DIPLOMA – COMMON ENTRANCE TEST-2013

CR	COURSE	DAY : SUNDAY DATE : 30-JUNE-2013
	CERAMICS TECHNOLOGY	TIME : 9.00 a.m. to 12.00 Noon

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-4	108104

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 08.50 a.m.**
3. The serial number of this question booklet should be entered on the OMR answer sheet.
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 9.00 a.m., till then;**
   - Do not remove the seal / staple 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.

[redacted]

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 9.00 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 ballpoint 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 12.00 Noon**, 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**.

[P.T.O.

DO NOT WRITE HERE

PART – A

It consists of **1 – 40** questions.

1. If x cot 45° cos 60° = sin 60° tan 30° then the value of x is

   (1) $\sqrt{3}$ (2) $\sqrt{3}/2$

   (3) 1/2 (4) 1

2. If tan x = 15/8 and x is in the III quadrant then the value of (2 sin x – 3 cos x) / (2 cos x + 3 sin x) is

   (1) 61/6 (2) – 61/6

   (3) – 6/61 (4) 6/61

3. The value of $\{[\sin(2\pi - \theta) + \cos(-\theta)] / [\tan(-\theta) + \cot(2\pi + \theta)]\} - \{[\sin(\pi/2 + \theta) + \cos(3\pi/2 - \theta)] / [\cot(\pi + \theta) + \tan(2\pi - \theta)]\}$ is

   (1) 0 (2) – 1

   (3) + 1 (4) – 2

4. If sin A = 5/13 and sin B = 4/5 then the value of cos (A – B) is

   (1) 65/56 (2) 56/65

   (3) 16/65 (4) – 16/65

5. On simplification the value of $(\cos^3 A - \cos 3A) / \cos A + (\sin^3 A + \sin 3A) / \sin A$ is

   (1) 3 (2) 1

   (3) 2 (4) 0

6. $d/dx\left(\sqrt{\sin^2 x}\right)$ is

   (1) cos x (2) sin 2x

   (3) $\cos^2 x$ (4) $\sqrt{\cos x / \sin x}$

SPACE FOR ROUGH WORK

7. $d/dx \tan^{-1} \sqrt{(1-\cos 2x)/(1+\cos 2x)}$ is

(1) 1 (2) 0

(3) tan x (4) cos x

8. If $y = \sin x^x$ then dy/dx is

(1) x log sin x

(2) $\cos x^x$

(3) $\sin x^x$ (x cot x + log sin x)

(4) $\cos x^x$ (x tan x + log sec x)

9. $d/dx \left(\sin h^{-1} x\right)$ is

(1) $1/\sqrt{1+x^2}$ (2) $1/\sqrt{1-x^2}$

(3) $1/\sqrt{x^2-1}$ (4) $1/\sqrt{x^2+1}$

10. The equation to the normal to the curve $y = 5x^2 + 4x - 11$ at the point $(-1, 2)$ is

(1) $x - 6y + 11 = 0$

(2) $x + 6y - 11 = 0$

(3) $6x - y + 11 = 0$

(4) $6x + y - 11 = 0$

11. In solving the equations by Cramer's rule for $5x - 3y = 1$ and $2x - 5y = -11$, the value of x and y is

(1) (3, 2) (2) (−3, −2)

(3) (2, 3) (4) (−2, −3)

SPACE FOR ROUGH WORK

12. If $A = \begin{bmatrix} 2 & 0 & 0 \\ 1 & 2 & 0 \\ 1 & 1 & 2 \end{bmatrix}$ then A adj A is

(1) Diagonal
(2) Scalar
(3) Identity
(4) Zero matrix

13. The minor of the element 6 in a matrix $A = \begin{bmatrix} 2 & -3 & 0 \\ 4 & 1 & 6 \\ 3 & 2 & 0 \end{bmatrix}$ is

(1) 10
(2) 11
(3) 12
(4) 13

14. The characteristic equation of the matrix $A = \begin{bmatrix} 5 & -3 \\ 2 & 1 \end{bmatrix}$ is

(1) $\lambda^2 - 6\lambda + 11 = 0$
(2) $\lambda^2 - 6\lambda - 11 = 0$
(3) $\lambda^2 + 6\lambda + 11 = 0$
(4) $-\lambda^2 + 6\lambda = 0$

