DIPLOMA - COMMON ENTRANCE TEST-2016

CR	COURSE	DAY : SUNDAY
	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 - 1	100301

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 / polythene bag 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 a.m.,** remove the paper seal / polythene bag 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 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 :

Ⓐ ⬤ Ⓒ Ⓓ

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 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 (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-A1

PART – A

APPLIED SCIENCE

1. An example of basic S.I. unit is
   - (A) Newton
   - (B) Joule
   - (C) Ampere
   - (D) Watt

2. The prefix used for 10^{+2} is
   - (A) hecta
   - (B) centi
   - (C) pico
   - (D) peta

3. An example of dimensionless physical quantity is
   - (A) surface tension
   - (B) strain
   - (C) impulse
   - (D) period

4. The velocity of a freely falling body gradually _____ as it falls.
   - (A) decreases
   - (B) increases
   - (C) remains same
   - (D) increases and then decreases

5. A main scale is divided into half mm and having a vernier containing 20 divisions has a least count of _____ cm.
   - (A) 2.5×10^{-2}
   - (B) 0.5×10^{-2}
   - (C) 0.025×10^{-2}
   - (D) 0.25×10^{-2}

6. For a particular mass of the moving body, its friction is minimum when it is
   - (A) sliding
   - (B) static
   - (C) rolling
   - (D) dragged

Space For Rough Work

A-1

2

CR

7. All equations of motion hold good under the condition of

(A) constant velocity

(B) constant acceleration

(C) variable velocity

(D) variable acceleration

8. A force of 1.5×10^{-2} N acts for 3 seconds on a body of mass 0.05 kg moving with velocity 4 m/s. The final velocity of the body is

(A) 4.9 m/s

(B) 18 m/s

(C) 9 m/s

(D) 7.5 m/s

9. To check the equilibrium of five coplanar concurrent forces, we use law of

(A) Parallelogram of forces

(B) Triangle of forces

(C) Lami's theorem

(D) Polygon of forces

10. The S.I. unit of momentum is

(A) kg m

(B) $kg\ m^{-1}s^{-1}$

(C) $kg\ m\ s^{-2}$

(D) $kg\ m\ s^{-1}$

11. When three forces acting at a point are in equilibrium, the angle opposite to biggest force is always _____ angle.

(A) biggest

(B) smallest

(C) equal to other

(D) obtuse

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

(A) Law of parallelogram of forces.

(B) Lami's theorem.

(C) Law of triangle of forces.

(D) Law of polygon of forces.

Space For Rough Work

13. Two forces 3N and 5N acts on a body simultaneously making an angle 60° between them. The resultant force on the body is

