of the suction column,2

231,The mechanical efficiency of the pumps may vary from?,30 to 40 %,40 to 50 %,50 to 60 %,70 to 80 %,4

232,The example of screw pump is?,Centrifugal pump,Turbine pump,Roto pump,Reciprocal pump,3

233,The self priming pump is?,Centrifugal pump,Reciprocating pump,Roto pump,Both 2 and 3,4

234,The pumps most suitable to be used at the working face is?,Roto/Mono pumps,Centrifugal,Drill pumps,Reciprocal,3

235,Suction head of Roto/Mono pump is?,4 m,5 m,8 m,10 m,3

236,Maximum head of the roto/mono pump is?,20 m,90 m,120 m,150 m,2

237,The pitch of the stator is....of the rotor in roto pump?,equal,twice,thrice,1/2,2

238,Head per stage in roto pump is?,30 m,40 m,50 m,60 m,4

239,The velocity of the water in the pipes of the pumps varies?,less than 1 m/s,1 to 2.5 m/sec,2.5 to 4 m/s,above 4 m/s,2

240,The diameter of the suction pipe is ....of delievery pipe?,equal,twice,thrice,half,4

241,In small quarries in the coal washaries and for irrigation purpose the pump usd is?,Roto/Mono pumps,Centrifugal ,Turbine,Reciprocal,2

242,Steel ropes can be used for winding upto maximum depth of?,100 m,200 m,300 m,400 m,2

243,In locomotive haulage system at the point of change in gradient the haulage track should be well graded over a length of?,12 m,20 m,24 m,30 m,3

244,The driving pulley used in endless rope haulage is?,Snub pulley,Jig pulley,Clifton pulley,None,3

245,The marging allowed...m allows a cage to be lifted for materials to be slung beneath it?,1 to 2 m,2 to 3 m,3 to 7 m,7 to 10 m,3

246,In turbine pump most of the kinetic energy of water is converted into pressure energy is?,Diffuser,Volute casing,In the eye of the pump,None,1

247,The device that is used to relieve the operator of the fatigue and keeps drill pressed towards exerting and upward lift and foward pressure feed pressure on the drill is?,Drifted,Stoped,Air leg,Rig,3

248,The machine suitable to be used in trimming the faces or in ripping the roof to save drilling and blasting time and cost is?,Jack hammer ,Air leg,Pneumatic hand pick,Drifter,3

249,In most premanant installations with pnematic tools and machines the leakage should not exceed ...of the total compressor capacity?,5 %,2 %,7 %,10 %,1

250,The speed of the jackhammer drill is controlled by?,Riffle bar,Rachet teeths,Throtle valve,Blower valve,3?

251,The jackhammer drill operated with compressed air at each stroke the drill bit is turned through.....of the one revolution?,1 / 4,1 / 2,1 / 8,1 / 12,4

252,The extent of rotation is dependent on the?,Twist in the riffle bar,Spacing of rachet teeth,Both 1 and 2,None of the above,3

253,The number of strokes per min in jack hammer is?,1500,2200,2800,3500,2

254,The air comsumption is ....cu.m per minute of free air in jack hammer?,1 to 2,2 to 3,3 to 3.5,4 to 4.5,3

255,The efficiency for electric genarator is .....but for air compressors it is...?,90 % ; 70 %,70 % ; 90 %, 80 % ;50 %, 80 % ; 80 %,1

256, The weight of the jack hammer is?,5 to 10 kgf,10 to 15 kgf,15 to 25 kgf,25 to 40 kgf,3

257,The drill used for upward drilling normally for wet drilling is?,Jack hammer,Drifter,Stoper,Electric drill,3

258,The weight of the coal drill with steel body?,30 kgf,21.5 kgf,17.5 kgf,15 kgf,2

259,The weight of the coal drill with aluminium body?,30 kgf,21.5 kgf,17.5 kgf,15 kgf,3

260,Output power of the electric coal drill is?,1 kw,2 kw,3 kw,4 kw,1

261,The operating voltage of the electric coal drill is?,30 v,110 v,225 v,660 v,2

262,The electric coal drill is rated?,2 hrs,1 hr,1/2 hr,1/4 hr,3

263,The rate of penetration of the drill bit with electric coal drill is?,1 m/min,2 m/min,3 m/min,1.5 m/min,4

