DIPLOMA - COMMON ENTRANCE TEST-2019

CR	COURSE	DAY : SUNDAY DATE : 21-07-2019
	CERAMICS	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	280089

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)	(A) (B) (C) (D) (A) (B) (C) ✓ (A) ● ● (D) (A) (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.**

CR-A

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

CERAMICS TECHNOLOGY

81. A study of rocks is known as

(A) Mineralogy (B) Petrology

(C) Palaeontology (D) Physical Geology

82. Each planet moves around the Sun in a

(A) Circular path (B) Horizontal path

(C) Elliptical path (D) Vertical path

83. Which is the example of chlorides ?

(A) Feldspar (B) Magnetite

(C) Calcite (D) Rock salt

84. Mineral containing Impurity as hematite imparts colour :

(A) Black (B) Grey

(C) Red (D) Blue

85. Greasy lusture exhibited by

(A) Nephaline (B) Talc

(C) Steatite (D) All these

86. Accicular minerals showing

(A) Platy habit (B) Bladed habit

(C) Flat surface (D) Needle like crystals

87. Igneous rocks are formed by

(A) Consolidation (B) Pre-existing rocks

(C) Cooling and solidification (D) None of these

Space For Rough Work

88. Intrusive rocks are formed by

(A) Magma crystallises beneath the earth surface

(B) Magma crystallises above the earth surface

(C) Lava solidification above the earth surface

(D) None of these

89. Which one does not belongs to metamorphic rook type ?

(A) Slate (B) Phyllite

(C) Schist (D) Granite

90. Residual Kaolin usually formed by Weathering of

(A) Quartzite (B) Pegmatite

(C) Flint (D) Haematite

91. Ball clays used in whitewares for

(A) High plasticity (B) Low plasticity

(C) Medium plasticity (D) None of these

92. Drying shrinkage occurs due to

(A) Compaction (B) Expansion

(C) Tension (D) Surface tension

93. Which feldspar melts at 1100 °C ?

(A) Potash feldspar (B) Calcium feldspar

(C) Soda feldspar (D) None of these

94. Dolomite is a combination of _____ oxides.

(A) Calcium & Magnesium (B) Calcium & Aluminium

(C) Calcium & Iron Oxide (D) Calcium & Tin Oxide

Space For Rough Work

95. Number of oxygen atoms present in Spinel structure is

(A) 8 (B) 16

(C) 24 (D) 32

96. On heating alumino silicates breaks into

(A) Alumina and Silica (B) Silica and Magnesia

(C) Mullite and Silica (D) Calcium and Silica

97. Which belongs to alumino-silicate group ?

(A) Sillimanite (B) Kyanite

(C) Andalusite (D) All these

98. A crystal consists geometrical shape is

(A) Regular (B) Irregular

(C) Concoidal (D) A symmetry

99. Surfactants posses character of

(A) Non-Ionic (B) An-Ionic

(C) Cat-Ionic (D) All these

100. Deflocculation does not relates to

(A) Dispersion (B) Repulsion

(C) Agglomeration (D) Steric hindrance

101. The process of conversion of lignite to anthracite is called

(A) Coalification (B) Carbonisation of coal

(C) Gasification of coal (D) Caking coal

Space For Rough Work

102. The specific gravity of gasolines is

(A) 0.70 – 0.78 (B) 0.80 – 0.97

(C) 0.82 – 0.92 (D) 0.57 – 0.60

103. The calorific value of producer gas is around _____ k cal/Nm^3.

(A) 820 – 900 (B) 1250 – 1550

(C) 2500 – 2800 (D) 5700 – 7400

104. Which one is not a hearth furnace ?

(A) Glass tank furnace (B) Open hearth furnace

(C) Cupola furnace (D) Reheating furnace

105. _____ protects the charge from the effects of products of combustion.

(A) Muffle furnace (B) Crucible furnace

(C) Globar furnace (D) Glass tank furnace

106. Natural drought produced by a chimney depends upon the

(A) Density of the chimney gases (B) Height of the chimney

(C) Both (A) and (B) (D) Neither (A) nor (B)

107. Dust laden air can be purified using

(A) Cyclone separator (B) Gravity settler

(C) Tubular centrifuge (D) Electro-Osmosis

108. Screw Conveyors

(A) Run at very high rpm

(B) Suitable for sticky materials

(C) Suitable for highly abrassive materials

(D) All of these

Space For Rough Work

109. _____ are mixed using ribbon blenders.

