DIPLOMA - COMMON ENTRANCE TEST-2019

MN	COURSE	DAY : SUNDAY DATE : 21-07-2019
	MINING	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	270065

Dos :

1. Candidate must verify that the DCET number and Name printed on the OMR Answer Sheet is tallying with the DCET number and Name printed on the Admission Ticket. Discrepancy if any, report to invigilator.
2. This question booklet is issued to you by the invigilator after the **2nd bell i.e., after 9.50 am**.
3. The Version Code of this Question Booklet should be entered on the OMR Answer Sheet and the respective circle should also be shaded completely.
4. The Version Code and Serial Number of this question booklet should be entered on the Nominal Roll without any mistakes.
5. Compulsorily sign at the bottom portion of the OMR answer sheet in the space provided.

DONTs :

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 am, till then;**
   - Do not remove the seal present on the right hand side of this question booklet.
   - Do not look inside this question booklet.
   - Do not start answering on the OMR answer sheet.

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 am**, 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 a complete 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.
   - Completely **darken / shade** the relevant circle with a blue or **black ink ballpoint pen against the question number on the OMR answer sheet.**

ಸರಿಯಾದ ಕ್ರಮ CORRECT METHOD	ತಪ್ಪು ಕ್ರಮಗಳು WRONG METHODS
(A) ● (C) (D)	✗ (B) (C) (D) (A) (B) (C) ✓ (A) ● ● (D)
	▲ (B) (C) (D) (A) ◉ (C) (D)

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 bell is rung at 1.00 pm**, 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 (KEA copy), 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**.

MN-A



CONFIDENTIAL

PART – A

APPLIED SCIENCE

1. One of the basic unit in SI is

   (A) Newton (B) Joule

   (C) Kilometer (D) Ampere

2. The pitch of screw is $\frac{1}{2}$ mm. The number of divisions on head scale of screw gauge is 50. The least count of screw gauge is

   (A) 0.1 mm (B) 0.5 mm

   (C) 0.01 mm (D) 0.05 mm

3. Which one of the following is a vector quantity ?

   (A) Speed (B) Density

   (C) Velocity (D) Mass

4. The magnitude of resultant of two forces $\vec{P}$ & $\vec{Q}$ acting perpendicular to each other is

   (A) $\sqrt{P^2 + Q^2}$ (B) $\sqrt{P^2 - Q^2}$

   (C) $P^2 - Q^2$ (D) $P^2 + Q^2$

5. A force of 50 N acts at a point making an angle of 30° with the horizontal. The vertical component is

   (A) 50 N (B) 25 N

   (C) 150 N (D) 1.6 N

Space For Rough Work

6. A couple produces

(A) pure linear motion (B) pure rotational motion

(C) both linear and rotational motion (D) neither linear nor rotational motion

7. The resultant of two like parallel forces acts in the direction of

(A) same as that of two forces (B) opposite to two forces

(C) perpendicular to two forces (D) direction cannot be specified

8. The reciprocal of bulk modulus of elasticity is called

(A) Compressibility (B) Rigidity

(C) Modulus of elasticity (D) Viscosity

9. A steel wire has a cross sectional area of 0.05 m^2. If the maximum stress of steel wire is 1000 N/m^2. The force is

(A) 20×10^3 N (B) 50 N

(C) 200 N (D) 20 N

10. The pressure at a point on surface of a liquid is

(A) minimum (B) maximum

(C) zero (D) infinity

11. The pressure exerted by sea water of density 1025 kg/m^3 on a fish at a depth of 10 m ($g = 10\ m/s^2$) is

(A) 1025 kPa (B) 10.25 kPa

(C) 1.025 kPa (D) 102.5 kPa

Space For Rough Work

12. A drop of rain assumes spherical shape due to

(A) Density (B) Viscosity

(C) Surface tension (D) Humidity

13. The phenomenon of rise or fall of liquid in a capillary tube is

(A) Viscosity (B) Capillarity

(C) Density (D) Elasticity

14. The S.I. unit of coefficient of viscosity is

(A) Ns/m^2 (B) Nm^2/s

(C) m^2s/N (D) Ns/m

15. The expression that represents Boyle's law is

(A) PV = constant (B) PT = constant

(C) VT = constant (D) PVT = constant

16. The volume of gas at 30 °C is 2 litres. To what temperature the gas must be heated for its volume to become 4 litres at constant pressure.