15. The fourth term in the expansion of $\left(\sqrt{3} + 2\right)^7$ is

(1) 2520
(2) – 2520
(3) 1/2520
(4) – 1/2520

16. The value of (sin 100° + sin 20°) / (cos 100° + cos 20°) is

(1) $\sqrt{3}/2$
(2) 1/2
(3) $\sqrt{3}$
(4) 1

17. The value of ($\tan^{-1}$ 5/6 + $\tan^{-1}$ 1/11) is

(1) 30°
(2) 60°
(3) 90°
(4) 45°

SPACE FOR ROUGH WORK

18. If the points (– 3, K), (5, 7) and (– 11, 1) are collinear, then the value of K is

(1) 4 (2) 3

(3) 2 (4) 1

19. The ratio of the line join of the points (2, 3) and (– 5, 6) divided by y – axis is

(1) 5 : 2 (2) 2 : 5

(3) 3 : 2 (4) 2 : 3

20. Three vertices of a triangle are (– 2, 3, 1), (– 1, 4, 2) and (– 6, 5, 2), then the centroid of the triangle is

(1) (– 3, 4, 1) (2) (0, 5/3, 1/3)

(3) (4, 3, 1) (4) (– 3, – 4, – 2)

21. The volume of a sphere is increasing at the rate of 4π c.c/sec, then the rate of increase of the radius is when the volume is 288 π cc