(A) 8 N

(B) 4 N

(C) 7 N

(D) 49 N

14. Dimensional formula for stress is

(A) $[LM^{-1}T^{-2}]$

(B) $[L^{-1}MT^{-2}]$

(C) $[L^{-1}M^{-1}T]$

(D) $[L^2M^{-1}T^{-2}]$

15. The pull in the bicycle chain is an example of

(A) tensile stress

(B) volume stress

(C) shear stress

(D) shear strain

16. Viscosity of water at 20 °C in centipoise is

(A) 1.792

(B) 0.650

(C) 1.005

(D) 0.470

17. Dimensional formula of surface tension is

(A) $[LMT^{-2}]$

(B) $[L^2MT^{-2}]$

(C) $[LM^{-1}T^{-2}]$

(D) $[L^0MT^{-2}]$

18. A steel needle can be floated on the surface of water because of the

(A) density of steel is greater than water

(B) density of steel is less than water

(C) surface tension

(D) viscosity

Space For Rough Work

A-1

4

CR

19. Thrust on the bottom of the container having a base area of 10 m² filled with water to a height of 6 m is

(A) 60×10^2 N   (B) 58.8×10^4 N

(C) 60.8 N   (D) 600 N

20. Keeping the temperature constant, if the pressure of the gas is doubled its volume

(A) remains constant   (B) doubles

(C) reduces to one fourth   (D) reduces to half

21. Heat transfer in the absence of the medium is

(A) conduction   (B) convection

(C) radiation   (D) absorption

22. Zero of absolute scale of temperature is at

(A) 0 °C   (B) 100 °C

(C) 273 °C   (D) – 273 °C

23. Ripples on water surface is an example of

(A) electromagnetic waves   (B) transverse waves

(C) waves travelling in space   (D) longitudinal waves

24. The time interval between two consecutive waxing and waning of sound waves is

(A) beat period   (B) wave period

(C) beat frequency   (D) wave frequency

Space For Rough Work

25. S.I. unit of intensity of sound is

    (A) watt per square meter   (B) watt per meter

    (C) watt square meter   (D) watt meter

26. The study of characteristics of buildings with reference to sound is

    (A) resonance   (B) interference

    (C) echo   (D) acoustics

27. The distance travelled by the disturbance in the medium for one complete oscillation is

    (A) wave velocity   (B) wavelength

    (C) wave frequency   (D) wave amplitude

28. Momentum of a photon is given by

    (A) $P = \dfrac{\lambda}{h}$ (B) $P = \dfrac{h}{\lambda}$

    (C) $P = \lambda h$ (D) $P = \lambda^2 h$

29. The velocity of sound in case of liquids is given by

    (A) $\sqrt{\dfrac{d}{k}}$ (B) $\sqrt{kd}$

    (C) $\sqrt{\dfrac{k}{d}}$ (D) $\sqrt{\dfrac{d^2}{k}}$

30. A tuning fork vibrating in air is an example of

    (A) damped free vibrations   (B) resonant vibrations

    (C) undamped free vibrations   (D) forced vibrations

Space For Rough Work

31. Raman lines are

(A) unpolarised   (B) polarised

(C) diffracted   (D) reflected

32. A crystal which has two optic axes is

(A) calcite   (B) quartz

(C) mica   (D) glass

33. Electron microscope is used to

(A) study virus and bacteria

(B) view three dimensional images

(C) automatic switching on and off of street-lights

(D) electronic industry for soldering

34. Which of the following statements is correct in case of γ-rays ?

(A) Penetrating power is less than β-rays.

(B) Penetrating power is less than α-rays.

(C) Penetrating power is very high.

(D) γ particles are nothing but electrons.

35. For destructive interference of light the path difference should always be

(A) $(2n + 1)\dfrac{\lambda}{2}$ (B) $\dfrac{n\lambda}{2}$

(C) $(2n + 1)\dfrac{\lambda}{3}$ (D) $n\lambda$

Space For Rough Work

36. The resultant intensity of interference of two monochromatic waves having same amplitude and constant phase difference equal to ϕ is

(A) $2a \cos\left(\dfrac{\phi}{2}\right)$

(B) $4a^2\cos^2\left(\dfrac{\phi}{2}\right)$

(C) $4a^2\cos\left(\dfrac{\phi}{2}\right)$

(D) $4a \cos^2\left(\dfrac{\phi}{2}\right)$

37. For two objects to be just resolved, the principle maximum should be on

(A) first maximum

(B) second maximum

(C) first minimum

(D) second minimum

38. Resolving power of microscope is given by

(A) $\dfrac{\lambda}{2n \sin\theta}$

(B) $\dfrac{n}{2\lambda \sin\theta}$

(C) $\dfrac{2\lambda \sin\theta}{n}$

(D) $\dfrac{2n \sin\theta}{\lambda}$

39. In case of acids, the concentration of H^+ ions is

(A) more than 10^{-7} g ions/litre.

(B) less than 10^{-7} g ions/litre.

(C) equal to 10^{-7} g ions/litre.

(D) between 10^{-7} g ions/litre and 10^{-14} g ions/litre.

40. Corrosion of metal can be prevented by keeping it in

(A) acidic medium

(B) basic medium

(C) neutral medium

(D) moisture

Space For Rough Work

41. The value of the determinant $A = \begin{vmatrix} 1 & 1 & 1 \\ 3 & 3 & 3 \\ 4 & 5 & 6 \end{vmatrix}$ is

   (A) 1   (B) 3

   (C) – 2   (D) 0

42. The value 'x' by Cramer's rule in $3x + 2y = 4$ and $x - 2y = 8$ is

   (A) 12   (B) 3

   (C) – 13   (D) 15

43. If $A = \begin{bmatrix} 2 & -3 \\ 1 & 5 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 2 \\ 4 & -3 \end{bmatrix}$, then $A + 2B$ is

   (A) $\begin{bmatrix} 4 & 1 \\ 9 & -1 \end{bmatrix}$ (B) $\begin{bmatrix} 4 & 1 \\ 9 & 1 \end{bmatrix}$

   (C) $\begin{bmatrix} 3 & -1 \\ 5 & 2 \end{bmatrix}$ (D) $\begin{bmatrix} 3 & 1 \\ 5 & 2 \end{bmatrix}$