(A) 300 °C (B) 273 °C

(C) 333 °C (D) 606 °C

17. Working of pressure cooker is based on the principle of

(A) Boyle's law (B) Charle's law

(C) Laplace's law (D) Gay-Lussac's law

Space For Rough Work

18. Land and sea breeze is an example of

(A) Conduction (B) Convection

(C) Condensation (D) Radiation

19. The measure of average kinetic energy of all the particles in a gas is

(A) Heat (B) Mechanical energy

(C) Chemical energy (D) Temperature

20. When a wave travels through the medium, the particles of the medium are

(A) displaced in the direction of wave

(B) displaced opposite to the direction of wave

(C) mean position remains same

(D) starts rotating

21. Two waves with very little difference in their frequencies overlap on one another to produce

(A) Stationary waves (B) Progressive waves

(C) Beats (D) Transverse waves

22. The acceleration of the particle executing simple harmonic motion is directly proportional to its

(A) displacement from its mean position

(B) period of motion

(C) frequency of vibration

(D) amplitude of wave

Space For Rough Work

23. In the expression for velocity of sound in air, $V = \sqrt{\frac{\gamma P}{\rho}}$, notation γ is equal to

(A) $C_P + C_V$ (B) $C_P - C_V$

(C) $C_P \times C_V$ (D) $\frac{C_P}{C_V}$

24. Velocity of sound in outer space is

(A) 3×10^8 m/s (B) 330 m/s

(C) zero (D) 360 m/s

25. A string of length 1 m and mass 0.04 kilogram vibrates with fundamental frequency of 100 Hz then the tension in the string is

(A) 4000 N (B) 1600 N

(C) 400 N (D) 1000 N

26. Nodes and antinodes are characteristics of

(A) Stationary waves (B) Longitudinal waves

(C) Transverse waves (D) Beats

27. Natural frequency of a string does not vary with

(A) thickness (B) applied force

(C) tension (D) length

28. The electromagnetic radiation used in Forensic Department to study the finger print is

(A) Ultraviolet Ray (UV Ray) (B) Radio wave

(C) Micro wave (D) X-ray

Space For Rough Work

29. The type of light used to study Holography is

(A) Visible light (B) Laser light

(C) Sodium light (D) Mercury light

30. Which technology is used to develop Sun Screen lotion and cosmetics ?

(A) Geo-technology (B) Nano-technology

(C) Electro-technology (D) Micro-technology

31. The process of separating the information signal from the carrier wave at the receiver is known as

(A) Amplification (B) Modulation

(C) Attenuation (D) Demodulation

32. Optical fibre is used in

(A) Pressure sensors (B) Drilling

(C) Holography (D) Welding

33. The mass of copper deposited on the cathode of a copper voltmeter by a current of 2 amperes in 30 minutes is

(Given ece of copper (Z) = 0.0003 gm / coulomb)

(A) 3.2 gm (B) 4.3 gm

(C) 1.08 gm (D) 2.5 gm

34. The process of coating zinc over iron or steel is known as

(A) Galvanizing (B) Tinning

(C) Alloying (D) Non-Metallic coating

Space For Rough Work

35. SOFC is a type of

(A) Primary cell (B) Secondary cell

(C) Fuel cell (D) Solar cell

36. Magnalium is an alloy made by the combination of aluminium and

(A) Phosphorous (B) Zinc

(C) Tin (D) Magnesium

37. Zinc-carbon battery is an example for

(A) Secondary Battery (B) Fuel cell

(C) Primary Battery (D) Solar cell

38. Which of the following is not a polymer ?

(A) Teflon (B) Nylon

(C) Bakelite (D) Glass

39. Ceramic is which type of material ?

(A) Composite material (B) Alloy

(C) Polymer (D) Bio-material

40. The pH value of distilled water is

(A) 13 (B) 7

(C) 2 (D) 11

Space For Rough Work

PART – B

ENGINEERING MATHEMATICS

41. If $A = \begin{bmatrix} -3 & 4 \\ 2 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 2 \\ -2 & 1 \end{bmatrix}$, then $B^T \cdot A^T$ is

(A) $\begin{bmatrix} 3 & 8 \\ -4 & 0 \end{bmatrix}$ (B) $\begin{bmatrix} -5 & -2 \\ -2 & 4 \end{bmatrix}$

(C) $\begin{bmatrix} 5 & 2 \\ -2 & -4 \end{bmatrix}$ (D) $\begin{bmatrix} 5 & 2 \\ 2 & 4 \end{bmatrix}$