(1) 6 cm/sec (2) 1/6 cm/sec

(3) 1/36 cm/sec (4) 36 cm/sec

22. $\int \sin^2 x \, dx$ is

(1) $\cos x + c$ (2) $x/2 - (\sin 2x)/4 + c$

(3) $x/2 + (\cos 2x)/4 + c$ (4) $x/2 + (\sin 2x) / 4 + c$

23. $\int (3x^2 + x - 1)^6 (6x + 1) \, dx$ is

(1) $6 (3x^2 + x - 1)^5 + c$ (2) $(3x^2 + x - 1)^6 + c$

(3) $(3x^2 + x - 1)^7 / 7 + c$ (4) $(3x^2 + x - 1)^7 / 21 + c$

SPACE FOR ROUGH WORK

24. $\int \tan^{-1} x \, dx$ is

(1) $x \tan^{-1} x - 1/2 \log (1 + x^2) + c$

(2) $x \tan^{-1} x + 1/2 \log (1 + x^2) + c$

(3) $\tan^{-1} x - 1/2 \log (1 + x^2) + c$

(4) $\tan^{-1} x + 1/2 \log (1 + x^2) + c$

25. $\int_0^{\pi/2} \sin 3x \cos 2x \, dx$ is

(1) 3/5 (2) $-3/5$

(3) 5/3 (4) $-5/3$

26. The constant term in the expansion $(x^2 + 1/x)^{12}$ is

(1) -495 (2) 495

(3) 1/495 (4) 945

27. The projection of vector (3, 1, 3) on vector (1, – 2, 1) is

(1) $2\sqrt{6}/5$ (2) $-2\sqrt{6}/3$

(3) $2\sqrt{6}/3$ (4) $-2\sqrt{6}/5$

28. If vector a = (1, 1, 1) and vector b = (2, 2, 1) then magnitude of vector a × b is

(1) $\sqrt{26}$ (2) $\sqrt{28}$

(3) $\sqrt{24}$ (4) 1

29. The cosine of the angle between the vectors (3, – 1, 1) and vector (1, 1, – 1) is

(1) $1/\sqrt{11}$ (2) $-1/\sqrt{33}$

(3) $1/\sqrt{33}$ (4) $-1/\sqrt{11}$

SPACE FOR ROUGH WORK

30. The value of $(\sec^6 x - \tan^6 x)$ is

(1) $1 - 3\sec^2 \times \tan^2 x$

(2) $1 + \tan^2 \times \sec^2 x$

(3) $1 + 3\sec^2 \times \tan^2 x$

(4) $1 - \tan^2 \times \sec^2 x$

31. The equation to the straight line passing through (3, 2) and perpendicular to the line $5x + 2y - 3 = 0$ is

(1) $2x - 5y - 4 = 0$

(2) $2x - 5y + 4 = 0$

(3) $2x + 5y + 4 = 0$

(4) $5x - 2y + 4 = 0$

32. The slope of a line passing through the points $(-4, -5)$ and $(2, 3)$ is

(1) 3/4 (2) $-3/4$

(3) 4/3 (4) $-4/3$

33. The acute angle between the lines $2x - y + 3 = 0$ and $x - 3y + 2 = 0$ is

(1) 30° (2) 60°

(3) 90° (4) 45°

34. The value of $\lim_{n\to\infty} [(3 - n)(4 - n)(2n - 5)] / (4n^3 - 3)$

(1) $-1/2$ (2) 1/2

(3) 3/2 (4) $-3/2$

35. The value of $\lim_{x\to -3} (x^4 - 81) / (x^3 + 27)$ is

(1) 3 (2) -3

(3) 4 (4) -4

SPACE FOR ROUGH WORK

36. $\int_0^2 (x-1)(x-2)\,dx$ is

(1) 2/3 (2) $-2/3$

(3) 3/2 (4) $-3/2$

37. The area bounded by the curve $y = 2x^2$, the x – axis and the ordinates at $x = -1$ and $x = 2$ is

(1) – 6 sq units

(2) 3 sq units

(3) – 3 sq units

(4) 6 sq units

38. The differential equation formed by eliminating a and b from $x + y = ae^x + be^{-x}$ is

(1) $d^2y/dx^2 + y = 0$

(2) $d^2y/dx^2 - y = 0$

(3) $d^2y/dx^2 - x - y = 0$

(4) $d^2y/dx^2 + x - y = 0$

39. The solution of the differential equation $dy/dx = (1 + y^2) / (1 + x^2)$ is

(1) $\tan^{-1} y + \tan^{-1} x + c = 0$

(2) $\log (1 + y^2) + \log (1 + x^2) + c = 0$

(3) $\tan^{-1} y - \tan^{-1} x + c = 0$

(4) $\log (1 + y^2) - \log (1 + x^2) + c = 0$

40. If $\begin{vmatrix} x+2 & 5 \\ 0 & x-2 \end{vmatrix} = 0$, then x =

(1) 1 (2) 2

(3) 3 (4) 0

SPACE FOR ROUGH WORK

PART – B

It consists of **41 – 80** questions.

41. A bullet of mass 0.01 kg is fired from a rifle of mass 20 kg with a speed of 10 m/s , then the recoil velocity of rifle is _____ m/s.
    (1) –1
    (2) –0.05
    (3) –200.01
    (4) –0.005

42. Final velocity of a body thrown downwards is _____
    (1) Maximum
    (2) Minimum
    (3) No change
    (4) Zero

43. A person throws a sand bag from a boat at rest in a pond then boat moves
    (1) In the same direction
    (2) In the opposite direction
    (3) In a perpendicular direction
    (4) In circular direction

44. Two equal forces at a point, the square of their resultant is equal to three times the product of the forces. Then the angle between the forces is equal to
    (1) 30°
    (2) 45°
    (3) 60°
    (4) 90°

45. Equilibrant is a force
    (1) Which brings a body in equilibrium
    (2) Which moves the body along the resultant force
    (3) in zig-zag movement of the body
    (4) Which moves the body in opposite direction to equilibrant force

46. The best value of reverberation time for speech listener _____
    (1) 0.5 to 1.5 s
    (2) 0.15 to 0.5 s
    (3) 0.05 to 0.15 s
    (4) 0.5 to 5 s

SPACE FOR ROUGH WORK

47. 3 strings of equal lengths but stretched with different tensions are made to vibrate, if their masses per unit length are in the ratio 3:2:1 and frequencies are same then the ratio of the tensions _____

(1) 1:2:3 (2) 2:3:1

(3) 1:3:2 (4) 3:2:1

48. Newton's formula for velocity of sound was corrected by

(1) Boyle (2) Charles

(3) Laplace (4) Hertz

49. Light waves are composed of both electric and magnetic field is proposed by

(1) Newton's corpuscular theory

(2) Huygen's wave theory

(3) Maxwell's theory of light

(4) Plank's theory

50. If 'a' and 'b' are the amplitudes of two interfering waves then for destructive interference the amplitude ' R' is

(1) R = ab (2) R = a/b

(3) R = a – b (4) R = a + b

51. Which of the following is dimensional physical quantity ?

(1) pressure (2) strain

(3) mechanical advantage (4) sp.gravity

52. The principle of vernier is

(1) n VSD = (n + 1) MSD (2) (n – 1) VSD = n MSD

(3) n MSD = (n – 1) V SD (4) (n – 1) MSD = n VSD

SPACE FOR ROUGH WORK

53. A screw gauge has a pitch of $\frac{1}{2}$ mm and 50 division on sleeve. The reading when the jaws touch is +5 division. While gripping a wire the reading is PSR = 3 PSD and HSR = 17, then the diameter of wire is