264,The electric dill is capable of drilling ....holes each 1.5 m depth in 8 hours shift?,60,70,80,100,3

265,The speed of the drill rod in coal with electric coal drill is?,250 rpm,500 rpm,850 rpm,600 rpm,4

266,The speed of the drill rod in stone with electric coal drill is?,250 rpm,500 rpm,850 rpm,600 rpm,1

267,The cutting angle of the drill rod in electric coal drill is?,3 deg,30 deg,65 deg,45 deg,2

268,The rake angle of the drill rod in electric coal drill is?,3 deg,30 deg,65 deg,45 deg,1

269,A cowled fan mounted on the dirll and fins onthe cover are for the purpose of?,Strength,Provide cool air to driller,Bringing down the temparature of the drill,Protection,3

270,The power is supplied to the coal drill is the?,5 core armoured cable,3 core armoured cable,4 core screened cable,5 core screened cable,1

271,The speed of the motor of an electric rotary coal drill is reduced by?,Sun and planet gearing,Helical gear,Herringbone gearing,Bevel gearing,1

272,The shape of the drill rods used in coal drilling with electric drill ....?,Eccentric type,Vee type,Concentric type,None,1

273,Gathering arms are operated in gathering arm loader is?,Twin crank discs,Twin crank shafts,Twin motors,Connection through conveyor,1

274,The slewing angle in gathering arm loader is ...horizontally to axis either side?,20 deg,30 deg,45 deg,60 deg,3

275,Limiting gradient for the gathering arm loader is?,1 in 3,1 in 5,1 in 6,1 in 10,2

276,No of motors are in gathering arm loader is?,2,3,4,5,4

277,The limiting gradient for the rocker shovel is?,1 in 3,1 in 4,1 in 7,1 in 8,2

278,The limiting thickness of the seam for the continuous miner is?,3 m,4 m,5 m,2 m,1

279,The limiting gradient for the continuous miner used in underground is?,15 deg,20 deg,25 deg,30 deg,1

280,In continuous miner the cutting unit is driven by a water cooled motor of?,25 kw,75 kw,120 kw,200 kw,3

281,The cutting unit of continuous miner of borer type the gearing is?,Compound wheel type,Spur gearing,Bevel,Sun and planet,2

282,The output from the continuous miner is?,200 t/day,400 t/day,600 t/day,1000 t/day,3

283,The daily progress with the continuous miner is?,10 to 20 m,20 to 40 m,40 to 60 m,70 m,2

284,The daily progress with the Roadheader is?,8 m,10 m,15 m,20 m,1

285,The limiting gradient for the Roadheader is?,10 deg,15 deg,18 deg,25 deg,3

286,Maximum production rate with Roadheader is....cu.m per hour?,100,80,60,40,2

287,Permissable length of trailing cable is?,60 m,90 m,150 m,180 m,2

288,The maximum gradient for tyre mounted machine is ?,1 in 5,1 in 4,1 in 3,1 in 6,1

289,The maximum gradient for crawler mounted machine with spikes is ?,1 in 5,1 in 4,1 in 3,1 in 6,2

290,The maximum gradient for crawler mounted machine without spikes is ?,1 in 5,1 in 4,1 in 3,1 in 6,4

291,The maximum gradient for skid mounted machine is ?,1 in 5,1 in 4,1 in 3,1 in 6,3

292,The maximum gradient for skid mounted machine with special arrangement is ?,1 in 5,1 in 1,1 in 3,1 in 6,2

293,The maximum gradient for wheel mounted machine is ?,1 in 15,1 in 10,1 in 3,1 in 6,1

294,The limiting gradient for the SDL is?,18 deg,15 deg,10 deg,6 deg,1

295,The maximum height of the seam for the SDL is?,2 m,2.8 m,3.5 m,2.4 m,2

296,The output per day with the SDL is?,200 to 500 te,500 to 700 te,100 to 200 te,above 700 te,1

297,The limiting gradient for the LHD is?,1 in 3,1 in 5,1 in 7,1 in 9,3

298,The maximum output of the LHD with 3.5 cu.m per month is?,25000,35000,45000,15000,2

299,The maximum speed of the LHD when empty is?,3 to 5 kmph,5 to 8 kmph,8 to 10 kmph,10 to 12 kmph,3

300,The maximum speed of the LHD when loaded is?,3 to 5 kmph,5 to 8 kmph,8 to 10 kmph,10 to 12 kmph,1