42. The value of the $\begin{vmatrix} \tan\theta & 0 & -1 \\ 1 & 0 & \tan\theta \\ 2 & -1 & 3 \end{vmatrix}$ is

(A) $-\sec^2\theta$ (B) $\operatorname{cosec}^2\theta$

(C) 1 (D) $\sec^2\theta$

43. The values of x and y in the simultaneous equations $2x - 3y = 13$ and $3x + 4y = -6$ are

(A) $x = -3, y = 2$ (B) $x = -2, y = -3$

(C) $x = 2, y = -3$ (D) $x = 2, y = 3$

44. If $\begin{vmatrix} 3 & -2 & 4 \\ 4 & 0 & x \\ 2 & -5 & 4 \end{vmatrix} = -4$, then the value of x is

(A) 4 (B) -4

(C) $\frac{44}{19}$ (D) $-\frac{44}{19}$

Space For Rough Work

45. The characteristics roots of the matrix $\begin{bmatrix} 2 & 0 \\ 0 & -3 \end{bmatrix}$ are

(A) $\lambda = 2$ and $\lambda = 3$ (B) $\lambda = -2$ and $\lambda = -3$

(C) $\lambda = 2$ and $\lambda = -3$ (D) $\lambda = -2$ and $\lambda = 3$

46. The adjoint of the matrix $\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$ is

(A) $\begin{bmatrix} 1 & -2 \\ 3 & 4 \end{bmatrix}$ (B) $\begin{bmatrix} 1 & 3 \\ -2 & 4 \end{bmatrix}$

(C) $\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$ (D) $\begin{bmatrix} 4 & -3 \\ 2 & 1 \end{bmatrix}$