(1) 1.62 cm
(2) 0.162 cm
(3) 0.162 mm
(4) 16.2 mm

54. The extension of the material by itself without increase of load takes place

(1) within elastic limit
(2) beyond elastic limit
(3) beyond yield point
(4) at breaking point

55. If the strain in a wire is 0.1%, then the change in the length of the wire of length 5 m is

(1) 5×10^{-2} m
(2) 5×10^{-3} m
(3) 5×10^{-4} m
(4) 5×10^{-3} cm

56. A force of 10 N acting on a body fixed at a point the distance from the fixed point to the line of force is 2 m. Then the moment of the force is _____ N-m.

(1) 0.002
(2) 0.02
(3) 2
(4) 20

57. By Lami's theorem, P Q R are three forces acting in equilibrium and angle between PR, PQ, QR, are α, β, γ respectively then which of the following is correct ?

(1) $\frac{P}{\sin\beta} = \frac{Q}{\sin\gamma} = \frac{R}{\sin\alpha}$
(2) $\frac{P}{\sin\gamma} = \frac{Q}{\sin\alpha} = \frac{R}{\sin\beta}$
(3) $\frac{P}{\sin\alpha} = \frac{Q}{\sin\beta} = \frac{R}{\sin\gamma}$
(4) $\frac{P}{\sin\alpha} = \frac{Q}{\sin\gamma} = \frac{R}{\sin\beta}$

58. If the line of action of the force passes through the point of rotation, then the moment of force is

(1) Maximum
(2) Less than one
(3) Greater than one
(4) Zero

SPACE FOR ROUGH WORK

59. 1 Kilo calorie of heat is equal to _____ joule.

(1) 4.186 (2) 41.86

(3) 418.6 (4) 4186

60. The correct relation between °F and K scale is

(1) $5K = 9(F - 32)$

(2) $9K = -5(F - 32)$

(3) $K = \frac{9}{5}(F - 32) - 273$

(4) $K = \frac{5}{9}(F - 32) + 273$

61. Two coherent sources 2×10^{-4} m apart are illuminated by the light of wave length 5000×10^{-10}m. The distance between the source and screen is 0.2m, then fringe width is

(1) 0.05×10^{-3} m

(2) 5×10^{-3}m

(3) 0.5×10^{-3}m

(4) 50×10^{-3}m

62. Resolving power of microscope is

(1) Equal to the resolution of the microscope

(2) Reciprocal to the resolution of the microscope

(3) Reciprocal to the focal length of the microscope

(4) Product of wave length and semi vertical angle

63. Which of the following phenomenon confirm that light is transverse wave ?

(1) Diffraction

(2) Interference

(3) Refraction

(4) Polarization

SPACE FOR ROUGH WORK

64. In Field emission

(1) High positive voltage is used

(2) Secondary electrons are used

(3) High energy is used

(4) High radiations are used

65. Which of the following is not true ?

(1) Photoelectric emission is an instantaneous process

(2) Photoelectric emission do not takes place below threshold frequency

(3) The K.E. of the photoelectron depends on the wavelength of incident radiation

(4) Number of photoelectrons emitted is directly proportional to the intensity

66. Poisson's ratio is the ratio of

(1) $\frac{Lateral\ strain}{Linear\ strain}$ (2) $\frac{Linear\ strain}{Lateral\ strain}$

(3) $\frac{Lateral\ strain}{Volume\ strain}$ (4) $\frac{Volume\ strain}{Lateral\ strain}$