44. If $A = \begin{bmatrix} 2 & 3 & 4 \\ -2 & x & -4 \\ -5 & 6 & 7 \end{bmatrix}$ is singular, then the value of x is

   (A) –3   (B) 3

   (C) $\dfrac{1}{3}$ (D) $\dfrac{-1}{3}$

Space For Rough Work

45. The characteristic roots of the matrix $A = \begin{bmatrix} 1 & 4 \\ 3 & 2 \end{bmatrix}$ is

(A) 5, 2

(B) −5, −2

(C) 5, −2

(D) −5, 2

46. If $^nC_{16} = {^nC_3}$, then the value of n is

(A) −19

(B) 19

(C) 13

(D) −13

47. The last term in the expansion of $\left(3x^2 + \dfrac{1}{2x^2}\right)^4$ is

(A) $\dfrac{1}{8x^8}$

(B) $\dfrac{1}{16x^8}$

(C) $81\,x^8$

(D) $12\,x^8$

48. The unit vector of $\bar{a} = 2i - 3j + 4k$ is

(A) $\dfrac{2i-3j+4k}{\sqrt{29}}$

(B) $\dfrac{2i-3j+4k}{\sqrt{11}}$

(C) $\dfrac{2i-3j+4k}{\sqrt{3}}$

(D) $\dfrac{\sqrt{29}}{2i-3j+4k}$

49. If $\bar{a} = i - 4j + 3k$ and $\bar{b} = -2i + j + 6k$, then the projection of $\bar{a}$ on $\bar{b}$ is

(A) $\dfrac{24}{\sqrt{41}}$

(B) $\dfrac{12}{\sqrt{26}}$

(C) $\dfrac{-12}{\sqrt{41}}$

(D) $\dfrac{12}{\sqrt{41}}$

Space For Rough Work

50. The area of triangle whose two sides are $\vec{a} = 3i + 4j + k$ and $\vec{b} = 5i + 6j + 2k$ is

(A)   3 sq. units

(B) $\dfrac{1}{2}$ sq. units

(C) $\dfrac{3}{2}$ sq. units

(D) $\dfrac{9}{2}$ sq. units

51. The simplification of $\dfrac{1}{1+\sin\theta} + \dfrac{1}{1-\sin\theta}$ is

(A) $2\cos^2\theta$

(B) $2\sec^2\theta$

(C) $\tan^2\theta$

(D) $2\,\mathrm{cosec}^2\theta$

52. The value of $\tan^2 30° + \sin^2 45° + \cos^2 90° + \cos^2 60°$ is

(A) $\dfrac{4}{3}$

(B) $\dfrac{13}{12}$

(C) $\dfrac{13}{24}$

(D) $\dfrac{25}{12}$

53. The simplification of $\dfrac{\sin(180°-A)\cos(360°-A)}{\tan(90°+A)\sin(-A)}$ is

(A) $\sin A$

(B) $\mathrm{cosec}\,A$

(C) $-\sin A$

(D) $-\mathrm{cosec}\,A$

54. If $\cos A = \dfrac{-3}{5}$ where $90° < A < 180°$, then the value of $\cot A$ is

(A) $\dfrac{3}{4}$

(B) $\dfrac{4}{3}$

(C) $\dfrac{-3}{4}$

(D) $\dfrac{-4}{3}$

Space For Rough Work

55. The value of cos 105° is

(A) $\dfrac{\sqrt{3}-1}{2\sqrt{2}}$

(B) $\dfrac{\sqrt{3}+1}{2\sqrt{2}}$

(C) $\dfrac{2\sqrt{2}}{1-\sqrt{3}}$

(D) $\dfrac{1-\sqrt{3}}{2\sqrt{2}}$

56. If $\tan\dfrac{A}{2}=\dfrac{1-\cos A}{\sin A}$, then the value of $\tan 22\dfrac{1}{2}^{\circ}$ is

(A) $\sqrt{2}+1$

(B) $1-\sqrt{2}$

(C) $\sqrt{2}-1$

(D) $-1-\sqrt{2}$

57. The value of cos 5x · cos 3x is

(A) $\cos 8x + \cos 2x$

(B) $\dfrac{1}{2}(\cos 8x + \cos 2x)$

(C) $\dfrac{1}{2}(\sin 8x + \sin 2x)$

(D) $\dfrac{1}{2}(\cos 8x - \cos 2x)$

58. The simplified value of $\tan^{-1}\left(\dfrac{1}{2}\right)+\tan^{-1}\left(\dfrac{1}{3}\right)$ is

(A) $\dfrac{\pi}{4}$

(B) $\dfrac{\pi}{3}$

(C) 1

(D) $\tan^{-1}\left(\dfrac{1}{7}\right)$

59. Distance of a point P(– 2, 5) from the origin is

(A) $\sqrt{29}$

(B) $\sqrt{21}$

(C) $\sqrt{3}$

(D) 29

60. The co-ordinates of the point which divides the line joining the points A (8, 3) and B(–5, 6) in the ratio of 2 : 3 externally is

