TEST - 2015

MN	COURSE	DAY : SUNDAY
	MINING ENGINEERING	TIME : 10.00 A.M. TO 1.00 P.M.

MAXIMUM MARKS	TOTAL DURATION	MAXIMUM TIME FOR ANSWERING
180	200 MINUTES	180 MINUTES

MENTION YOUR DIPLOMA CET NUMBER					QUESTION BOOKLET DETAILS	
					VERSION CODE	SERIAL NUMBER
					A – 3	160047

DOs :

1. Check whether the Diploma CET No. has been entered and shaded in the respective circles on the OMR answer sheet.
2. This Question Booklet is issued to you by the invigilator after the **2nd Bell i.e., after 09.50 a.m.**
3. The Serial Number of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
4. The Version Code of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
5. compulsorily sign at the bottom portion of the OMR answer sheet in the space provided.

DON'Ts:

1. **THE TIMING AND MARKS PRINTED ON THE OMR ANSWER SHEET SHOULD NOT BE DAMAGED / MUTILATED / SPOILED.**
2. **The 3rd Bell rings at 10.00 a.m., till then;**
   - Do not remove the paper seal of this question booklet.
   - Do not look inside this question booklet.
   - Do not start answering on the OMR answer sheet.

SEAL

IMPORTANT INSTRUCTIONS TO CANDIDATES

1. This question booklet contains 180 (items) questions and each question will have one statement and four answers. (Four different options / responses.)
2. After the **3rd Bell is rung at 10.00 a.m.** remove the paper seal of this question booklet and check that this booklet does not have any unprinted or torn or missing pages or items etc., if so, get it replaced by acomplete test booklet. Read each item and start answering on the OMR answer sheet.
3. During the subsequent 180 minutes:
   - Read each question (item) carefully
   - Choose one correct answer from out of the four available responses (options / choices) given under each question / item. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose only one response for each item.
   - **Completed darken / shade the relevant circle with a BLUE OR BLACK INK BALL POINT PEN against the question number on the OMR answer sheet.**

Correct Method of shading the circle on the OMR answer sheet is as shown below:

①●③④

4. Use the space provided on each page of the question booklet for Rough Work. Do not use the OMR answer sheet for the same
5. After the **last Bells is rung at 1.00 p.m.** stop marking on the OMR answer sheet and affix your left hand thumb **impression** on the OMR answer sheet as per the instructions.
6. Hand over the **OMR ANSWER SHEET** to the room invigilator as it is.
7. After separating the top sheet, the invigilator will return the bottom sheet replica (Candidate's copy) to you to carry home for self-evaluation.
8. Preserve the replica of the OMR answer sheet for a minimum period of **ONE year.**

PART - A
APPLIED SCIENCE

1. Absorption co-efficient of sound wave is given by _____. Where E_m is energy absorbed by the given medium E_{ow} is the energy absorbed by open window.

1. $a = \frac{E_m}{E_{ow}}$ 2. $a = \frac{E_{ow}}{E_m}$ 3. $a = E_m \times E_{ow}$ 4. $a = E_m + E_{ow}$

2. The rich quality of a musical note depends on
   1. Fundamental frequency
   2. Loudness
   3. Larger number of over tones
   4. Pitch

3. Waxing and waning are the characteristics of
   1. Periodic motion 2. Oscillations 3. Beats 4. Frequency

4. Velocity of sound in air varies
   1. Inversely as the square root of the density of the medium
   2. Directly as the square root of the density of the medium
   3. Directly as the density of medium
   4. Inversely as the density of medium

5. The vibrations of a body of decreasing amplitude are called
   1. Undamped free vibrations
   2. Damped free vibrations
   3. Resonant vibrations
   4. Forced vibrations

6. Another name for field emission is
   1. Cold cathode emission
   2. Thermionic emission
   3. Photoelectric emission
   4. Secondary emission

7. In case of photoelectric emission, the rate of emission of electron is
   1. Independent of frequency of radiation
   2. Dependent on frequency of radiation
   3. Dependent on wavelength of incident radiation
   4. Independent of intensity of radiation

Space For Rough Work

8. Emission of radiation from radioactive element is

1. Slow 2. Fast 3. Spontaneous 4. Very slow

9. In the spectrum of scattered light the lines corresponding to wavelength greater than that of incident light are called

1. Stokes lines 2. Antistokes lines
3. Fluorescent lines 4. Incident lines

10. Resolving power of telescope is given by

1. $\frac{d}{1.22\lambda}$ 2. $\frac{1.22\lambda}{d}$ 3. $\frac{1.22d}{\lambda}$ 4. $\frac{\lambda}{1.22d}$