67. The pressure at a depth of 100 m below the surface of water density 1000 kgm^{-3} is

(1) $98 \times 10^5\ Nm^{-2}$ (2) $9.8 \times 10^4\ Nm^{-2}$

(3) $980 \times 10^4\ Nm^{-2}$ (4) $98 \times 10^4\ Nm^{-2}$

68. When two capillary tube of different diameters are dropped vertically in a liquid, the height of the liquid is

(1) More in the tube of larger diameter

(2) More in the tube of smaller diameter

(3) Lesser in the tube of smaller diameter

(4) Same in both the tubes

SPACE FOR ROUGH WORK

69. The property by virtue of which a liquid opposes relative motion between its different layers is

(1) Viscosity
(2) Elasticity
(3) Surface tension
(4) Inertia

70. The maximum amount of force acting for a short duration is known as

(1) Momentum
(2) Inertia
(3) Power
(4) Impulse

71. Absolute zero is the temperature of a gas at which, the _____ of gas is theoretically zero.

(1) Mass
(2) Weight
(3) Volume
(4) Density

72. When the particle is in SHM having amplitude ' r ' ,then its velocity is

(1) $v = \omega (r^2 - y^2)$
(2) $v = \omega\sqrt{r^2 - y^2}$
(3) $v = r\omega^2$
(4) $v = r\omega^3$

73. Ripples in water are the example for

(1) Transverse wave
(2) Longitudinal wave
(3) Sound wave
(4) Ultrasonic wave

74. The length of one ventral segment in stationary wave is equal to

(1) Full wavelength of the wave
(2) Twice the wavelength of the wave
(3) Half a wavelength of the wave
(4) Quarter a wavelength of the wave

SPACE FOR ROUGH WORK

75. A stretched string under a tension T vibrates with a frequency f. When the tension is increased by 4 times, then the frequency becomes _____

(1) same (2) doubled

(3) tripled (4) zero

76. The appearance of additional frequencies in scattered beam of light is known as

(1) Raman effect

(2) Coherent scattering

(3) Incoherent scattering

(4) Bipolar scattering

77. Two properties of LASER are

(1) Highly monochromatic and extremely intense

(2) Highly chromatic and extremely fast

(3) Very high frequency and extremely high wave length

(4) Very high power and extremely low amplitude

78. To form a galvanic cell

(1) difference in concentration of electrolyte is required

(2) difference in concentration of frequency is required

(3) difference in concentration of amplitude is required

(4) both (2) and (3)

79. pH value is not having its application in

(1) determination of quality of soil

(2) determination of quality of textile dyes

(3) determination of quality of chemicals

(4) determination of quality of electron

80. The prefix "mega" stands for

(1) 10^3 (2) 10^{-3}

(3) 10^{-6} (4) 10^6

SPACE FOR ROUGH WORK

PART – C

It consists of **81-180** Questions :

81. Gypsum is calcined to get P.O.P at _____ temperature.
(1) 110-160° C
(2) 60-100° C
(3) 210-260° C
(4) None of these

82. Stone wave pipe are glazed by _____ process.
(1) Dipping
(2) Vaporization
(3) Brushing
(4) Both (1) and (2)

83. Dewatering of clay mass is done in _____ equipment.
(1) Screw press
(2) Filter press
(3) Fly press
(4) Pug mill

84. The colour of roofing tiles are brown because
(1) It contains chromium silicate materials
(2) It contains ferro silicate material
(3) It contain grog material
(4) It contain refractory material

85. The wall tiles are shaped by
(1) Costing
(2) Turning
(3) Extrusion
(4) Pressing

86. Tunnel roller hearth kiln is used for firing _____
(1) Cement clinkers
(2) Wire cut bricks
(3) Ceramic tiles
(4) Porcelain insulators

SPACE FOR ROUGH WORK

87. Which of the following refractory is used in the pre heating zone of rotary kiln ?

(1) Chrome magnesite brick (2) Carbon bricks

(3) Silica bricks (4) Fire clay bricks

88. Tall oil is an example for _____

(1) Preservative (2) Plasticizer

(3) Antifoaming agent (4) Foaming agent

89. The flash point of water is

(1) 60° C (2) 80° C

(3) 100° C (4) None

90. The role of a surfactant is

(1) Reduced the surface tension (2) Acts as a wetting agent

(3) Acts as an emulsifier (4) All of above

91. Hollow mandrel made of

(1) Fire clay (2) Ball clay

(3) China clay (4) None of these

92. In a ordinary glass selenium produces

(1) Black color (2) Pink color

(3) Green color (4) Red color

93. Consistency of cement phase is determined by using _____ apparatus.

(1) Vicat needle (2) Or sat

(3) Autoclave (4) Viscosity

SPACE FOR ROUGH WORK

94. _____ character is noticed in cement when exposed to high humidity.