(A) (– 34, –3)

(B) (34, 3)

(C) $\left(\dfrac{14}{5},\dfrac{21}{5}\right)$

(D) (34, –3)

Space For Rough Work

61. The area of triangle with the vertices (5, 3), (4, 6) and (5, 8) is

(A) $\dfrac{15}{2}$ sq. units

(B) 15 sq. units

(C) $\dfrac{5}{2}$ sq. units

(D) $\dfrac{45}{2}$ sq. units

62. The slope of the line making an angle 150° with the x-axis is

(A) $\dfrac{-1}{\sqrt{3}}$

(B) $\dfrac{1}{\sqrt{3}}$

(C) $\sqrt{3}$

(D) $-\sqrt{3}$

63. The two point form of a straight line is

(A) $y - y_1 = m(x - x_1)$

(B) $\dfrac{y - y_1}{x - x_1} = \dfrac{y_2 - y_1}{x_2 - x_1}$

(C) $\dfrac{y}{x} = \dfrac{y_2 - y_1}{x_2 - x_1}$

(D) $\dfrac{y - y_2}{x - x_2} = \dfrac{y_2 - y_1}{x_2 - x_1}$

64. The equation of straight line perpendicular to $2x + 5y - 8 = 0$ and passing through $(-1, 2)$ is

(A) $2x + 5y + 9 = 0$

(B) $5x - 2y + 1 = 0$

(C) $5x - 2y + 9 = 0$

(D) $5x + 2y - 9 = 0$

65. The value of $\underset{x \to 3}{lt} \dfrac{2x^2 - 7x + 3}{2x - 6}$ is

(A) 3

(B) $\dfrac{2}{5}$

(C) $\dfrac{5}{2}$

(D) 5

Space For Rough Work

66. The value of $\lim\limits_{x \to 0} \dfrac{\sqrt{1-\cos x}}{x}$ is

(A) $\dfrac{1}{\sqrt{2}}$

(B) $\sqrt{2}$

(C) $\dfrac{1}{2}$

(D) 1

67. If $y = e^x (\cos x - \sin x)$, then $\dfrac{dy}{dx}$ is

(A) $2e^x \cos x$

(B) $-2e^x \cos x$

(C) $2e^x \sin x$

(D) $-2e^x \sin x$

68. If $x + y = \log x + \log y$, then $\dfrac{dy}{dx}$ at $x = -1$ and $y = 2$ is

(A) $-\dfrac{1}{4}$

(B) -4

(C) 4

(D) $\dfrac{1}{2}$

69. If $x = a \cos^2 \theta$ and $y = b \sin^2 \theta$, then $\dfrac{dy}{dx}$ is

(A) $\dfrac{-b}{a}$

(B) $\dfrac{b}{a}$

(C) $\dfrac{a}{b}$

(D) $\dfrac{-a}{b}$

70. The second derivative of $y = \log\left(\dfrac{1}{x}\right)$ is

(A) x

(B) 1

(C) $\dfrac{1}{x^2}$

(D) $\dfrac{-1}{x^2}$

Space For Rough Work

A-1

14

CR

71. The equation of normal to the curve $y = (2x + 1)^2$ at $(-2, 0)$ is

   (A) $x - 16y + 2 = 0$
   (B) $x - 12y + 2 = 0$
   (C) $x + 16y + 2 = 0$
   (D) $x + 12y + 2 = 0$

72. The maximum value of the function $y = 2x^3 + 3x^2 - 36x$ is

   (A) -44
   (B) -30
   (C) 81
   (D) -81

73. The value of $\int \sin 3x \cos 2x \, dx$ is

   (A) $\dfrac{-1}{2}\left[\dfrac{\cos 5x}{5} + \cos x\right] + C$
   (B) $\dfrac{1}{2}\left[\dfrac{-\cos 5x}{5} + \cos x\right] + C$
   (C) $\dfrac{1}{2}\left[\dfrac{\cos 5x}{5} + \cos x\right] + C$
   (D) $\dfrac{-1}{2}[\cos 5x + \cos x] + C$