301,The motor capacity of the shearer now a days?,500 kw,375 kw,1500 kw,1000 kw,2

302,The maximum thickness of the seam that the shearer can work now a days is?,3 m,4 m,5 m,7 m,3

303,The limiting gradient for the shearer is?,15 deg,25 deg,35 deg,40 deg,3

304,In permanent cable used to supply the electric power run through the shaft or incline the moisture of atmosphere is excluded by?,Impregnated paper insulation,Tarred jute,Seamless lead sheath,Double armouring,3

305,The permanant cable suspended in vertical shaft should be?,Weather proof,Non drain,Double armouring,Fire proof,2

306,The conductivity of the armouring of permanant cable serving the purpose of earthing shall have atleast...that power core?,10 %,20 %,30 %,50 %,4

307,While the face is advanced the cable supplies the power from gate end box to coal drill is extended through joint box of?,Straight through type,inset type,flit pin plug type,cone type,3

308,In gate end box the leakage protection should work where is a leakage os?,1 %,5 %,10 %,20 %,2

309,The most common type of flame proof protection is?,Hermitically sealed protection,Flange protection,Hinge protection,Open protection,2

310,Intrincically safe circuit or apparatus works on voltage not more than?,30 v,110 v,220 v,60 v,1

311,Gate end box used to supply electricity of?,110 v,225 v,550 v,1100 v,3

312,The supply of compressed air alternatively from top and bottom of piston in jackhammer is caused by the part?,Throtle valve,Stem,Chunk,Pawl and rachet,4

313,The maximum working gradient for coal cutting machine is?,1 in 3,1 in 4,1 in 6,1 in 10,3

314,The electric cable used for water places is?,Compound insulated,Volcanised bitumen insulated cable,5 core individually screened cable,5 core collectively screened,1

315,In which test is the steel wire subjected to streching force until it breaks?,Tension test,Torsion test,Bending test,Wrapping test,3

316,In reciprocating pump the fitting is used to ensure uniform flow of water is called?,Foot valve,Air vessal,Air lock,Bye pass valve,2

317,The height of the liquid column in meters produced certian pressure at the bottom of the pope is known as ?,Total static head,Discharge head,Head,Friction head,3

318,The breaking strength of the locked coil rope is......... if C is rope dia?,52 C*C,56 C*C,85 C*C,95 C*C,3

319,When the material subjected to repeated stresses cause?,Fatigue,Corrosion fatigue,Surface embrittlement,Kinking,1

320,The ultimate strength of the steel rods is about....kgf/sq.mm?,65,85,100,120,1

321,By the process of normalising ?,Tensile strength of rope increases,Tensile strength of steel rod increases,The steel rod is drawn into wires,The impurities in the steel rod are removed,2

322,Roll rack chainless haulage is used?,Road headers,Prop free front faces,Gate roads transportation,Shearers,4

323,The component in the winding engine house that stores the energy by speeding up during periods of light load and delievers it by slowing during the heavy load period is?,Electrical braker,Flywheel,Electrical gear,Additional winding in the system,2

324,Turbine pumps with multi stages are fitted with and differs with centrifugal pump is?,Pressure guage,Balancing disc,Retaining valve,Foot valve,2

325,In long length of haulage system the effective signalling system is by the use of?,High capacity battery,110 v line current,Step down potential transformer,Relays,4

326,ALpine miner is mounted on?,Tyres,Skid,Crawler mounted,Individually operated crawler track,4

327,The compressed air jack hammer will not operate properly on long or shorter strokes than that for which it is designed the important requirement is?,Length of the piston,Length of the shank,Length of the rifle bar,Length of the chunk,2

328,Total capacity of motor in AM-50 roadheader is?,100 kw,155 kw,200 kw,120 kw,2

329,The shape of the drill rod used in stone is?,Diamond section,HExagonal,Square section,Turbine section,4

330,In deep mines as a safety the capacity of the rope to resist kinetic shock is proportional to ?,Length of rope,Diameter of rope,Strength of rope,Square of length,1

331,A monocable aerial ropeway is generally preffered?,In flat terrain,For large tonnage,In hilly terrains,For small distances,3

332,Tub rerailers are placed at intervals?,100 m,200 m,250 m,300 m,3

333,The difference between the pump centre line to the free discharge level is called?,Head,Static discharge head,Static suction lift,Total static head,2