(1) False setting
(2) Setting
(3) Hydration
(4) Dehydration

95. When a hand is inserted into a bag of cement it should give a _____ feeling.

(1) Hard and Rough
(2) Dry and Hot
(3) Soft and Cool
(4) Pinching and Wet

96. Ultimate analysis is used to determine

(1) Nitrogen
(2) Sulphur
(3) Oxygen
(4) All of these

97. Calorific value of diesel is

(1) 11000 Kcal/Kg
(2) 12000 Kcal/Kg
(3) 12500 Kcal/Kg
(4) 13200 Kcal/Kg

98. Which of the following is a non-petroleum fuel ?

(1) Biogas
(2) Petrol
(3) Diesel
(4) Benzol

99. Flash Point of Kerosene is

(1) 30-40° C
(2) 38-72° C
(3) 50-60° C
(4) 70-85° C

SPACE FOR ROUGH WORK

100. Pyrometer is the device used to measure

(1) Temperature (2) Pressure

(3) Viscosity (4) Flow rate

101. Which one of the following formula is used to find critical speed of the mill ?

(1) 54.18/r (2) 54.9/r

(3) 55.20/r (4) 55.30/r

102. The iron particles are removed by _____

(1) Forth floatation (2) Filter press

(3) Magnetic separator (4) Gravity screening

103. By pugging the plastic mass in de-airing pug mill _____ can be improved.

(1) Plasticity (2) Green density

(3) Green strength (4) All

104. In jiggering the inner face of the article is shaped by _____

(1) Plaster mould

(2) Profile tool

(3) Both (1) and (2)

(4) None of these

105. In isostatic pressing _____

(1) Higher pressure can be achieved

(2) High dimensional accuracy can be produced

(3) Uniform green density can be achieved

(4) All of the above

SPACE FOR ROUGH WORK

106. The interfacial coating applied between body and glaze is termed as _____

(1) Engobe
(2) Enamel
(3) Lacquer
(4) None

107. _____ oxide is most suitable for producing batteries.

(1) Barium
(2) Calcium
(3) Lithium
(4) Magnesium

108. _____ property is related to Opto-electro ceramics.

(1) Reflection
(2) Refraction
(3) Porosity
(4) Both (1) and (2)

109. Formation of clay typically occurs by the following method

(1) Hydrolysis
(2) Glycolysis
(3) Synthesis
(4) None of these

110. Example for secondary clay is

(1) Ball clay
(2) China clay
(3) Kaolin
(4) None of these

111. In tetragonal system length of crystallographic axes is

(1) $a_1 = a_2 = c$
(2) $a_1 = a_2 \neq c$
(3) $a_1 \neq a_2 \neq c$
(4) $a_1 \neq a_2 = c$

112. A mineral is said to show _____ habit when it is developed more lines along vertically direction and less along horizontal direction resulting in the production of a habit.

(1) Granular
(2) Lamellae
(3) Columnar habit
(4) None of these

SPACE FOR ROUGH WORK

113. The general appearance of mineral in reflected surface is called

(1) Colour (2) Luster

(3) Diaphanity (4) Habit

114. The most common example of tetragonal system crystals are

(1) Regular prism (2) Pyramids

(3) Irregular prism (4) (1) and (2) only

115. _____ cleavage occurs in three directions at right angles to each other examples calcite.

(1) Cubical (2) Octahedral

(3) Rhombohedral (4) Prismatic

116. The drying shrinkage is least in

(1) Extruded wares (2) Casted wares

(3) Dry pressed wares (4) Semi dry pressed wares

117. Terracotta means

(1) Baked earth (2) Green wares

(3) Clay wares (4) None of these

118. The main raw material in the manufacturing of crude fused alumina is

(1) Raw bauxite (2) Calcined bauxite

(3) Anhydrous bauxite (4) Kaolin

119. _____ materials are mixed with fire clay to produce insulation refractory brick.