11. To observe diffraction pattern the obstacle should be

1. Very big 2. Dark
3. Absent 4. Comparable with the wavelength of light

12. When double refraction occurs, extraordinary ray and ordinary rays will have vibrations in the planes _____ to one another

1. Parallel 2. Independent 3. Perpendicular 4. At 45^{o}

13. Maxwell's electromagnetic theory could explain

1. Photo electric effect 2. Interference of light
3. Compton effect 4. Black body radiation

14. The contrast between bright and dark bands of an interference pattern is

1. Low 2. High 3. No change 4. Gradually decreases

15. A non-electrolyte solution is

1. Sugar solution 2. Salt solution
3. Water 4. Copper sulphate solution

Space For Rough Work

16. In alkalies the concentration of OH^- ions is

1. More than 10^{-7}g ions / litre
2. Less than 10^{-7}g ions / litre
3. Equal to 10^{-7}g ions / litre
4. More than 10^{7}g ions / litre

17. An example of derived unit is

1. Meter
2. Second
3. Netwon
4. Candela

18. The prefix used for 10^{-15} is

1. Femto
2. Pico
3. Peta
4. Nano

19. An example of dimensionless constant is

1. Strain
2. Efficiency
3. Force
4. Pi

20. A main scale is divided into half mm and having a Vernier containing 10 divisions has a least count of _____cm.

1. 0.05
2. 0.005
3. 0.02
4. 0.025

21. According to Newton's second law of motion F = Kma. The value of K is

1. 0.1
2. 0
3. 10
4. 1

22. The velocity of a freely falling body is maximum

1. At the beginning
2. Just before it touches ground
3. Exactly half way
4. After it touches ground

23. Wet clothes are dried in washing machine by the property of

1. Inertia of rest
2. Inertia of direction
3. Inertia of motion
4. Inertia of time

24. A force of 1.2×10^{-2} N acts for 3 seconds on a body of mass 0.04kg at rest. The velocity gained by the body is

1. 0.9 m/s
2. 9 m/s
3. 0.09 m/s
4. 9.2 m/s

25. An example of vector quantity is

1. Volume
2. Energy
3. Density
4. Force

Space For Rough Work

26. Handle of the door is fixed away from the end where it is fixed with hinges to

1. Increase the moment of force
2. Decrease the moment of force
3. Keep the door firm
4. Lock it easily

27. Resultant of two equal forces perpendicular to each other acts at an angle _____ to first force

1. 90°
2. 180°
3. 30°
4. 45°

28. The resultant of two forces acting on a body cannot be

1. Greater than first force
2. Zero
3. Lesser than first force
4. Lesser than the difference between two forces

29. Towing of a boat by two forces is an illustration of

1. Lami's theorem
2. Law of triangle of forces
3. Law of parallelogram of forces
4. Law of polygon of forces

30. Shock absorber is an example for

1. Compressive stress
2. Tensile stress
3. Shear stress
4. Shear strain

31. Factor of safety of a structure is

1. Within 2
2. Equal to zero
3. Vary between 5 and 10
4. More than 10

32. In case of liquids as the temperature increases, the viscosity of liquid decreases due to

1. Increase in the rate of diffusion of gases
2. Decrease in the rate of diffusion of gases
3. Increase in the potential energy of molecules
4. Increase in the kinetic energy of molecules

Space For Rough Work

33. One Pascal is equal to

1. 10 dynes/cm^2
2. 1 dyne / cm^2
3. 100 dynes / cm^2
4. 0.1 dyne / cm^2

34. To calm down turbulent sea, sailors use oil to

1. Decrease surface tension
2. Increase surface tension
3. Decrease viscosity
4. Increase cohesive force

35. The thrust on the bottom of the container having a base area of 20 m^2 filled with water to a height of 3 m is _____ (given g =10m/s^2)

1. 6×10^5 N
2. 6×10^4 N
3. 6×10^3 N
4. 6×10^2 N

36. Amount of heat required to raise the temperature of 1 kg of water through 1°C is

1. One calorie
2. One joule
3. One kilo-calorie
4. One kilojoule

37. Absolute scale of temperature has its zero at

1. 0°C
2. -100°C
3. 273°C
4. -273°C

38. In case of an ideal gas, the value of pressure or volume co-efficient is

1. $\frac{1}{273}$
2. $-\frac{1}{273}$
3. 273
4. –273

39. The distance travelled by the disturbance per unit time in a given direction is

1. Wave amplitude
2. Wave velocity
3. Wave frequency
4. Wavelength

40. The speed of the transverse wave along the stretched string is given by

1. $V=\sqrt{\frac{T}{m}}$
2. $V=\sqrt{\frac{m}{T}}$
3. $V=\sqrt{\frac{1}{T}}$
4. $V=\frac{\sqrt{m}}{T}$