334,The fitting common for all the pumps but not required for submersible pumps is?,Suction pipe,Delievery pipe,Main valve,Retaining valve,1

335,The maximum gradient of areal rope in a span is?,1 in 3,1 in 5,1 in 7,1 in 1,1

336,The limiting gradient of areal rope way in mountain region for monocable is?,1 in 3,1 in 5.5,1 in 7,1 in 4,2

337,The limiting gradient of areal rope way in mountain region for bicable is?,1 in 3,1 in 5.5,1 in 7,1 in 4,4

338,The capacity of the areal rope way for monocable over long distance about 100 km is?,100 tph,200 tph,350 tph,400 tph,2

339,The capacity of the areal rope way for bicable over long distance about 100 km is?,100 tph,200 tph,350 tph,450 tph,4

340,The life of the areal rope is?,1 yr,2 yr,3 yr,4 yr,3

341,The rope used for track rope in areal rope way is,Locked coil,Lang's lay,Regualar lay,Flattened strand,1

342,The rope used for traction rope in areal rope way is,Locked coil,Lang's lay,Regualar lay,Flattened strand,2

343,When a train of tubs hauled up gradient a back stay is attached to.....of the train ?,Middle tub,First tub,Last tub,The sleeper of the track,3

344,Where Electric battery loco is used in under ground the battery charging station shall close to?,An intake airway,the entrance of the district,the shaft bottom,last working place,1

345,In designing a hoisting system the properties of rope that are most important are?,Weight per unit and type of rope,Weight per unit length and type of the core of rope,Strand diameter and weight to be hauled,Weight per unit length and breaking strength,4

346,The supply of voltage for electric LHD is?,110 v,220 v,440 v,1100 v,4

347,What is the normal operating air pressure for pnematically operated machines in underground is.....psi?,65,25,85 to 100,100 to 120,3

348,The appropriate function of inter cooled in large multi stage compressor is?,To call the LP air,To reduce power consumption,To drain moisture,All the above,4

349,Clifton pulley used in ?,Direct rope haulage,Endless rope haulage,Gravity haulage,Main and tail rope haulage,2

350,Friction head of a pump varies proportionally with the?,Square root of the length of the pipe range,Square of the length of the pipe range,Length of the pipe range,Thrice the pipe range,3

351,The capacity of the wooden prop?,6-8 te,10 - 15te,4 - 6 te,15 -20 te,1

352,The capacity of the iron prop?,10 -15 te,15 -25 te,25-30 te,40 -50 te,3

353,The capacity of the wooden cross bar is?,1 to 2 te,2 to 4 te,4 to 8 te,8 to 10 te,2

354,The capacity of the safary support is?,1.5 te,5 te,10 te,4 te,1

355,The capacity of the iron girdar is?,1.5 te,5 te,10 te,4 te,4

Mine gases

I. Mine Gases

Name the common gases found in coal mines following a mine fire or mine explosion?

Carbon monoxide, carbon dioxide, methane, oxygen, nitrogen, hydrogen, and other hydrocarbons are the common gases found in a mine fire / explosion.

What is a dangerous mine atmosphere?

A dangerous mine atmosphere is one that is or is likely to become poisonous to breathe, deficient in oxygen, or explosive.

What is the principle combustible gas found in coal mines?

Methane (CH_4) is the principle combustible gas found in coal mines.

What is the explosive range of methane-air mixtures?

5 to 15 percent of methane in air is explosive.

To what extent must the oxygen content be reduced before an explosion of methane and air is impossible?

For a mixture of strictly methane and air, the oxygen content must be 12 percent or less. It is, however, significant to note that there is a combination of combustible gases following explosions and during fires, so the maximum allowable oxygen will vary according to variations in the combustible and inert gases.

What is the explosive range of carbon monoxide-air mixtures?

12.5 to 74 percent carbon monoxide in air.

What is the explosive range of hydrogen-air mixtures?

4 to 74 percent hydrogen in air.

To what extent must the oxygen content be reduced before an explosion of hydrogen is impossible?

5 percent or less.

Name the inert gases found in coal mines?

Carbon dioxide (CO_2) and nitrogen (N_2).

State where you would generally find methane, carbon monoxide, and hydrogen sulfide?