74. The value of $\int x^2 \sin(2x^3) \, dx$ is

   (A) $\dfrac{-\cos(2x^3)}{6} + C$
   (B) $\dfrac{-\cos(2x^3)}{3} + C$
   (C) $12x^3 \cos(2x^3) + C$
   (D) $\dfrac{\cos(2x^3)}{6} + C$

75. $\int \log x \, dx$ is

   (A) $\dfrac{1}{x} + C$
   (B) $\dfrac{1}{x} - x + C$
   (C) $x \log x + x + C$
   (D) $x \log x - x + C$

Space For Rough Work

76. The value of $\int\limits_{0}^{\pi/2}\sqrt{1+\sin 2x}\ dx$ is

(A) 0   (B) 1

(C) 2   (D) -2

77. $\int\limits_{0}^{1}\dfrac{x}{1+x^4}$ is

(A) $\dfrac{\pi}{4}$ (B) $\dfrac{\pi}{8}$

(C) $\dfrac{-\pi}{8}$ (D) $\dfrac{-\pi}{4}$

78. The area formed by the curve $y = (2x+1)^3$ between the ordinates $x = -1$ and $x = 1$ is

(A) $\dfrac{41}{4}$ sq. units   (B) 2 sq. units

(C) 20 sq. units   (D) 10 sq. units

79. The order and degree of differential equation $\left[1+\left(\dfrac{dy}{dx}\right)^4\right]^{2/3} = \dfrac{d^2y}{dx^2}$ is

(A) order 2 and degree 3   (B) order 2 and degree 1

(C) order 1 and degree 2   (D) order 1 and degree 4

80. The solution of differential equation $\sec^2x \tan y\ dx + \sec^2y \tan x\ dy = 0$ is

(A) $\tan^2x + \tan^2y = C$ (B) $\tan x + \tan y = C$

(C) $\tan x\ \tan y = C$ (D) $x+y+\log(\sec x \sec y) = C$

Space For Rough Work

PART-C

CERAMICS

81. Marble stone is
    (A) Igneous rock
    (B) Sedimentary rock
    (C) Metamorphic rock
    (D) Not a rock

82. Hackly is a term used for
    (A) Form
    (B) Fracture
    (C) Hardness
    (D) Cleavage

83. The depth of interior of the earth is estimated about
    (A) 2900 km
    (B) 1000 km
    (C) 5000 km
    (D) 6370 km

84. Gypsum crystalizes under _____ system.
    (A) Monoclinic
    (B) Hexagonal
    (C) Tetragonal
    (D) Isometric

85. Rocks are defined as _____ minerals.
    (A) Pure soil
    (B) Impure soil
    (C) Aggregate
    (D) None of these

86. Hardness of Quartz on Mohs scale is
    (A) 7
    (B) 8
    (C) 9
    (D) 10

Space For Rough Work

87. Inside the crust there are rock layers known as

(A) Hydrosphere

(B) Mesosphere

(C) Atmosphere

(D) Lithosphere

88. Two adjacent faces meet to form a/an

(A) External angle

(B) Internal angle

(C) Straight angle

(D) No angle

89. The poorest property of the Ceramics is

(A) Hard

(B) Dense

(C) Brittle

(D) Tough

90. _____ is used as frothing agent.

(A) Pine oil

(B) Grease

(C) Wax

(D) Varnish

91. POP is prepared from _____ mineral.

(A) Calcite

(B) Baddylite

(C) Gypsum

(D) Cryolite

92. Example for alumina mineral is

(A) Diaspore

(B) Gibbsite

(C) Bauxite

(D) All of these

93. Porcelain is a _____ body.

(A) Vitreous

(B) Semi-vitreous

(C) Non-vitreous

(D) Opaque

Space For Rough Work

94. _____ decoration method is commonly used for tiles.