Space For Rough Work

PART - B

APPLIED MATHEMATICS

41. The value of $\lim_{x \to -2} \frac{x+2}{x^5+32}$ is

1. $\frac{1}{80}$ 2. 80 3. $\frac{-1}{80}$ 4. -80

42. The value of $\lim_{x \to 0} \frac{2x-\tan 3x}{\sin 2x+3x^2}$ is

1. $\frac{-1}{5}$ 2. 0 3. $\frac{1}{2}$ 4. $-\frac{1}{2}$

43. If $y = e^x \log x$, then $\frac{dy}{dx}$ at $x=1$ is

1. e^x 2. e 3. 1 4. 0

44. If $y = \tan^{-1}\sqrt{\frac{1+\cos x}{1-\cos x}}$, then $\frac{dy}{dx}$ is

1. 2 2. -2 3. $\frac{-1}{2}$ 4. $\frac{1}{2}$

45. If $\sqrt{x^3}+\sqrt{y^3}=\sqrt{a^3}$, then $\frac{dy}{dx}$ is

1. $\sqrt{\frac{x}{y}}$ 2. $-\sqrt{\frac{x}{y}}$ 3. $\sqrt{\frac{y}{x}}$ 4. $-\sqrt{\frac{y}{x}}$

Space For Rough Work

46. The second derivative of $y = log(sec\ x - tan\ x)$ is

1. $-sec\ x\ tan\ x$ 2. $sec\ x\ tan\ x$ 3. $-sec\ x$ 4. $sec\ x$

47. Water flows into the cylindrical tank of radius 7mt at the rate of 294 cubic mt/sec, then the rate of height of water rising in the tank is

1. $\frac{\pi}{6} mt/sec$ 2. $\frac{6}{\pi} mt/sec$

3. $14406\ mt/sec$ 4. $\frac{21}{\pi} mt/sec$

48. The maximum value of the function $y = x + \frac{1}{x}$ is

1. 0 2. 2 3. 1 4. –2

49. The value of $\int tan^2 x\ dx$ is

1. $tan\ x - x + c$ 2. $x - tan\ x + c$ 3. $(sec^2 x)^2 + c$ 4. $-cot\ x - x + c$

50. The value of $\int \frac{cos\ x}{1 + sin\ x}\ dx$ is

1. $log(sec^2 x + sec\ x\ tan\ x) + c$ 2. $log(sin\ x) + c$

3. $log(1 + sin\ x) + c$ 4. $\frac{(1 + sin\ x)^2}{2} + c$

51. $\int sin^2 x\ sin\ 2x\ dx$ is

1. $\frac{sin^2 x}{2} + c$ 2. $\frac{sin^4 x}{2} + c$ 3. $sin^2 x + c$ 4. $\frac{-sin^4 x}{2} + c$

Space For Rough Work

52. $\int_{-1}^{1}(2x+1)(5-x)\,dx$ is

1. 10
2. $\frac{26}{3}$
3. $\frac{-26}{3}$
4. $\frac{11}{3}$

53. $\int_{0}^{\pi/4} tan^2x\ sec^2x\ dx$ is

1. $\frac{1}{3}$
2. $\frac{4}{3}$
3. $\frac{1}{2}$
4. $\frac{-1}{3}$

54. The RMS value of $y^2 = x^2 - 2x$ over the interval [1, 3] is

1. $\sqrt{\frac{5}{3}}$
2. $\sqrt{\frac{2}{3}}$
3. $\frac{1}{3}$
4. $\frac{1}{\sqrt{3}}$

55. The differential equation of $y^3 = 5ax$ by eliminating arbitrary constant a is

1. $\frac{dy}{dx} - \frac{y}{3x} = 0$
2. $\frac{dy}{dx} + \frac{y}{3x} = 0$
3. $\frac{dy}{dx} - \frac{3y}{x} = 0$
4. $\frac{dy}{dx} - \frac{5y}{3x} = 0$