(1) Opening (2) Saw dust and organic

(3) Calcined (4) Fluxing

SPACE FOR ROUGH WORK

120. The following wares bricks, roofing tiles, hollow blocks and wire cut bricks are products under

(1) Majolica (2) Terracotta

(3) Earthen ware (4) Stoneware

121. The study of flow behaviors of a material to applied stress or strain is known as

(1) Rheology (2) Petrology

(3) Metallurgy (4) Geology

122. The process of forming a film of controlled thickness when slurry flows under a blade on a supporting surface is known as

(1) Slip costing (2) Tape costing

(3) Robot costing (4) Gel costing

123. The articles in leather dry state have _____ moisture.

(1) 4.5% (2) 7.8% (3) 10-15% (4) 20-25%

124. Which is known as Chile salt peter ?

(1) NaCl (2) $NaNO_3$

(3) $CaSO_4$ (4) $FeSO_4$

125. Glasses high in lime are

(1) Less denser (2) More denser

(3) Weaker (4) None

126. The most harmful constituents in cement is

(1) $CaSO_4$ (2) $CaCO_3$

(3) Fe_2O_3 (4) None of these

SPACE FOR ROUGH WORK

127. Fineness of cement can be determined by

(1) Seive test
(2) Consistency test
(3) Autoclave test
(4) Ball milling

128. Cement should be free from

(1) Hard lumps
(2) Iron particles
(3) Ash particles
(4) None of these

129. Soundness of cement is detected by

(1) PCE Apparatus
(2) RUL Apparatus
(3) Le Chataliers Apparatus
(4) None of these

130. The burning temperature in rotary cement kiln is

(1) 1300 – 1325° C
(2) 1350 – 1375° C
(3) 1400 – 1425° C
(4) 1275 – 1300° C

131. _____ is an example for acidic oxide group.

(1) PbO
(2) SiO_2
(3) Al_2O_3
(4) MnO_2

132. Though there is a slide difference in shrinkages between engobe and earthen ware body. Engobe forms firm bonding because of its

(1) Strength and plasticity
(2) Purity and finish
(3) Firing temperature
(4) Chemical nature

133. Which oxides in glaze composition creates opacity ?

(1) Zinc oxide and calcium oxide
(2) Zirconium and tin oxide
(3) Talc and barium carbonate
(4) Lead oxide and boric oxide

SPACE FOR ROUGH WORK

134. Chemical formula of cryolite is _____

(1) $Na_2O\ Al_2O_3F_6$

(2) $Na_3O\ Al_2O_3F_6$

(3) $Na_2\ AlF_6$

(4) $Na_3\ AlF_6$

135. The essential differences between a glaze and a engobe is _____

(1) More glossy phase in glaze

(2) Less glossy phase is glaze

(3) Equal glossy phase in both

(4) More glossy phase in engobe

136. Tape casting is used to fabricate electronic substrates of _____ sizes.

(1) 0.01-1mm

(2) 1-2 mm

(3) 0.15-2 mm

(4) 5 mm-10 mm

137. _____ drying is used in the processing of temperature sensitive and more rapid drying products.

(1) Spary drying

(2) Microwave drying

(3) Tuned drying

(4) Rotary drying

138. Penitrometer is used to check _____

(1) Porosity

(2) Water absorption

(3) Packing density

(4) Thickness

139. _____ is the hardness of corundum.