(A) Lumpy solids/low viscosity liquids

(B) Dry powder

(C) High viscosity liquids

(D) Thick pastes

110. Which one of the following achieves the least reduction ratio for a given feed size ?

(A) Jaw crusher (B) Roller crusher

(C) Cone crusher (D) Gyratory crusher

111. Enamel is a thin vitreous coating applied on

(A) Ceramics (B) Metallic

(C) Refractories (D) Polymers

112. Porcelain glaze maturing range is

(A) 600 °C (B) 900 °C

(C) 1100 – 1150 °C (D) More than 1300 °C

113. Intermediate glass forming oxide is

(A) SiO_2 (B) K_2O

(C) Al_2O_3 (D) $CaCO_3$

114. Density of glaze to be maintained in dipping method is :

(A) 1.5 gm/cc (B) 1.55 gm/cc

(C) 1.70 gm/cc (D) 1.6 gm/cc

115. Matt glaze can be produced by

(A) Silica (B) Alumina

(C) Barium Oxide (D) Zircon

Space For Rough Work

116. Frit can be produced by _____ method.

(A) Dipping
(B) Quenching
(C) Annealing
(D) Melting

117. A glazed tile having a plastic weight 35 gms and dry weight 30 gms. Find out percentage moisture content.

(A) 20%
(B) 35%
(C) 40%
(D) 10%

118. A Chaina clay sample having plastic length 50 cm and dry length 45 cm. Find its percentage linear drying shrinkage.

(A) 15 %
(B) 20 %
(C) 11.90 %
(D) 14.12 %

119. MOR can be determined by

(A) $\frac{3PL}{2Bt^2}$
(B) $\frac{2PL}{3Bt^2}$
(C) $\frac{PL}{Bt^2}$
(D) None of these

120. Porosity is the

(A) Ratio of open pore volume to the total volume
(B) Ratio of open pore volume to the total weight
(C) Ratio of closed pore volume to the total weight
(D) Ratio of closed pore volume to the total volume

121. A refractory brick having fired weight 100 gm & saturated wt 120 gms. Find its percentage water absorption

(A) 30%
(B) 35%
(C) 20%
(D) 40%

Space For Rough Work

122. Terracotta having one of the Important properties :

(A) High strength (B) Highly porous

(C) High thermal conductivity (D) High abrasion resistance

123. Thermistor is a/an

(A) Resistor (B) Conductor

(C) Insulator (D) Semi-conductor

124. The electric charge that accumulates in certain solid material in response to applied mechanical stress is known as

(A) Electricity (B) Piezo-electricity

(C) Capacitor (D) Thermistor

125. A device that emits light through a process of optical amplification based on stimulated emission of electro-magnetic radiation.

(A) Laser (B) Light

(C) Dialatometer (D) None of these

126. _____ is the important property of grinding wheel.

(A) Abrasion (B) Ferromagnetism

(C) Dielectric strength (D) Piezo-electricity

127. Which oxide is used in thread guides ?

(A) Silica (B) Alumina

(C) Sillimanite (D) Clay

128. Glass ceramics is

(A) Amorphous (B) Crystalline

(C) Polycrystalline (D) None of these

Space For Rough Work

129. Ferrites are _____ material.

(A) Metallic (B) Non-metallic

(C) Amorphous (D) None of these

130. Following is one of the composite material :

(A) Ceramet (B) Glass

(C) Ferrite (D) Glaze

131. Glass is

(A) Transparent (B) Translucent

(C) Opaque (D) All these

132. The structure of glass is made of

(A) Tetrahedral unit of Silicon & Oxygen

(B) Tetrahedral unit of Silicon & Nitrogen

(C) Tetrahedral unit of Phosphorous & Sulphur

(D) Tetrahedral unit of Cobalt & Manganese

133. Presence of Iron in the glass making makes the glass

(A) Blue (B) Green

(C) Yellow (D) Red

134. The melting of glass is carried out at temperature ranging from

(A) 500 °C to 700 °C (B) 800 °C to 1000 °C

(C) 1300 °C to 1600 °C (D) 1700 °C to 1900 °C

135. The softening point of glass is known by

(A) Barrington method (B) Hilton method

(C) Littleton method (D) Newton method

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136. The process of making the glass free from bubbles is known as

(A) Fining (B) Tanning

(C) Ramming (D) Bluffing

137. Which of the following is the glass feeder ?

(A) Miller gob feeder (B) Hartford Fairmont feeder

(C) Both (A) & (B) (D) None of these

138. Lehr is a

(A) Continuous annealing oven (B) Batch annealing oven

(C) Melting furnace (D) Refining furnace

139. Designs may be traced on glassware by etching through

(A) Rubber needle (B) Steel needle

(C) Thread (D) None of these

140. Weakening of glass under continuous load is known as

(A) Resilience (B) Fatigue

(C) Creep (D) Ductility

141. Which of the following is not a glass defect ?

(A) Stone (B) Cords

(C) Seeds (D) Fault

142. The homogeneity in optical glass is obtained by

(A) Blowing process (B) Stirring process

(C) Blasting process (D) Mulling process

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143. The temperature at which the glass is transformed from rigid solid to viscous liquid is denoted by

(A) TG (B) TS

(C) TF (D) TL

144. The electrical conductivity of glass is proportional to

(A) Electrical coefficient (B) Thermal coefficient

(C) Diffusion coefficient (D) None of these

145. The working chamber & melting chamber of glass tank furnace is separated by an air space of

(A) 2 ft (B) 3 ft

(C) 4 ft (D) 5 ft

146. Dissociation of lime stone attains at a temp. of

(A) 1000 – 1200 °C (B) 800 – 900 °C

(C) 500 – 600 °C (D) None of these

147. High calcium content lime is also known as

(A) Fat lime (B) Thick lime

(C) Lump of lime (D) Impure lime

148. The small quantity of calcium stearate is added to OP cement to make

(A) Rapid hardening cement (B) Water proof cement

(C) Quick setting cement (D) None of these

149. Which one is air-entraining agent from the following ?

(A) Gypsum (B) Magnesium silicate

(C) CaO (D) Calcium lignosulphonate

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150. In cement formation, the evolution of combined water from clay is at the temperature of