56. The integrating factor of the differential equation $x\frac{dy}{dx} - (1-x)y = x^3$ is

1. $\frac{e^x}{x}$
2. xe^x
3. $e^{\frac{x^2-2x}{2}}$
4. $e^{\frac{2x-x^2}{2}}$

Space For Rough Work

57. If $\begin{vmatrix} 2x+1 & -5x \\ 1 & 3 \end{vmatrix} = 0$, then x is

1. $\frac{3}{11}$ 2. $\frac{-3}{11}$ 3. $\frac{11}{3}$ 4. $-\frac{11}{3}$

58. For the simultaneous linear equations $2x+y+z=1$, $x+y+2z=0$ and $3x+2y-z=2$, the value of Δx is

1. 3 2. -11 3. -7 4. -3

59. If $A=\begin{bmatrix} 2 & 3 \\ 5 & 4 \end{bmatrix}$, $B=\begin{bmatrix} -1 & 7 \\ -4 & 1 \end{bmatrix}$ then $(A+B)^T$ is

1. $\begin{bmatrix} 1 & 1 \\ 10 & 5 \end{bmatrix}$ 2. $\begin{bmatrix} 1 & 10 \\ 1 & 5 \end{bmatrix}$ 3. $\begin{bmatrix} -1 & 10 \\ -1 & 5 \end{bmatrix}$ 4. $\begin{bmatrix} -1 & -1 \\ 10 & 5 \end{bmatrix}$

60. If $A=\begin{bmatrix} 1 & -3 \\ -5 & 7 \end{bmatrix}$, then adj A is

1. $\begin{bmatrix} 1 & -5 \\ -3 & 7 \end{bmatrix}$ 2. $\begin{bmatrix} 7 & -5 \\ -3 & 1 \end{bmatrix}$ 3. $\begin{bmatrix} -1 & -5 \\ -3 & -7 \end{bmatrix}$ 4. $\begin{bmatrix} 7 & 3 \\ 5 & 1 \end{bmatrix}$

61. The cofactor of O in $A=\begin{bmatrix} 3 & -2 & 5 \\ 1 & 6 & 0 \\ 2 & 7 & -4 \end{bmatrix}$ is

1. -25 2. 25 3. -17 4. 0

Space For Rough Work

62. If $\left(\sqrt{3}+1\right)^3 = 10+6\sqrt{3}$, then the value of $\left(\sqrt{3}+1\right)^3 - \left(\sqrt{3}-1\right)^3$ is

1. $12\sqrt{3}$ 2. 0 3. 20 4. $20+\sqrt{3}$

63. The middle term in the expansion of $\left(x^3+\frac{1}{x^2}\right)^6$

1. $10\,x^3$ 2. $20\,x^3$ 3. $\frac{20}{x^3}$ 4. 20

64. If $\vec{a} = i+3j-2k$ and $\vec{b} = 2i-j+3k$, then $\vec{a}\,.\,\vec{b}$ is

1. −5 2. 11 3. 7 4. −7

65. The work done by the force $2i-j+6k$ when it displaces the particle from (5, 3, −2) to (7, −4, 8) is

1. 72 2. 48 3. −71 4. 71

66. The sine of the angle between the vectors $\vec{a} = i+j+k$ and $\vec{b} = 2i-3j-4k$ is

1. $\sqrt{\frac{62}{87}}$ 2. $\sqrt{\frac{87}{62}}$ 3. $\frac{-5}{\sqrt{87}}$ 4. $\sqrt{\frac{10}{63}}$

67. If $\cos\theta = \frac{5}{13}$ and θ is acute angle, then the value of $3\cos\theta - 2\sin\theta$ is

1. $\frac{9}{13}$ 2. 3 3. $\frac{-9}{13}$ 4. −3

Space For Rough Work

68. If $x \sin 30^\circ - Sec\ 30^\circ tan 30^\circ = tan^2 60^\circ$, then the value of x is

1. $\frac{22}{3}$ 2. $\frac{-22}{3}$ 3. $\frac{11}{6}$ 4. $\frac{3}{22}$

69. The value of $sin\ 225^\circ + cos\left(-135^\circ\right)$ is

1. $\sqrt{2}$ 2. $-\sqrt{2}$ 3. $\frac{1}{\sqrt{2}}$ 4. $\frac{-1}{\sqrt{2}}$

70. The simplified value of $\frac{sin\left(180^\circ - A\right) cot\left(90^\circ - A\right) cos\left(360^\circ - A\right)}{tan\left(180^\circ + A\right) tan\left(90^\circ + A\right) sin\left(-A\right)}$ is