Methane may be found anywhere, but is most likely to be encountered in virgin coal, roof cavities, high places, abandoned workings, and places that are improperly ventilated. Carbon monoxide may be found in small quantities after blasting and will be found after an explosion or in the return from a mine fire. Hydrogen sulfide may be found in old pipelines, stagnant water, fire areas and occasionally in active workings, usually associated with broken bottom.

II. Effect of gases on miners

How are persons affected by breathing the various gases found in coal mines?

1. Deficiency of oxygen in the air being breathed deprives the body of the oxygen required for normal life support. Noticeable symptoms such as faster and deeper breathing, dizziness, rapid heart beat, and headache occur when the air contains as low as 15 percent oxygen. Unconsciousness may occur when the air contains 9 percent oxygen: and life is greatly endangered when the air contains 7 percent oxygen. A flame safety lamp will no longer burn when the oxygen content is below 16.25 percent.

2.Carbon monoxide breathed in air reduces the capacity of the blood to carry sufficient oxygen, which deprives the brain and body tissues of the oxygen they require for normal functioning. The generally accepted maximum allowable concentration for an 8-hour exposure with normal oxygen is 0.005 percent. Somewhat higher concentrations may be considered allowable for short periods of exposure. For example, 0.04 percent can be inhaled for one hour without appreciable effect, but 0.15 percent is dangerous to life after exposure of one hour, and 0.4 percent will cause death in less than an hour.

3.Hydrogen sulfide in very small amounts will cause irritation of the eyes and respiratory passages, including the lungs; concentrations as low as 0.07 percent will cause rapid unconsciousness, cessation of respiration, and death.

III. Fighting and Sealing Coal Mine Fires

What are the major causes of fires in coal mines?

Electricity, open flame, ignition of gas, explosives, cutting and welding, smoking and smokers' articles, spontaneous ignitions, friction, and surface fires communicated to underground workings are the main causes.

What are the usual methods of controlling or extinguishing mine fires? Direct attack with water.

Chemicals, rock dust, sand or foam

Enclosing fire area with air tight seals.

Flooding affected area or the whole mine.

Flushing enclosed area with silt or other material.

Enclosing fire area with inert barriers.

Inundating with inert gases.

When should you decide to seal a fire area or mine?

When it is no longer reasonably safe or feasible to fight the fire directly because of a build up of combustible gases, bad roof due to heat, insufficient firefighting materials, too large an area engulfed by fire, etc.

What is the objective of sealing?

The object is to control and extinguish the fire by cutting off the oxygen supply so as to reduce the oxygen that will not support a flame or combustion; also to minimize or eliminate the possibility of an explosion.

What are the principle hazards in sealing a mine fire?

When coal burns, explosive and asphyxiating gases are liberated or produced and the heat from fire causes roof falls. Therefore, during the installation of seals, the roof collapse, or other firefighting activity may cause an explosive mixture of gases to reach the fire causing an explosion. In addition, there is a potential for workmen to be overcome by asphyxiating gases because of the need to work in the return airways and because of roof falls changing the pattern of ventilation. It is important that the air returning from the fire area be monitored for explosibility.

Should the intake or return be sealed first or both together?

No fixed rule should be stipulated for sealing, but the procedure must be governed by the conditions surrounding each fire. It is, however, preferable to erect both intake and return seals simultaneously. It may even be advisable to devise a method of having doors in the seals closed after all workmen have returned to the surface.

What distance should seals be from a fire?

Conditions govern this. As the objective in sealing is to cut off the air so that oxygen will be consumed to the point that there is not enough oxygen to support combustion, the smaller the area sealed, the quicker this will be accomplished. Roof conditions, amount of combustible gases being given off, the intensity of the fire, and the number of seals required, are the principle factors to be considered when selecting seal locations.

Should temporary seals be erected first?

Not necessarily. Circumstances surrounding each fire will determine whether or not temporary seals should be erected. Factors to be considered when making this determination are the availability of permanent sealing material, the rate of rise of combustible gases, the rapidity of the spread of the fire, the accessibility of the seal locations, etc.

What materials should be used for temporary seals?

The most common and practical materials are those normally used within the mine such as brattice cloth, brattice boards, plastic material, and other sealing materials. Whatever the materials used, the edges should be sealed

with urethane foam or other material to make them as air tight as possible. (single component or two component foam may be used).

IV. Hazards in sealing fires

Should work continue in the mine after seals are completed?