47. If A = (1, 2, –3) and B = (2, 0, –1) then $\overrightarrow{AB}$ is

(A) $i - 2j + 2k$ (B) $-i + 2j - 2k$

(C) $3i + 2j - 4k$ (D) $i + 2j - 2k$

48. The work done by the force $\vec{F} = 2i + 6j - 8k$, whose displacement is $\vec{S} = -2i + 3j - k$ is

(A) 26 units (B) –22 units

(C) 22 units (D) 30 units

49. The vector product of $\vec{a} = 4i - j + k$ and $\vec{b} = 3i - 2k$ is

(A) $2i - 11j + 3k$ (B) $2i + 11j + 3k$

(C) $2i + 5j + 3k$ (D) $2i + 11j - 3k$

50. When a fair coin is tossed two times, the event A "getting exactly one tail" is given by

(A) {HT, TH} (B) {TT}

(C) {TH} (D) {TT, HT}

Space For Rough Work

51. If $\tan\theta = \frac{5}{12}$ and $\pi < \theta < \frac{3\pi}{2}$, then the value of $\sin\theta - \cos\theta$ is

(A) $\frac{17}{13}$ (B) $\frac{7}{13}$

(C) $-\frac{17}{13}$ (D) $-\frac{7}{13}$

52. The value of $\tan 225° \times \cot 405°$ is

(A) 1 (B) –1

(C) 2 (D) $\frac{1}{2}$

53. The value of $\sin 50° \cos 20° - \cos 50° \cdot \sin 20°$ is

(A) $\sin 70°$ (B) $\frac{\sqrt{3}}{2}$

(C) $\frac{1}{2}$ (D) $-\frac{1}{2}$

54. If $\cos A = \frac{15}{17}$ and $\sin B = \frac{3}{5}$, then the value of $\cos(A + B)$ is

(A) $\frac{84}{85}$ (B) $-\frac{36}{85}$

(C) $-\frac{84}{85}$ (D) $\frac{36}{85}$

55. The value of $\sqrt{\frac{1+\sin 2A}{1-\sin 2A}}$ is

(A) $\cot\left(\frac{\pi}{4}+A\right)$ (B) $\cot\left(\frac{\pi}{4}-A\right)$

(C) $\tan\left(\frac{\pi}{4}-A\right)$ (D) $\cot\left(\frac{\pi}{2}-A\right)$

Space For Rough Work

56. The value of $\cos 40° + \sin 10°$ is

(A) $\sin 20°$ (B) $-\cos 20°$

(C) $\cos 20°$ (D) $-\sin 20°$

57. The value of $i + i^2 + i^3 + i^4$ is

(A) i (B) –i

(C) 1 (D) 0

58. $\lim_{x \to 0} \frac{x}{\sqrt{1+x}-1}$ is equal to

(A) 0 (B) 1

(C) 2 (D) ∞

59. $\lim_{x \to \infty} \frac{3x^3 + 4x + 7}{(6 + x^2)(x - 1)} =$

(A) 3 (B) –3

(C) $\frac{1}{2}$ (D) $\frac{1}{6}$

60. $\lim_{x \to 0} \frac{3x + \sin 4x}{2 \sin 3x - 5x} =$

(A) $\frac{4}{3}$ (B) 7

(C) $\frac{3}{5}$ (D) $\frac{7}{11}$

Space For Rough Work

61. The slope and y-intercept of the line $6x - 4y + 3 = 0$ are respectively

(A) $\frac{3}{2}$ and $\frac{3}{4}$ (B) $\frac{2}{3}$ and $\frac{4}{3}$

(C) $\frac{-3}{2}$ and $\frac{4}{3}$ (D) $\frac{3}{2}$ and $\frac{2}{3}$

62. The equation of the line joining the points (1, 3) and (2, –4) is

(A) $7x - y - 10 = 0$ (B) $7x + y - 10 = 0$

(C) $x + 7y + 10 = 0$ (D) $x - 7y - 10 = 0$

63. If $y = e^{-2x} + 4a^x$, then $\frac{dy}{dx} =$

(A) $\frac{e^{-2x}}{2} + \frac{4a^x}{\log a}$ (B) $e^{-2x} + 4x\, a^{x-1}$

(C) $-2e^{-2x} + 4a^x \log a$ (D) $2e^{-2x} - 4a^x \log a$

64. If $y = \log(\log 3x)$ then $\frac{dy}{dx} =$

(A) $\frac{1}{x \log 3x}$ (B) $\frac{3}{x \log 3x}$

(C) $2 \log 3x$ (D) $\frac{1}{\log x}$

65. If $xy = x + y^2$, then $\frac{dy}{dx} =$

(A) $\frac{x - 2y}{1 - y}$ (B) $\frac{1 - y}{x - 2y}$

(C) $\frac{2y - x}{y - 1}$ (D) $\frac{1 + y}{x + 2y}$

Space For Rough Work

66. If $x = \tan^{-1} t$ and $y = 3t + t^3$ then $\frac{dy}{dx} =$

(A) 3

(B) $3(1 + t^2)^2$

(C) $\frac{3}{(1 + t^2)^2}$

(D) $\frac{1}{3(1 + t^2)^2}$

67. If $y = (x)^{\frac{1}{x}}$, then $\frac{dy}{dx} =$

(A) $y\left[\frac{1 + \log x}{x^2}\right]$

(B) $\frac{1 + \log x}{x^2 y}$

(C) $\frac{1 - \log x}{x^2 y}$

(D) $\frac{y[1 - \log x]}{x^2}$

68. Which of the following equations satisfy for the function $y = e^{\tan^{-1} x}$ with usual notations ?

(A) $(1 + x^2)y_2 + (2x - 1)y_1 = 0$

(B) $(1 + x^2)y_2 + 2xy_1 = 0$

(C) $(1 - x^2)y_2 - xy_1 - y = 0$

(D) $xy_2 - 2y_1 - xy = 0$

69. The equation of a normal to the curve $y = 4x^3 + 3x^2 + 4$ at the point $(-1, 3)$ is

(A) $6x + y - 19 = 0$

(B) $x + 6y - 17 = 0$

(C) $x - 6y + 17 = 0$

(D) $6x - y + 19 = 0$

70. The rate of change of surface area of a sphere is 12 cm^2/s. The rate at which the radius is changing when the radius of the sphere is 2 cm is equal to