1. $sin\ A$ 2. $-sin\ A$ 3. 1 4. $cosec\ A$

71. The simplified value of $\frac{sin\ 2A}{1 + cos 2A}$ is

1. $2tan A$ 2. $sin A$ 3. $cot\ A$ 4. $tan\ A$

72. If $tan\ A = \frac{3}{4}$ and $tan\ B = \frac{1}{7}$, then the value of (A+B) is

1. $\frac{\pi}{6}$ 2. $\frac{25}{23}$ 3. $\frac{\pi}{4}$ 4. $\frac{23}{25}$

73. The value of $cos\ 20^\circ + cos\ 100^\circ + cos\ 140^\circ$ is

1. 0 2. $cos\ 50^\circ$ 3. $\frac{1}{2}$ 4. $sin\ 50^\circ$

Space For Rough Work

74. The value of $cos^{-1}\left[\tan 135^\circ\right]$ is

1. 0° 2. 180° 3. 45° 4. 90°

75. The centroid of the triangle formed by the vertices $(-10, 6)$, $(2, -2)$ and $(2, 5)$ is

1. $(-2, 3)$ 2. $(2, 3)$ 3. $\left(-3, \frac{9}{2}\right)$ 4. $(-6, 9)$

76. A point $(-4, 3)$ divides the line AB externally in the ratio of 1 : 2. Given A$(-1, -3)$ then the point B is

1. $(6, -3)$ 2. $(-10, 15)$ 3. $(2, 9)$ 4. $(2, -9)$

77. The area of triangle formed by the point, $(3, -1)$, $(2, 0)$ and $(K, 4)$ is 10 Sq. Units, then the value of K is

1. 12 2. 7 3. -22 4. 22

78. The slope of the line joining the points $(-2, 3)$ and $(4, -6)$ is

1. $\frac{3}{2}$ 2. $\frac{-3}{2}$ 3. $\frac{2}{3}$ 4. $\frac{-2}{3}$

79. The equation of straight line passing through $(4, -1)$ and having equal intercepts is

1. $x+y-1=0$ 2. $x+y-5=0$ 3. $x+y-3=0$ 4. $x+y+3=0$

80. The equation of the line passing through $(5, -2)$ and parallel to the line $3x+2y+7=0$ is

1. $3x+2y-11=0$ 2. $3x-2y+11=0$
3. $3x-2y-19=0$ 4. $2x-3y-16=0$

Space For Rough Work

PART - C

MINING ENGINEERING

81. An oily fluid with specific gravity 1.6 and freezing point 13°C. It is insoluble in water and is very sensitive to explosion by shock of any nature

1. Ammonium nitrate
2. Nitroglycerene
3. Gun powder
4. ANFO

82. Carbon monoxide detector tubes uses

1. NaCl
2. $CaCO_3$
3. Potassium Palladium sulphate
4. Silicagel

83. Installation of booster fan in one district

1. Reduces the flow of air in other district
2. Reduces the flow of air in the same district
3. Increases humidity
4. Increases cooling power of air

84. Pitot tube is generally used for

1. Measurement of humidity
2. Measurement of air velocity in ducts
3. Measurement of cooling power
4. Detection of Fire damp