(A) 100 °C (B) 500 °C & above

(C) 200 – 300 °C (D) 900 °C & above

151. The retention time for cement raw mix in clinkering zone is about

(A) 1 hour (B) 30 minutes

(C) 20 minutes (D) None of these

152. The limit of SiO_2 percent in cement is about

(A) 20 – 25 % (B) 5 – 10 %

(C) 17 – 25 % (D) None of these

153. The Initial setting time of cement is determined by

(A) Le-chatlier apparatus (B) Vicat apparatus with needle

(C) Vicat apparatus with annular collar (D) None of these

154. The reduction of clinker to very fine state is necessary because

(A) It gives better hydration.

(B) It gives strength.

(C) It gets ability to coat the surface of grains of sand.

(D) None of these

155. Which of the following material used for the manufacture of cement ?

(A) Waste cement concrete (B) Blast furnace slag

(C) Refractory waste (D) None of these

156. Zirconia refractories are belongs to which category ?

(A) Chemical refractory (B) Special refractory

(C) Acidic refractory (D) Neutral refractory

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157. Which of the following is not made of refractory ?

(A) Nose of rocket (B) Cooking oven

(C) Atomic reactor (D) Vehicle engine

158. Thermal conductivity properties of refractory material is required for

(A) To regenerate heat (B) To resist the heat loss

(C) To avoid the heat transfer (D) To reduce the temperature in chamber

159. Mg_2SiO_4 is the chemical formula of

(A) Forsterite (B) Mica

(C) Periclase (D) Magnesite

160. In which of the following system, multi-phase occurs ?

(A) $SiO_2 - CaO$ (B) $Al_2O_3 - SiO_2$

(C) $SiO_2 - FeO$ (D) $CaO - TiO_2 - SiO_2$

161. Limestone in the blast furnace feeding acts as –

(A) Catalytic material (B) Flux

(C) Binding agent (D) None of these

162. DRI is also called

(A) Sponge Iron (B) Wrought Iron

(C) Cast Iron (D) Pig Iron

163. Abbreviate HBI :

(A) Hot Briquetted Iron (B) Hot Bonded Iron

(C) Heat Bearing Iron (D) None of these

Space For Rough Work

164. The pouring of molten steel from ladle into an ingot mould is known as

(A) Tapping (B) Teeming

(C) Pouring (D) None of these

165. A bucket lined with refractory bricks used to transport molten steel is called

(A) Ladle (B) Refractory shell

(C) Container (D) None of these

166. A long metallic tube through which oxygen is blown into convertor vessel under high pressure :

(A) Tube (B) Pipe

(C) Lance (D) Steel Pipe

167. The process of removing of sulphure content from the steel is know as

(A) Desulphurisation (B) Phosphorization

(C) Steel conversion (D) None of these

168. The refractoriness of super duty refractories is

(A) 1670 – 1730 °C (B) 1630 – 1670 °C

(C) 1520 – 1630 °C (D) > 1730 °C

169. Nozzles which is used in continuous casting is made of

(A) Silia (B) Magnesite

(C) Alumina (D) Zircon

Space For Rough Work

170. Choose non-wetting characterized refractory from the following :

(A) Carbon bricks
(B) Dolomite bricks
(C) Insulation bricks
(D) Fire clay bricks

171. Which does not fall under middle level management ?

(A) Purchase officer
(B) General manager
(C) Store officer
(D) Production manager

172. Administration determines

(A) Policies of the enterprise.
(B) It's an execution function.
(C) It has middle and low level authority.
(D) It is carried out by manager.

173. Need of PPC

(A) Maximum utilization of firm resources
(B) Grievance handling
(C) Automation
(D) Good house-keeping

174. Bin card is attached to

(A) Self
(B) Container
(C) Each rack
(D) All these

175. Inventory management deals with

(A) Raw materials
(B) Semi-finished goods
(C) Finished goods
(D) All of these

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176. What is the effect of municipal solid wastes ?

(A) It pollutes land water and soil. (B) It increases mosquitoes.

(C) It Creates unhealthy surroundings. (D) All of these

177. Concept of quality circle implies

(A) A large group of employees

(B) A medium group of employees

(C) A combination of large & medium group of employees

(D) A small group of employees

178. Histogram is a graphic summary of

(A) variation in a set of data (B) variation in clustered into categories

(C) variation in frequency (D) All of these

179. ISO 9000 series consist of how many international standards ?

(A) 1 (B) 2

(C) 4 (D) 5

180. Global warming causes due to

(A) Increase in CO_2 compound (B) Increase in NO_X compound

(C) Decrease in CO_2 compound (D) Decrease in NO_X compound

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