(A) $\frac{\pi}{4}$ cm/s

(B) $\frac{3\pi}{4}$ cm/s

(C) 3π cm/s

(D) $\frac{3}{4\pi}$ cm/s

Space For Rough Work

71. $\int \left(1 + x - \frac{1}{x} + e^x\right) dx$

(A) $1 - \frac{1}{x^2} + e^x + c$

(B) $1 + \frac{x^2}{2} - \frac{1}{x^2} + e^x + c$

(C) $x + \frac{x^2}{2} - \log x + e^x + c$

(D) $x + 1 - \frac{1}{x^3} - e^x + c$

72. $\int e^{\tan x} \cdot \sec^2 x \, dx =$

(A) $e^{\tan x} + c$

(B) $e^{\sec^2 x} + c$

(C) $e^{\tan^2 x} + c$

(D) $e^{\sec x} + c$

73. $\int \cot^2 x \, dx =$

(A) $-\text{cosec}\, x + c$

(B) $-\cot x - x + c$

(C) $-\cot x + x + c$

(D) $\cot x + x + c$

74. $\int x \sin x \, dx =$

(A) $x \sin x - \cos x + c$

(B) $x \cos x - \sin x + c$

(C) $x \sin x + \cos x + c$

(D) $-x \cos x + \sin x + c$

75. $\int \sqrt[3]{x^2} \, dx =$

(A) $\frac{5}{2} x^{\frac{5}{2}} + c$

(B) $\frac{3}{5} x^{\frac{5}{3}} + c$

(C) $\frac{5x^{\frac{2}{5}}}{2} + c$

(D) $\frac{x^2}{2} + c$

Space For Rough Work

76. $\int_0^{\pi/2} \cos^2 x \, dx =$

(A) $\frac{\pi}{2}$ (B) $\frac{\pi}{6}$

(C) $\frac{\pi}{3}$ (D) $\frac{\pi}{4}$

77. The volume of a solid generated when the curve $y = \sqrt{x^2 + 4}$ is rotated about x-axis between the ordinates $x = -1$ and $x = 1$ is

(A) $\frac{23\pi}{3}$ cubic units (B) $\frac{26\pi}{3}$ cubic units

(C) $\frac{16\pi}{3}$ cubic units (D) 0

78. The order and degree of the differential equation $\frac{dy}{dx} = \sqrt{1 + \frac{d^2y}{dx^2}}$ respectively are

(A) 1 and 1 (B) 1 and 2

(C) 2 and 1 (D) 2 and 2

79. The differential equation formed from the equation $y = ae^x + be^{-x}$ by eliminating arbitrary constants is

(A) $\frac{d^2y}{dx^2} - y = 0$ (B) $\frac{d^2y}{dx^2} + y = 0$

(C) $\frac{dy}{dx} + y = 0$ (D) $\frac{dy}{dx} - y = 0$

80. Solution of the differential equation $\frac{dy}{dx} = \frac{1 + y^2}{1 + x^2}$ is

(A) $\tan^{-1} y + \tan^{-1} x = k$ (B) $\tan^{-1} y - \tan^{-1} x = k$

(C) $\sin^{-1} y + \sin^{-1} x = k$ (D) $\sin^{-1} y - \sin^{-1} x = k$

Space For Rough Work

PART – C

MINING ENGINEERING

81. The disease caused due to inhalation of iron dust is

(A) Ankylostomiasis
(B) Silicosis
(C) Asbestosis
(D) Siderosis

82. When mixed with air, H_2S forms an explosive mixture. The limits of inflammability is

(A) 5 – 15
(B) 4.3 – 45
(C) 12 – 75
(D) 5 – 75

83. The permissible limit of CO_2 is

(A) 0.5%
(B) 1.25%
(C) 0.75%
(D) 1%

84. Each 1% reduction in the O_2% results in about the depletion from the light is

(A) 10%
(B) 20%
(C) 30%
(D) 40%

85. Pulmotor is a/an

(A) SCBA
(B) Escaping apparatus
(C) Reviving apparatus
(D) None

86. In a gas mask silica gel is used

(A) To remove dust and smoke
(B) To remove ammonia and water vapour
(C) Converts CO to CO_2
(D) To remove sulphuretted hydrogen

Space For Rough Work

87. The cooling agent in the protosorb breathing apparatus is

(A) Calcium hydroxide (B) Sodium chloride

(C) Sodium phosphate (D) Methyle chloride

88. The O_2 consumption per min, if person is walking :

(A) 0.3 – 0.4 lit (B) 0.6 – 0.9 lit

(C) 1.3 – 1.8 lit (D) 1.8 – 2.3 lit

89. Spontaneous heating is more likely to occur in coals of

(A) Peat (B) Lignite

(C) Bituminous (D) Anthracite

90. 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 :

(A) Ascentional ventilation (B) Descentional ventilation

(C) Homotropal (D) Antitropal

91. The presence of Nitrous fumes are detected by

(A) The rotten eggs smell (B) Sweet smell

(C) Metallic taste (D) Head ache

92. For hard workers the dry Kata is

(A) 8 (B) 18

(C) 10 (D) 30

93. The value of Kata factor is

(A) 250 (B) 300

(C) 380 (D) 480

Space For Rough Work

94. The wet bulb temperature exceeds 30.5 °C at any place air current should be faster than
(A) 1 m/s (B) 2 m/s
(C) 3 m/s (D) 0.5 m/s