Emphatically, no! The main hazard after sealing a mine fire is the possibility of an explosion within the sealed area. All men should be removed as quickly as possible after completion of work on the seals. Normally, no one should enter the mine when it is known that there is an explosive atmosphere within the sealed area. Samples to determine whether or not the atmosphere is explosive should be collected through boreholes from the surface whenever possible. Otherwise, the first trip into the mine after sealing should be for the purpose of collecting samples from the sealed area. The number of people making this trip should be limited to as few as necessary and how soon the trip should be made after seals are completed will depend to a large extent upon the size of the sealed area, the amount of combustible gases in the area when the seals were constructed, and the normal methane liberation in the area.

What are the main factors to be considered in erecting permanent seals?

They should be as air tight as possible and strong enough to resist slight concussions by being constructed of brick, tile cement blocks laid in cement mortar and notched into the floor ribs, and roof. Selected seals should be provided with a door that can be used for exploration or ventilation during recovery work. Selected seals, particularly those at high and low elevation points, should be equipped with sampling pipes or tubing with valves that extend through the seals at least into or beyond the first intersection. A thermocouple should also be placed at or near the fire area with connection to the outer side of one of the seals. Water seals shall also be provided on all dip stoppings to avoid accumulation of water behind the stoppings.

Prevent secondary explosions

What precautions are necessary to prevent secondary explosions in sealed gobs?

Minimizing pressure differentials across seals should be considered an essential part of the over all strategy for sealing gobs. Reducing the pressure differential reduces the air leakage through the seal and thus reduces the formation of large flammable methane-air volumes in the gob. Any wires or metal conductors, including steel cased wells that connect the surface and the gob area should be removed. These contribute to the transfer of energy into the mine. If possible, nonconductive well casings should be used. In addition, old batteries, which are another potential ignition source, should not be left behind in the gob. During the sealing process, adequate rock dust (80% incombustible) should be used both inside and outside of the sealed areas to reduce the contribution of coal dust to a methane explosion.

V. Opening Fire Areas in Coal Mines

What does the presence of carbon monoxide in sealed areas indicate?

The presence of carbon monoxide is an indication of an active or recently active fire.

How much oxygen is considered reasonably safe before attempting to unseal a fire?

The amount of oxygen under these circumstances is critical because of the possibility of explosion when unsealing a fire area. Ideally, the oxygen content should be such that the atmosphere in the sealed area is not explosive and cannot become explosive when air is added. Where this is not possible, the procedure for recovery should insure

that men are not in the mine when an explosive mixture exists in the sealed area unless the area has been examined and there is no fire.

What are the principle factors that govern the amount of time a sealed off fire area shall remain sealed before being reopened?

Some principle factors are: Tightness of seals and the enclosed area: influence of barometric pressure on enclosed area: character of burning material and overlying strata: extent and intensity of fire: location of seals with respect to mine ventilation: the extent of the area under seal: composition of gases in the sealed area.

How would you determine when it is safe to reopen a sealed fire area?

When the temperature reaches normal and there is no carbon monoxide in the sealed area it can be assumed that there is no longer active fire. There must be a sufficient period of time allowed for the area under seal to cool after the fire is extinguished before recovery operations begin. In addition the atmosphere in the sealed area and procedure for recovery should be such that an explosive mixture will not be present in the sealed area while men are in the mine unless the entire area has been examined and no fire exists.

What effect, if any, does the presence of carbon dioxide that is produced in the sealed area have on the fire?

The amount of carbon dioxide present under these circumstances would have very little effect on the fire but is a factor to be considered in determining whether or not the atmosphere is or may become explosive. Carbon dioxide may be introduced into a sealed area to help control the fire and help create an inert atmosphere.

What are some of the preparations that should be made before unsealing a fire area?

A complete and detailed plan should be prepared and agreed to by various interested parties. Necessary adjustments should be made in the ventilation to assure that an ample quantity of air will be available and that the air that passes by or through the sealed area is conducted in such a manner that it will not pass over power wires or any other potential ignition source and shall be directed by the shortest means to the surface. The area adjacent to the seals should be heavily rock dusted. The tools and supplies that will be needed should be placed at convenient locations.

Two methods

Briefly describe two methods that have been successfully employed for the recovery of a fire area.

There are in general two systems that may be employed:

Recovering the fire area in successive blocks by means of air locks.