85. Explosibility of coal dust generally does not depend on

1. Colour of dust (coal)
2. Size of dust (coal)
3. Age of dust (coal)
4. Shape of dust (coal)

86. For Measurement of relative humidity, we use

1. Barometer
2. Hygrometer
3. Manometer
4. Anemometer

Space For Rough Work

87. Geothermal gradient in Indian coal fields is about

1. 1°C / 68 M 2. 1°C / 38 M 3. 1°C / 78 M 4. 1°C / 58 M

88. Dust generation may be reduced by drilling

1. Blunt bit 2. More holes 3. Sharp bit 4. Shorter holes

89. Black damp is a mixture of

1. $CO_2 + N_2$ 2. $CO_2 + CO$ 3. $CO_2 + H_2S$ 4. $CO_2 + O_2$

90. When working approaches waterlogged areas, apparatus used as precautionary measure is

1. Jack Hammer 2. Burn side boring
3. Wagon drill 4. Stoper

91. Chasnala mine disaster is due to

1. Explosion 2. Inundation
3. Spontaneous combustion 4. Rock burst

92. The king detaching safety hook consists of _____ wrought iron plates

1. Four 2. Two 3. Three 4. Six

93. The winding system cannot be used during sinking is

1. Koepe system 2. Endless rope haulage
3. Cylindroconical drum 4. Drum winding

94. The winding system can be used for only vertical shafts and not for inclined shaft

1. Bycylindroconical drum 2. Cylindroconical drum
3. Conical drum 4. Friction winding

Space For Rough Work

95. A safety device placed between the track rails so as to catch the axle of a backward runway is

1. Monkey or back catch
2. Stop block
3. Lilly control
4. Bell plate

96. The wires in the strand are laid in the same direction as the strands are laid in the rope is called.

1. Lang's lay
2. Equal lay
3. Ordinary lay
4. Fillar construction

97. Which guide is only suitable for vertical shaft ?

1. Regid guide
2. Wooden guide
3. Rope guide
4. Steel guide

98. To attach mine tubs in endless rope haulage _____ is used

1. Smallman chip
2. Bolt and nut
3. Rope
4. Screws

99. The Idlers are long pulley moving on its own axle is fitted in

1. Friction winding
2. Koepe winder
3. Drum winding
4. Belt conveyor

100. A retractable supports for cages and have used at the pit top under mining regulations

1. Derrick
2. Headgear
3. Keps
4. Bell plate

101. The conveyor used on a prop-free front of longwall coal face, can be advanced without dismantling it

1. Armoured chain conveyor
2. Belt conveyor
3. Direct rope haulage
4. Endless rope haulage

102. To withdraw the prop _____ has to be used

1. Sylvester prop withdrawer
2. Extensometer
3. Walling scaffold
4. Rope

Space For Rough Work

103. The term _____ is applied to the practice of drilling vertical holes in the roof and fixing steel bolts into them to grip the strata

1. Pop shooting 2. Roof bolting 3. Line drilling 4. Growting

104. Which of the following support gives more clearance in the roadway ?

1. Roof boting 2. Chock 3. Cog 4 Crib set

105. The ratio of the volume of voids to the total volume of the rock sample is

1. Anisotropy 2. Porosity 3. Viscosity 4. Density

106. A decrease of volume in rockmass due to evaporation of water is defined as

1. Caking 2. Shrinking 3. Slaking 4. Deforming

107. Hardness of Corundum is

1. 9 2. 3 3. 2 4. 4

108. Use of delay detonators

1. Increases explosive consumption
2. Increases ground vibration
3. Reduces ground vibration
4. Increases fragment size

109. Angle of slope of opencast mine bench is decided by

1. Angle of repose of bench rock
2. Diameter of Explosive
3. Diameter of Blast hole
4. Burden and spacing

110. The term RQD denotes in Rock Mechanics

1. Rock Quantity Designation
2. Rock Quality Designation
3. Rock Quality Distruction
4. Rock Quantity Deposition

Space For Rough Work

111. The ratio of lateral strain to the longitudinal strain is

1. Powder factor
2. Power factor
3. Stripping ratio
4. Poisson's ratio

112. As per the Mines Act 1952, no adult employed above ground in a mine shall be allowed to work for more than

1. 48 hours in any week
2. 49 hours in any week
3. 50 hours in any week
4. 51 hours in any week

113. As per the Mines Act 1952, a calender year shall mean the period of 12 months beginning with

1. First day of April in any year
2. First day of January in any year
3. Last day of January in any year
4. First day of Financial year - 1952

114. As per Mines Rules - 1955, Quantity of drinking water shall be on a scale of atleast _____ for every person employed at any one time

1. 1 litre
2. 2 litres
3. 1.5 litres
4. 0.5 litres

115. According to Mines Rules 1955, the scale of latrine accomodation shall be atleast one seat for every _____ males employed at any one time

1. 70
2. 55
3. 60
4. 50

116. As per Mines Rules 1955, at every mine employing more than _____ persons on any one day, there shall be maintained a suitable first aid room

1. 160
2. 165
3. 150
4. 170

117. Competent person in relation to any work means, a person who has attained the age of

1. 16
2. 18
3. 14
4. 20

Space For Rough Work

118. As per MMR – 1961, 'Quarter' means a period of three months ending on the

1. 31 – March, 30 – June, 30 – September or 30 – December
2. 31 – April, 30 – June, 30 – September or 30 – November
3. 31 – January, 30 – June, 30 – September or 30 – December
4. 28 – February, 30 – June, 30 – September or 30 – December

119. Notice of diseases shall be submitted in _____ to Regional Inspector

1. Form III of first schedule
2. Form V of first schedule
3. Form VI of first schedule
4. Form II of first schedule

120. Regulation 46 of MMR – 1961 specifies the duties and responsibilities of

1. Mine mate
2. Blaster
3. Mine Foreman
4. Mine Manager

121. In a haulage roadways, man holes shall be not less than _____ height

1. 1.8 M
2. 0.8 M
3. 1.5 M
4. 1.0 M

122. The card that authorises the work center to take up production is

1. Bin card
2. Labor card
3. Job card
4. Inspection card

123. To match the actual performance with the planned one, rectify the defective part is the function of

1. Dispatching
2. Controlling
3. Quality control
4. Inspection

124. The oldest method of production is

1. Job production
2. Mass production
3. Batch production
4. Continous production

Space For Rough Work

125. In ISO – 9000:2000 standards principle 3 refers to

1. Focus on customers
2. Provide leadership
3. Involvement of people
4. Use a process approach

126. Preventive maintenance will be performed

1. After a planned inspection
2. After the passage of a specified period
3. Just prior to the start of the work day
4. Just prior to a breakdown or failure