95. Spiralaram is worked on the principle of
(A) Formation of gas cap (B) Wheatstone bridge
(C) Infra-radiation (D) Optical properties

96. Which gas is formed in stagnant water in old workings in the areas of gob ?
(A) CH_4 (B) SO_2
(C) H_2S (D) CO_2

97. Incomplete oxidation of coal results in
(A) CO_2 (B) CO
(C) CH_4 (D) None

98. Punching shear strength of dry rock specimen is approximately
(A) Thrice the value of wet rock specimen
(B) Four times the value of wet rock specimen
(C) Equal to the value of wet rock specimen
(D) Less than the value of wet rock specimen

99. Which type of compressive strength is taken as the most important index property of Rock ?
(A) Confined (B) Drained
(C) Undrained (D) Un-confined

100. Shear-strength of rock is a function of
(A) Cohesion (B) Internal friction
(C) Dilatency (D) All of these

Space For Rough Work

101. Folds develop in which type of rock ?

(A) Igneous rock (B) Sedimentary rock

(C) Metamorphic rock (D) Any type of rock

102. Limestones are very rich in

(A) Calcium (B) Potassium

(C) Calcium carbonate (D) Magnesium carbonate

103. Ratio between total volume of the rock pore spaces and the total volume of rock sample is called

(A) Void ratio (B) Porosity

(C) Pores ratio (D) Bulk density

104. Which rock possesses very high compressive strength ?

(A) Igneous (B) Sedimentary

(C) Metamorphic (D) Slate

105. Mineral when drawn over an porcelain plate, leave a coloured mark known as

(A) Lustre (B) Diaphaneity

(C) Streak (D) Colour

106. Rocks which are neither porous nor permeable are known as

(A) Aquifuges (B) Aquifer

(C) Aquiclude (D) None

107. Which mineral has more hardness ?

(A) Talc (B) Gypsum

(C) Calcite (D) Quartz

Space For Rough Work

108. Mineralisation along the crests of anticlines leads to the development of

(A) Saddle reef (B) Dyke

(C) Sill (D) Horses

109. A vertical or inclined fault striking parallel to the direction of dip of the country-rocks is known as a

(A) Strike fault (B) Level fault

(C) Dip fault (D) Net slip

110. Which of the following is true regarding the workers participation in safety management ?

(A) Pit Safety Committee (B) Committee

(C) Tripartite Committee (D) All of these

111. Maximum Exposure Limit of dust prescribed for 8 hrs time weighted average in mine working environment :

(A) 5 Mg/m^3 (B) 3 Mg/m^3

(C) 7 Mg/m^3 (D) 10 Mg/m^3

112. Sedimentary rocks which are made up of particles of the finest grain-size are known as

(A) Argillaceous (B) Rudaceous

(C) Calcareous (D) Arenaceous

113. Notice of accident causing death or serious bodily injury in connection with mining operations, in Form IV-A shall be sent to Regional Inspector within _____ hours.

(A) 24 (B) 48

(C) 72 (D) 12

114. Rocks which have cooled at depth had slow rate of cooling resulting coarse crystals called

(A) Plutonic (B) Hypabyssal

(C) Volcanic (D) Sedimentary

Space For Rough Work

115. The crystalline form of the quartz is

(A) Hexagonal (B) Monoclinic

(C) Cubic (D) None

116. Minor injuries shall be recorded in form _____ and reports shall be sent to Regional Inspector once in _____.

(A) J, a quarter (B) K, a year

(C) J, a year (D) K, a quarter

117. As per Indian Standards thick seam means having seam thickness

(A) 1.5 to 4.5 m (B) 0 to 1.5 m

(C) 4.5 to 9 m (D) Above 9 m

118. The metamorphic form of sandstone is

(A) Quartzite (B) Slate

(C) Marble (D) Talc

119. The metamorphic form of granite is

(A) Quartzite (B) Slate

(C) Marble (D) Gneiss

120. The quantity of drinking water to be provided in a mine or any part thereof shall be on a scale of atleast _____ for every person employed at any one time.

(A) 1 lit (B) 2 lit

(C) 3 lit (D) 4 lit

121. The drinking water points shall not be situated within _____ of any washing place; urinal or latrine.

(A) 6 m (B) 15 m

(C) 10 m (D) 12 m

Space For Rough Work

122. Every ladder in the shaft shall be securely fixed in the shaft at an inclination of not more than _____ from the horizontal.

(A) 60 deg. (B) 70 deg.

(C) 80 deg. (D) 45 deg.