Re ventilation of the fire area after there is conclusive evidence that the fire has been extinguished or that the atmosphere is not explosive and will not become explosive with the addition of air.

Describe the method of recovering a sealed fire area by the use of air locks.

The purpose of air locking is to recover portions of the sealed fire area or the entire area in a manner that will prevent increasing the oxygen content in unexplored areas to avoid an explosive atmosphere or rekindling or intensifying the fire when a suitable air lock has been erected, a proper organization and proper and adequate equipment and material provided and all other necessary arrangements are completed, an oxygen breathing apparatus crew, fully prepared for the work at hand and supported by a fully equipped reserve crew should enter the air lock through a man door and remove the seal. After the seal has been removed, an oxygen breathing apparatus crew, with another crew in reserve, should advance and explore to the point where the next air lock is to be erected. General conditions should be observed by the exploring crew, temperature readings taken, an air sample collected to check previous analysis, measurements made for material required to construct the in bye seals of the next air lock, then return to the fresh-air base. An apparatus crew or crews, with a reserve crew at the

fresh-air base, should then construct a temporary seal with a door in it at the place previously selected for the next air lock, erect necessary temporary seals in crosscuts or other openings on the intake side and on the parallel entry or entries on the return side opposite the point selected for the air lock to insure resealing of the in bye area, and examine any unexplored parts of the isolated area for possible fires. All crews should then be withdrawn from inside the air locks. Next, a seal on the return side should be opened by an apparatus crew. The air-lock doors on the intake side should be opened and air admitted to re ventilate the area inside the air locks. Stoppings should be erected in open crosscuts on the return side to advance fresh air to the last crosscut which should be left open to provide a return. The quantity of air should be so regulated that the return will be kept below the lowest explosive limit. After the newly explored area has been re ventilated, rescue men should erect a tightly constructed stopping with a door in it a suitable distance out bye the one previously built to form the next air lock. Advances as described above should be made by successive blocks until the entire area is recovered. As the work progresses, frequent analyses should be made to determine the composition of the atmosphere within the sealed area. The oxygen should be kept under control and within safe limits at all times. It is imperative that the oxygen be kept as low as possible at all times by limiting the infiltration of air to the sealed area as the work progresses.

Describe the method of recovering a sealed fire area by direct ventilation.

When a decision has been made to recover a sealed area by direct ventilation, an air lock should preferably be constructed near the intake seal. A rescue crew fully equipped for the work at hand breaks the seal, and enters the sealed area. Observes conditions, takes temperature readings and air samples, and returns to the fresh air base. The observations and examination of the affected region have shown that conditions are favorable, the return seal should be broken by an apparatus crew, and then the air lock opened to admit air. While the area is being ventilated, the combustible gases in the main return should, if feasible, be kept below the explosive limit. If this method of recovering a fire area is employed, it is advisable that all men be out of the mine before the air is actually directed into the sealed area, unless it has been determined that the atmosphere in the sealed area is not explosive and cannot become explosive by adding air. Some automatic arrangement should be employed which would give sufficient time for all persons to reach the surface before the fire gases were actually moved. A reasonable period should be given for the fire gases to be removed and frequent determinations should be made of the return from the mine, and the time for any person to enter should be governed by the quality of the return air. If the workings under seal are of an extensive nature it will probably be advisable for crews equipped with oxygen breathing apparatus to re-enter the mine and clear out pockets of standing fire gases that may be present.

MINE EXPLOSIONS

What are the principal causes of mine explosions?

Ignition of methane or coal dust or both by electric arc open flame (including mine fires), misuse of explosives, friction, and rock falls etc. are the principal causes of mine explosions.

How can mine explosions be prevented or their effect minimized?

By adequate ventilation properly distributed, directed and controlled; complete rock-dusting of all open areas; use of sufficient water to allay dust from mining machines at working faces, use of permissible explosives together with proper and adequate supervision to see that the above safeguards are instituted.

Procedures and Duties - Fires and Explosions

In case of a mine fire or explosion, who should be notified?

Notify as soon as possible:- higher company officials, State mining agency, Directorate of mines safety, mining agency, representative of mine workers, safety department, engineering department, and maintenance department. Also, adjoining mines should be notified for possible assistance or to alert them if they are connected underground with the affected mine.

What are some factors that must be considered early to assure a well organized operation?