127. The letter sent to the suppliers asking to supply the material is called

1. Purchase rate order
2. Purchase order
3. Purchase requisition
4. Statement

128. Bin card is used in

1. Administrative wing
2. Workshop
3. Assembly shop
4. Stores

129. The department which acts as brain and nervous system of the plant is

1. Purchase
2. Production control
3. Recruitment
4. Design

130. Screening inspection is also called as _____ inspection

1. 100 %
2. 50 %
3. 25 %
4. 75 %

131. Which of the following is not the tool of TQM ?

1. Failure mode and effect analysis
2. Statistical process control
3. Taguchi's quality engineering
4. Quality education and training

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132. In geodetic surveying, _____ is taken into account

1. Curvature of earth
2. Area of earth
3. Size of earth
4. Area of surveying

133. The line drawn through the points of same declination

1. Agonic line
2. Isogonic line
3. Contour line
4. Meridian

134. The staff reading taken on point of known elecation in levelling is called

1. Foresight
2. Backsight
3. Intermediate sight
4. Turning point

135. Contour lines of different elevation crossing at one point in case of

1. Valley
2. Ridge
3. Vertical cliff
4. Saddle

136. The process of turning the telescope in the horizontal plane is called

1. Swinging
2. Transiting
3. Changing face
4. Centering

137. For a closed transverse free from errors

1. Algebraic sum of the latitudes = 100
2. Algebraic sum of the departure = 100
3. Algebraic sum of latitudes and departures = 0
4. Algebraic sum of latitudes and departures = 100

138. Ceylon ghat tracer is an instrument for setting out

1. Vertical angle
2. Gradient
3. Horizontal angle
4. Contour

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139. The temperature correction for a tape which was standardised at To and used to measure lenth L in the field temperature Tm.

1. $Ct = \propto (Tm - To)/L$
2. $Ct = \propto (Tm - To)L$
3. $Ct = \propto /(Tm - To)L$
4. $Ct = \propto (Tm + To)L$

140. The EDM instrument is based on generation propagation, reflection and reception of _____

1. Light waves
2. Electromagnetic waves
3. Sound waves
4. Infrared rays

141. The magnitude of the latitude of the survey line

1. $l\,Sin\theta$
2. $l\,Cos\theta$
3. $l\,Cosec\theta$
4. $l\,Sec\theta$

142. A Zn deposit formed by a geological process called

1. Erosion
2. Hydrothermal
3. Metamorphism
4. Sedimentation

143. In the Moh's scale of hardness the minerals in increasing sequence of hardness are

1. Calcite, gypsum, topaz, diamond
2. Topaz, gypsum, calcite, diamond
3. Calcite, gypsum, diamond, topaz
4. Gypsum, calcite, topaz, diamond

144. Which of the following is NOT an example metamorphic rock ?

1. Gneiss
2. Schist
3. Marble
4. Basalt

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145. Which of the physical properties characterize galena ?

1. Prismatic form
2. Cherry red streak
3. Yellow colour
4. High specific gravity

146. Which of the following minerals belongs to cubic system ?

1. Othoclase
2. Quartz
3. Garnet
4. Apatite

147. From the sedimentary rocks listed, select the most fine grained

1. Sand stone
2. Conglomerate
3. Grit
4. Clay stone

148. Which one of the following is a primary structure ?

1. Joint plane
2. Fault plane
3. Bedding plane
4. Cleavage plane

149. Small ridges formed on the surface of sediment layer by moving wind or water resembles like waves

1. Ripple marks
2. Fossil
3. Sun cracks
4. Bedding plane

150. A fracture in rocks along with appreciable displacement has taken place is called

1. Throw
2. Fault
3. Fold
4. Joint

151. What is low grade brown coal called ?

1. Bituminous
2. Anthracite
3. Lignite
4. Diamond

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152. The stoping method, where a large part of blasted ore is allowed to accumulate in the stope to serve the purpose of providing working platform for stoping is known as

1. Shrinkage stoping
2. Cut and Fill stoping
3. Square set stoping
4. Sub-level stoping

153. Which shape of the shaft is best able to resist heavy side pressure and offers least rubbing surface to ventilating air current.