123. The life of the winding rope is _____ years.

(A) 2 (B) 3

(C) 5 (D) 6

124. Every detaching bell used in connection with a safety hook shall be examined once in every

(A) 30 days (B) 3 months

(C) 6 months (D) 12 months

125. No gallery in a seam shall exceed atleast _____ in width as per regulations.

(A) 5.3 m (B) 6.5 m

(C) 4.8 m (D) 5.5 m

126. Extraction of the ore minerals mechanically or hydraulically from floating vessels is known as

(A) Placer mining (B) Marine mining

(C) Leaching (D) Dredging

127. Searching for ore is called

(A) Mining (B) Exploration

(C) Sampling (D) Exploitation

Space For Rough Work

128. The machine best suited for digging below the level on which it stands and loads the dumper is

(A) Tractor shovel
(B) Dipper shovel
(C) Bulldozer
(D) Back hoe

129. The machine used for pushing loose material or for digging in earth and sand is

(A) Scraper
(B) Shovel
(C) Dragline
(D) Dozer

130. Ripper can be compared with

(A) Lawn mover
(B) Former's plough
(C) Tractor
(D) None

131. Bord and Pillar method is applied when a seam is

(A) outcropping
(B) at shallow depth
(C) at moderate depth
(D) at greater depth

132. The conveyor which receives coal from the face conveyor for its transport outbye is called

(A) Gate conveyor
(B) Stage loader
(C) Lump breaker
(D) None

133. The drill holes which are driven vertically and make the sides of the excavation are described as

(A) Easers
(B) Sumpers
(C) Dressers
(D) Cut-holes

134. Blasting gelatin is made up of

(A) Nitroglycerene and Ammonium nitrate
(B) Nitroglycerene and Sodium nitrate
(C) Nitroglycerene and Gun cotton
(D) Nitroglycerene only

Space For Rough Work

135. The starting point of shaft at the ground surface is called

(A) Collar
(B) Platform
(C) Pit head
(D) Scaffold

136. The sudden release of elastic strain energy stored in the pillars results violent burst of coal pillars is called

(A) Air blast
(B) Bumbs
(C) Rock burst
(D) Main fall

137. In deciding the size of panel the important factor to be considered is

(A) Thickness of the seam
(B) Output desired
(C) Depth of the seam
(D) Incubation period

138. Recapping of the rope has to be done every _____ months.

(A) 6
(B) 7
(C) 8
(D) 9

139. Horizon mining for coal winning is more suitable when

(A) The coal seams are horizontal.
(B) The coal seams are highly disturbed.
(C) The coal seams are shallow and slightly dipping.
(D) The coal seam suitably inclined.

140. Which of the following are the examples of an inadequately maintained haul road ?

(A) Pot holes or washouts
(B) Inadequate berms
(C) Bumps and muddy areas
(D) All of these

Space For Rough Work

141. Burden is the distance between
(A) Two blast holes in same row
(B) Two blast holes of same delay
(C) First row of the blast holes and bench
(D) None is correct.

142. The method of sinking through loose deposits of sand upto 20 m is
(A) Piling system
(B) Open Caison
(C) Concrete lining
(D) Cementation

143. The amount of energy released by an explosive during blasting is called
(A) Density
(B) Strength
(C) Sensitivity
(D) VoD

144. Shuttering effect is obtained with the explosive having
(A) higher VoD
(B) medium VoD
(C) slower VoD
(D) without VoD

145. A gallery which cuts across the pillars due to its drivage along an apparent dip is called
(A) Cross-cut
(B) Level
(C) Dip
(D) Drift

146. An underground roadway through stone connecting 2 or more coal seams is
(A) Tunnel
(B) Cross measure drift
(C) Cross-cut
(D) Foot wall drive

147. The size of the theodolite is defined according to the
(A) Diameter of graduated horizontal circle
(B) Length of the telescope
(C) Height of the standard
(D) All of these are correct.

Space For Rough Work

148. For a well-conditioned triangle, no angle should be less than

(A) 20° (B) 30°

(C) 45° (D) 60°

149. Which of the following angles can be set-out with the help of French cross-staff ?

(A) 45° only (B) 90° only

(C) either 45° or 90° (D) any angle

150. In a quadrantal bearing system, a WCB of 293° 30' can be expressed as

(A) N 66° 30' W (B) S 66° 30' E

(C) S 66° 30' W (D) N 66° 30' E

151. The main principle of surveying should be

(A) working from part to whole

(B) working from whole to part

(C) working through check lines

(D) working through tie lines

152. Preliminary inspection of the area to be surveyed is called

(A) triangulation (B) reconnaissance

(C) staffing (D) marking

153. The elevations and depressions of the surface of the ground are shown on a map by means of any one of the following lines. Which is the line ?