(A) Etching

(B) Sand blasting

(C) Screen printing

(D) Gunning

95. The hardness of talc on Mohs scale is

(A) 1

(B) 2

(C) 3

(D) 4

96. Thick sanitary wares are dried in

(A) Rotary drier

(B) Humidity drier

(C) Spray drier

(D) Mangle drier

97. Di-electric strength is the property of

(A) Glazed tile

(B) Sewer pipes

(C) Bone china ware

(D) Porcelain insulator

98. Which of the following affects the colour of the ware ?

(A) Colouring agent

(B) Kiln atmosphere

(C) Firing temperature

(D) All of these

99. Common impurities in calcined Alumina is

(A) Magnesia, Potash, Soda

(B) Titanium, Silica, Iron oxide

(C) Calcium oxide, Barium oxide, Nickel oxide

(D) Cobalt oxide, Antiomony oxide, Chromium oxide

Space For Rough Work

100. Basic refractories which consists of basic material have resistance to

(A) Basic slag
(B) Acidic slag
(C) Both basic and acidic slag
(D) High temperature

101. Chemical formula of diaspore and bachmite is

(A) Al_2O_3
(B) $Al_2O_3 \cdot H_2O$
(C) $Al_{25}O_3$
(D) $3Al_2O_3 \cdot H_2O$

102. After sharping the drying temperature of chrome/mag refractory bricks/blocks is

(A) 95 – 100 °C
(B) 100 – 105 °C
(C) 150 – 250°C
(D) 450 – 550 °C

103. The chemical composition of chrome ore is

(A) Cr_2O_3
(B) CrO_2
(C) CrO
(D) CrO_3

104. Example of heat insulation refractory material is

(A) Mica
(B) Porcelain
(C) Stoneware
(D) Glass

105. The manufacture of refractory bricks & blocks in England and USA was started in the beginning of

(A) 19th Century
(B) 18th Century
(C) 17th Century
(D) 15th Century

106. The main raw material in the manufacture of crude fused Alumina is

(A) Raw Bauxite
(B) Calcined Bauxite
(C) Kyanite
(D) Silliminate

Space For Rough Work

107. Refractory Saggers are manufactured by using

(A) Alumina
(B) Kyanite
(C) Fire clay
(D) Graphite

108. Carbon refractories specific gravity is

(A) $1.5 - 1.9$
(B) $2.5 - 2.8$
(C) $3.1 - 3.5$
(D) $3.5 - 4$

109. Sodium alkyl sulfate is an example for

(A) Foaming agent
(B) Antifoaming agent
(C) Plasticizer
(D) Preservative

110. The packing density of tetrahedral configurations is

(A) 52.4%
(B) 60.5%
(C) 69.8%
(D) 74.0%

111. _____ is the science of deformation and flow.

(A) Petrology
(B) Rheology
(C) Biology
(D) Zoology

112. Plastic clay bodies have traditionally been formed by

(A) Extrusion
(B) Slip casting
(C) Iso-static pressing
(D) Tape casting

113. The condensation of an element or a compound from the vapour state, forming a solid deposit is known as

(A) Precipitation
(B) Gelation
(C) Vapour deposition
(D) Polymerization

Space For Rough Work

114. Trimming is commonly performed when the body is in _____ state.

(A) Dry

(B) Plastic

(C) Slurry

(D) Leather hard

115. In glass SiO_2 is known as

(A) Network former

(B) Network modifier

(C) Intermediator

(D) Network slower

116. Which is known as salt cake ?

(A) Na_2SO_4

(B) $NaCl$

(C) $NaOH$

(D) $Na_2(PO_4)_2$

117. Gypsum used to prevent

(A) Caking

(B) Stocking

(C) Baking

(D) None of these

118. More than 95% of all manufactured glass is chiefly composed of

(A) Soda-lime glass

(B) Potash-lime glass

(C) Potash-lead glass

(D) Optical glass

119. The process of freeing the melt from bubbles is known as

(A) Fining

(B) Spinning

(C) Milling

(D) Nilling

120. Strain in glass can be detected by using

(A) Solenoid strain detector

(B) Polaroid strain detector

(C) Maxwell strain detector

(D) Miller strain detector

Space For Rough Work

121. Etching of glass is done by using

(A) HF acid commercial 60% (B) HF acid commercial 30%

(C) HF acid commercial 20% (D) HF acid commercial 10%

122. Glass breaks only in

(A) Compression (B) Tension

(C) Suspension (D) None of these

123. The apparatus used to determine the thermal expansion of glass is

(A) Screw gauge apparatus (B) Dial gage apparatus

(C) Hook gauge apparatus (D) Littletons apparatus

124. Glass is a _____ of heat.

(A) Poor conductor (B) Good conductor

(C) Not conductor (D) Speed conductor

125. Cement was invented by Joseph Aspidin in the year

(A) 1820 (B) 1824

(C) 1830 (D) 1845

126. If the cement temperature exceeds 120°C during grinding then such cement exhibit _____ property due to partial hydration of gypsum.