1. Circular shaft
2. Rectangular shaft
3. Square shaft
4. Inclined shaft

154. During shaft sinking "garland curb" is used to collect

1. Sand
2. Blasted rock
3. Water
4. Debris

155. In shaft sinking, to lower the bucket till the walling scaffold _____ is used

1. Platform
2. Rider
3. Bowk
4. Skibble

156. Jack Hammer drill operates at air pressure of nearly

1. 4 Kgf/cm^2
2. 3 Kgf/cm^2
3. 4.5 Kgf/cm^2
4. 6 Kgf/cm^2

157. The special method of shaft sinking adopted where the strata consists of alternate tough and loose ground

1. Caisson method
2. Forced drop shaft method
3. Freezing method
4. Cementation method

158. Under MMR and CMR every mine should have atleast _____ shafts or inclines before any underground production work is undertaken

1. 2
2. 1
3. 5
4. 6

159. Gun powder or Black powder is fired by

1. Electric shock
2. Ignition or a flame
3. Exploder
4. Detonating fuse

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160. Ammonium nitrate mixed with _____ for an explosive ANFO

1. Water 2. Petrol 3. Diesel oil 4. Kerosene

161. High explosives contains

1. Nitroglycerine
2. Sodium Nitrate
3. Charcoal
4. Sulphur

162. A roadway in stone connecting two or more coal seams is called as

1. Drift
2. Strike gallery
3. Dip gallery
4. Level gallery

163. The term _____ is sometimes used to denote a district which is seperated from other district by an artificial barrier of coal

1. Seal 2. Goaf 3. Panel 4. Stope

164. A seam is referred as very steep, if inclination is beyond

1. 40^o 2. 20^o 3. 30^o 4. 10^o

165. Under the CMR, the travelling road should not be less than 1.8 M and more than _____

1. 3 M 2. 3.5 M 3. 4 M 4. 4.5 M

166. To give a free face at the coal face, which machine is used ?

1. Wagon drill
2. Jack Hammer
3. Burn side boring apparatus
4. Coal cutting machine

167. The solid coal of stook left intact during extraction of stook or pillar is known as

1. Chowkidar 2. Sill 3. Block 4. Crown

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168. In a coal mine, the sign of heavy roof pressure is NOT indicated by

1. Increase in booming sound of roof movement
2. Heaving of floor
3. Rumbling sound in the goaf
4 Presence of white damp

169. If the depillaring zone is within _____ of waterlogged area, advance bore holes have to be drilled

1. 60 M 2. 80 M 3. 70 M 4. 90 M

170. The extraction of coal commences from the vicinity of the shaft pillar and proceeds outwards towards the boundry of the mine is called

1. Barry face
2. Longwall advancing
3. Horizon mining
4. Longwall retreating

171. Best method for working a seam with dirt band is

1. Bord and Pillar method
2. Room and Pillar method
3. Longwall retreating
4. Block caving method

172. A method of mining where the mineral is excavated in small open pits but is transported to the surface through underground excavations and transport system

1. Glory hole 2. Dredging 3. Placer mining 4. Sampling

173. A machine which cuts, as its travels, 0.6 to 1 M deep furrows in the ground is

1. Front end loader 2. Ripper 3. Back hoe 4. BWE

174. A heavy duty trucks with a container body of steel opens at the top for receiving material loaded mechanically by a dipper shovel

1. Dumpers 2. Shovel 3. Stoper 4. Drifter

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175. A drill, essentially a drifter type capable of movement up and down a vertical guide and mounted on a portable frame fitted with wheels

1. Coal cutting machine
2. Jack Hammer
3. Stoper
4. A wagon drill

176. Separating the explosives into sections by placing a column of stemming between groups of catridges is

1. Muffled blasting
2. Cyote blasting
3. Deck loading
4. Solid blasting

177. A hole is drilled by jack hammer for charging with explosive and blasting the boulder is known as

1. Line drilling
2. Pop shooting
3. Pre-splitting
4. Plaster shooting

178. The stripping ratio decides _____

1. Quarriable limit
2. Grade of ore
3. Safety
4. Tenor of ore

179. The width of an opencast mine bench should not be less than

1. 3 M
2. 4 M
3. Height of the bench
4. Width of the dumper

180. The distance between the two drill holes in the same row of delay in blasting is termed as

1. Spacing
2. Burden
3. Sub-grade
4. Toe

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SEAL