(A) Object (B) Collimation

(C) Contour (D) Back sight

Space For Rough Work

154. It is the device used for measuring fractional parts of the smallest division of the main scale :

(A) Shrunk scale (B) Diagonal scale

(C) Vernier scale (D) Comparative scale

155. By which rule, the total error in latitude and departure is distributed in proportion to the lengths of the sides ?

(A) Transit rule (B) Bowditch rule

(C) Centesimal rule (D) Reversal point rule

156. Fixed hair and movable hair methods are the classification of which method of tacheometry ?

(A) Tangential method (B) Stadia method

(C) Inclined sights (D) Vernier scaling method

157. Which of the following survey instruments is designed to work based on the satellite ?

(A) EDM (B) Gyro-theodolite

(C) GPS (D) Ediograph

158. An additional convex lens provided in a tacheometer is called

(A) tachometric lens (B) focal lens

(C) anallatic lens (D) fixed hair lens

159. Absence of spherical aberration is known as

(A) Aplamatism (B) Achromatism

(C) Magnification (D) Conjugation

Space For Rough Work

160. Which is a computer based technology and methodology to collect, store, manipulate, retrieve and analyse spatial data or geo-referenced data ?

(A) MAP (B) GIS

(C) GYRO (D) EDM

161. The purpose of _____ levelling is to know the undulation of ground surface transverse to the centre of the road.

(A) Cross-section (B) Check

(C) Fly (D) Profile

162. To apply Simpson's rule the number of ordinates must be

(A) Odd (B) Even

(C) Random (D) Equal

163. In a Vernier transit theodolite, line of collimation must be _____ to the horizontal axis.

(A) Perpendicular (B) 45 degrees

(C) Parallel (D) 60 degrees

164. The angle between the prolongation of the preceding line and the forward line of a traverse is known as

(A) Deflection (B) Fore bearing

(C) Back bearing (D) Quadrantal bearing

165. If the WCB of any line as observed by a prismatic compass is 120°, its bearing read on a surveyor's compass is

(A) S 20° E (B) S 60° E

(C) N 120° E (D) N 60° E

Space For Rough Work

166. The first reading from a level station is

(A) Foresight (B) Intermediate sight

(C) Back sight (D) Any sight

167. Keps are used in

(A) Koepe winding (B) Direct haulage

(C) Endless haulage (D) Drum winding

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

(A) Diamond drilling (B) Burn side boring

(C) Jack hammer drilling (D) Chilled shot drilling

169. Fly rocks during opencast blasting is controlled by

(A) Pop shooting (B) Plaster shooting

(C) Muffled blasting (D) Overcharging

170. Special chemicals are used to extinguish the spark produced during blasting in

(A) Permitted explosive (B) ANFO

(C) Not-permitted explosive (D) PETN

171. Process by which mined land is returned to its original state is known as

(A) refurbishing (B) reclamation

(C) revolution (D) renovation

172. Kyanite shows which form ?

(A) Columnar (B) Elongated

(C) Bladed (D) Tabular

Space For Rough Work

173. When a mineral occurs in flattened or square form, it is called

(A) Tabular (B) Elongated

(C) Batroidal (D) Box

174. Permissible dust concentration in Indian mines is

(A) 3 mg/m^2 of air (B) 4 mg/m^2 of air

(C) 3.5 mg/m^2 of air (D) 4.5 mg/m^2 of air

175. Self rescuer can be used upto _____ % of CO.

(A) 2 (B) 3

(C) 1.5 (D) 2.5

176. As per 106 of MMR 1961, no tree, loose stone or debris shall remain within a distance of _____ from the edge or side of excavation.

(A) 5 m (B) 4 m

(C) 3 m (D) 2 m

177. According to Mines Act, 1952, calender year means

(A) 1st April to 31st March (B) 1st Jan. to 31st Dec.

(C) 1st Jan. to 30th Sep. (D) 1st Oct. to 31st Dec.

178. Adult means a person who has completed his _____ year.

(A) 20th (B) 18th

(C) 21st (D) 19th

179. Which is basic volcanic igneous rock ?

(A) Basalt (B) Dolerite

(C) Gabbro (D) Granite

180. Dykes are

(A) Concordant form (B) Phacoliths

(C) Discordant form (D) Sills

Space For Rough Work

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