(A) False setting (B) Good setting

(C) Bad setting (D) None of these

127. Continuous lime-stone calcination kiln is constructed by using _____ .

(A) Special refractory bricks (B) Refractory bricks

(C) Wire cut bricks (D) Cement blocks

Space For Rough Work

128. When lime-stone is heated, it will break down with heat. We call this reaction as

(A) Chemical reaction
(B) Thermal decomposition
(C) Chemical decomposition
(D) Break down reaction

129. Air entering the rotary kiln through the coolers is called _____.

(A) Hot air
(B) Cold compressed air
(C) Secondary air
(D) Supplementary air

130. The inclination of rotary kiln is

(A) 1 metre height for every 30 metres length
(B) 2 metre height for every 30 metres length
(C) 3 metre height for every 30 metres length
(D) 4 metre height for every 30 metres length

131. The chemical formula of gypsum is _____.

(A) $CaSO_4 \cdot 2H_2O$
(B) $CaSO_4 \cdot H_2O$
(C) $2CaSO_4 \cdot H_2O$
(D) $2CaSO_4 \cdot 2H_2O$

132. In India portland cement was first manufactured in the year

(A) 1848
(B) 1912
(C) 1914
(D) 1904

133. When calcite is calcined at 1000 °C it changes to phase known as _____.

(A) Oolite
(B) Alite
(C) Belite
(D) Crystobalite

134. The later age's strength in ordinary portland cement is achived by _____.

(A) C_4AF
(B) C_3A
(C) C_2S
(D) C_3S

Space For Rough Work

135. Englers theory belongs to

(A) Formation of stone
(B) Formation of clay
(C) Formation of petrolium
(D) Formation of glass

136. Calorific value of kerosene is

(A) 1000 k.cal/kg
(B) 11,100 k.cal/kg
(C) 12,200 k.cal/kg
(D) 9,200 k.cal/kg

137. LPG stands for

(A) Large Petrolium Gas
(B) Low Petrolium Gas
(C) Liquefied Petrolium Gas
(D) Lime Petrolium Gas

138. Natural gas is generally associated with

(A) Soil deposits
(B) Ore deposits
(C) Stone deposits
(D) Petrolium deposits

139. Oil gas is obtained by cracking of

(A) Coconut oil
(B) Sunflower oil
(C) Groundnut oil
(D) Kerosene oil

140. Combustion is a/an _____ chemical reaction.

(A) Exothermic
(B) Endothermic
(C) Mesothermic
(D) Deothermic

141. The apparatus used for determining cloud point and pour point of crude oil is

(A) Pour point apparatus
(B) Bro point apparatus
(C) Sour point apparatus
(D) Glow point apparatus

Space For Rough Work

142. Chromite refractories are

(A) Acidic refractories
(B) Basic refractories
(C) Neutral refractories
(D) None of these