Rope off and have police guard all roads leading to the mine. Establish a base of operation with ample room and communications. Establish special check procedures for acquiring necessary supplies.

What one factor is most critical to insure the safety of survivors in the mine?

The mine ventilation. The fan or fans should be examined and repaired as necessary, then attended or other action taken to assure continued operation.

A major factor to be concerned with during recovery following an explosion is the possibility of another explosion.

List the methane ignition sources which are most likely to be encountered in the affected areas that have not been explored and ventilated.

Fire that was started by the explosion, electrical arc that may be created by short-circuited batteries, or power wires that have not been de-energized.

In addition to assuring that the fan or fans are operating, what is another important step to be taken in the attempt to save survivors?

Endeavor to communicate with survivors and direct them to the best means of escape from the mine.

Important: Normally, workers should not attempt to make their way to safety through smoky and heavily contaminated areas while wearing only the filter-type self-rescuers. Filter-type self-rescuers will only provide respiratory protection against low concentrations of carbon monoxide. They do not provide protection against various other gases or an oxygen deficient atmosphere. A worker is usually far better off taking refuge behind a barricade in a safe and uncontaminated entry.

What are the main objectives of the rescue and recovery work after a mine explosion?

Men entombed or missing should be located and brought to safety or their bodies recovered as soon as possible.

Incipient or active fires should be located and extinguished or sealed off before an air current, possibly laden with explosive gas, is turned upon such a fire. If fire exists, unrestricted restoration of ventilation may fan it to greater intensity and make extinguishing it more difficult; or an explosion may occur killing some or all of the men still alive in the mine.

Normal ventilation should be restored to all parts of the mine and all noxious gases swept out after the danger of fire has been found nonexistent or under control.

While fighting a mine fire what type of major accident should the firefighters are most concerned with?

An explosion is the major accident that is likely to occur during firefighting operations.

How should mine firefighters protect against the occurrence of an explosion?

The air returning from the fire should be monitored for explosibility, and ventilation should be controlled closely and maintained over the fire constantly.

Should one man be in charge of the rescue or recovery work?

Yes, generally a representative of the company.

Should there be an advisory committee to the man in charge of the rescue or recovery work?

Yes. The committee should be composed of representatives of the State mining agency, Federal mining agency, the miners, and others.

Should there be a plan made for specific phases of firefighting rescue and recovery procedures such as sealing or unsealing mine fires or recovery of miners following an explosion?

Yes. The man in charge and the advisory committee should devise a relatively broad plan of operation which should be followed closely.

What are some factors that may be critical to the safe firefighting or explosion recovery activities, and which would not normally be known or readily available to the planners?

Location of all energized power wires or equipment: location of all battery equipment or equipment on which batteries are installed; location of diesel equipment; location of explosives or oil storage areas; location of pressurized containers such as acetylene or oxygen cylinders and the location and description of any other equipment or supplies that may influence the planning.

How should the work be divided?

Preferably in four six-hour shifts per day and the change of shift should take place underground at the fresh-air base or other work site so that work will be continuous

Should there be a man in charge of the underground work on each shift?

Yes generally a company representative with experience in such work

Should there be an advisory committee to the man in charge on each shift underground?

Yes. A committee should be composed of representatives of the State mining agency, Federal mining agency, and others as appropriate.

Should there be any restriction on the number of people permitted underground?

Yes, only those people necessary to insure the suitable progress and safety of the operation which would include supply men, backup workers be permitted.

After entering a mine following an explosion, what examinations should be made?

Examine return airways for smoke or other indications of active fire.

Fresh Air base

How is the location of the first fresh-air base determined, following an explosion?

Exploration is continued in intake air up to the point where normal ventilation controls are intact. Ventilation stoppings were destroyed beyond such a point and ventilation is short circuited. At this point, the first fresh-air base should be established.

Describe a fresh-air base.

The place to which fresh air has been conducted and at which stoppings (seals) or other ventilation controls, including an air lock have been installed in a manner that will prevent re-ventilation of any area that has not been explored and examined.

When should the fresh-air base be advanced?

Only when an area inbye the present fresh-air base has been examined and stoppings installed to permit the explored area to be re-ventilated without disturbing the inbye area that has not been explored

Should exploration trips be made ahead of the fresh-air base or in other areas where an irrespirable atmosphere is or may be present?