143. Fish sealing and chips like human nails are shown on enamel surface because of

(A) Under firing
(B) Faulty composition
(C) Over firing
(D) Old raw materials

144. Yellow colour enamel is best made by adding 1 to 3% of _____.

(A) Copper oxide
(B) Iron oxide
(C) Zinc oxide
(D) Uranium oxide

145. Hardening of lacquer is mainly due to oxidation of lacquer is carried by an enzyme called _____.

(A) Lactose
(B) Glucose
(C) Glygyrine
(D) Pituitaries

146. Dipping method of enamel coating application is sometime known as

(A) Pouring
(B) Sparing
(C) Slushing
(D) Sprinkling

147. Chromium oxide gives _____ colour in high B_2O_3 glaze.

(A) Black
(B) Blue
(C) Green
(D) Yellow

148. The thickness of glaze coating on ceramic ware should be

(A) Thin
(B) Very thin
(C) Thick
(D) Very thick

Space For Rough Work

149. Addition of _____ makes the fruit milky white.

   (A) NaCl   (B) KCl

   (C) CaO   (D) MgO

150. The glaze defect peeling is caused due to

   (A) High thermal expansion of glaze

   (B) Low thermal expansion of glaze

   (C) High plasticity in the glaze

   (D) Low plasticity in the glaze

151. The purpose of calcining Zinc oxide is to

   (A) vaporize Iron and other impurities

   (B) eliminate Carbon di-oxide

   (C) make it brittle

   (D) make it insoluble

152. The essential difference between a glaze and a engobe is

   (A) More glossy phase in glaze

   (B) Less glossy phase in glaze

   (C) Equal glossy phase in both

   (D) More glossy phase in engobe

153. Sanitary pipes are shaped by

   (A) Extrusion   (B) Jiggering

   (C) Jollying   (D) Screw Press

154. Which one of the following controls the thickness of plate in tape casting ?

   (A) Blade   (B) Viscosity of the slurry

   (C) Drying shrinkage   (D) All of the above

Space For Rough Work

155. Which is the most suitable conveyor for transportation of sticky material ?

    (A)   Apson conveyor
    (B)   Belt conveyor

    (C)   Screw conveyor
    (D)   Pneumatic conveyor

156. In Iso-Static press the pressure is applied from

    (A)   One direction
    (B)   Two directions

    (C)   Three directions
    (D)   All directions

157. Annular collar needle is used to test

    (A)   Initial setting time
    (B)   Final setting time

    (C)   Water consistency
    (D)   Soundness

158. Cyclone separator works on _____ principle.

    (A)   Centrifugal
    (B)   Centripetal

    (C)   Electrical
    (D)   Mechanical

159. _____ Drier is used for drying of materials

    (A)   Tunnel
    (B)   Mangle

    (C)   Rotary
    (D)   Chamber

160. In soundness test cement should not expand more than

    (A)   10 mm
    (B)   15 mm

    (C)   20 mm
    (D)   25 mm

Space For Rough Work

161. In the manufacturing of Barium titanate capacitors the % of $BaCO_3$ is

(A) 50%
(B) 44%
(C) 52%
(D) 40%

162. When insulator transforms part of electrical energy into heat, the loss of energy is known as

(A) Dielectric strength
(B) Power factor
(C) Dielectric wastage
(D) Heat factor

163. PLZT is used as

(A) Capacitor
(B) Resistor
(C) Piezoelectricity
(D) Ferrite

164. _____ is used in internal combustion engines.

(A) Honey comb
(B) Filters
(C) Semi conductor
(D) Spark plug

165. The chemical formula of magnet is

(A) Fe_3O_4
(B) Fe
(C) FeO
(D) Fe_2O

166. Which one of the following offers less resistance to the flow of current ?

(A) Insulators
(B) Conductors
(C) Semi conductors
(D) Ionic conductors

167. The fracture toughness of Tungsten carbide cutting tool is

(A) 6.6 MPa
(B) 10.5 MPa
(C) 13.8 MPa
(D) 15 MPa

Space For Rough Work

168. Tiles are usually shaped by

(A) Plastic pressing
(B) Dry pressing
(C) Casting
(D) Extrusion

169. Deflocculant increases _____ of the slip.

(A) Fluidity
(B) Density
(C) Viscosity
(D) Thixotropy

170. Temperature Variations are detected by _____ sensor.

(A) Gas
(B) Humidity
(C) Oxygen
(D) Thermo

171. Clay is a

(A) Primary rock
(B) Secondary rock
(C) Tertiary rock
(D) Sigma rock

172. Presence of alkalies makes the body

(A) Hard
(B) Compact
(C) Porous
(D) Crystalline

173. Alumina forms ____ dimensional crystalline structure.

(A) one
(B) two
(C) three
(D) four

174. The stable form of silica at room temperature is

(A) Alpha-Quartz
(B) Beta-Quartz
(C) Gama-Quartz
(D) Tetra-Quartz

Space For Rough Work

175. Example for organic binder is

    (A) Gelatin
    (B) Dextrine

    (C) Gum arabic
    (D) All these

176. Carbides are

    (A) Very hard material
    (B) Very soft material

    (C) Very brittle material
    (D) Plastic material

177. Nitrides are the bodies which shows

    (A) High refractoriness
    (B) Low refractoriness

    (C) Medium refractoriness
    (D) High thermal spalling

178. Borides belongs to

    (A) Transition metals
    (B) Non-metals

    (C) Noble metals
    (D) Carbon

179. Silicide is a compound which has

    (A) Silicon with more electropositive element

    (B) Silicon with more electronegative element

    (C) Silicon with less electropositive element

    (D) Silicon with less electronegative element

180. Chemical formula of Titanium di boride is

    (A) TiB
    (B) TiB_2

    (C) Ti_2B
    (D) Ti_3B

Space For Rough Work

A-1