(1) 9

(2) 9.3

(3) 9.5

(4) 9.2

SPACE FOR ROUGH WORK

140. Low tension insulation are used upto _____ volts.

(1) 11000 (2) 50000

(3) 440 (4) 600

141. Bentomite is derived from

(1) Wood ash (2) Bone ash

(3) Volcanic ash (4) Saw dust

142. The mechanism of Thixotrophy has been investigated by

(1) Willaman (2) Hofmann

(3) Robert (4) Woodward

143. Alpha SiC adopts

(1) Diagonal crystal structure (2) Trigonal crystal structure

(3) Tetragonal crystal structure (4) Hexagonal crystal structure

144. The density of Tungsten carbide is

(1) 15.8 g/cm^3 (2) 14.5 g/cm^3

(3) 12.5 g/cm^3 (4) 10 g/cm^3

145. Dolomite is a double carbonate of

(1) Calcium and magnesium (2) Calcium and sodium

(3) Magnesium and barium (4) None

146. Specific gravity of magnesite is

(1) 2.9-3.0 (2) 2.5-2.8

(3) 3.5-4.0 (4) 1.8-1.9

SPACE FOR ROUGH WORK

147. Hardness of calcite on Mho's scale is

(1) 1 (2) 2

(3) 3 (4) 4

148. The word Ceramics comes from Greek word

(1) Keramik (2) Ceramos

(3) Keramos (4) None of these

149. Ceramics wares are used for dinning because

(1) Hygienic (2) Strong

(3) Easily cleanable (4) All the above

150. Chemical formula of P.O.P is

(1) $CaSO_4.2H_2O$ (2) $CaSO_4$ ½ H_2O

(3) $CaSO_4.H_2O$ (4) $CaSO_4$

151. Pyrometer tubes are shaped by

(1) Pressing (2) Extrusion

(3) Isostatic pressing (4) Jigger and Jolly

152. Spark plugs are fired in

(1) Muffle furnace (2) Up-draught kiln

(3) Tunnel kiln (4) Down-draught kiln

153. Following are the common impurities in calcined bauxite

(1) Titanium, Silica, Iron oxide (2) Magnesia, Potash, Iron oxide

(3) Lime, Soda, Iron oxide (4) None of these

SPACE FOR ROUGH WORK

154. _____ refractories mix are used in the construction of glass tank furnace.

(1) Alumina (2) Fire clay

(3) Chrome magnesite (4) Silica

155. Table molded bricks are fired at

(1) 800-900° C (2) 1000-1050° C

(3) 1050-1100° C (4) 1100-1150° C

156. Addition of alumina is helpful in controlling

(1) Vitrification (2) Densification

(3) Variation (4) None

157. Which is considered as crown of flint glass ?

(1) CaO (2) BaO

(3) PbO (4) Na_2O

158. Terms for float glass should have

(1) 3 feet depth (2) 5 feet depth

(3) 6 feet depth (4) 7 feet depth

159. Which of the following increases viscosity of glass ?

(1) Silica (2) Alumina

(3) Calcium (4) Barium

160. Convection current helps in making

(1) Homogeneous glass (2) Non homogeneous glass

(3) Hard glass (4) None of these

SPACE FOR ROUGH WORK

161. The first cement factory was started at Tamilnadu in the year

(1) 1904 (2) 1804

(3) 1825 (4) 1947

162. Chemical formula dicalcium silicate is

(1) $2CaO.SiO_2$ (2) $3CaO.SiO_2$

(3) $2CaO.Al_2O_3$ (4) None of these

163. A good fuel should have

(1) Low ignition temperature (2) Medium ignition temperature

(3) Moderate ignition temperature (4) None of these

164. Calorific value of lignite is

(1) 6500 – 7100 Kcal/Kg (2) 6700 – 7800 Kcal/Kg

(3) 4500 – 5500 Kcal/Kg (4) 3000 – 6000 Kcal/Kg

165. Coal when stored in air is liable to

(1) Reduction (2) Surface Oxidation

(3) Sulphonation (4) None of these

166. Opening material are added in glaze to make the glaze_____

(1) Open (2) Close

(3) Vitreous (4) White

167. Painting method of glaze coating application is adopted for _____

(1) Thin walled hallow wares (2) Solid wares

(3) Heavy wares (4) Wares to be decorated

SPACE FOR ROUGH WORK

168. Firing range of soft paste porcelain is _____

(1) 1160-1260° C (2) 1250-1300° C

(3) 1300-1350° C (4) 1350-1400° C

169. It has been found out that 100 parts of feldspar will dissolve completely 20-30 parts of clay and 20-50 parts of quartz at _____° C.

(1) 1200 (2) 1250 (3) 1300 (4) 1400

170. Yellow color enamel is best made by adding 1 to 3% of _____

(1) Copper oxide (2) Iron oxide

(3) Zinc oxide (4) Uranium oxide

171. Which pressing machine is used for fabricating hard anisotropic ferrite ?

(1) Fly press (2) Friction press

(3) Isostatic press (4) HPA-100 Dorset press

172. The device which holds charges in them is known as _____

(1) Piezoelectric (2) Capacitor

(3) Magnet (4) None

173. For deleting temperature variations _____ sensor is used.

(1) Knock (2) Time

(3) Gas (4) Thermo

174. Specific gravity of dental porcelain is _____

(1) 2.8 (2) 3.0

(3) 2.4 (4) 1.5

SPACE FOR ROUGH WORK

175. Zirconia is used

(1) As an opacefier
(2) As an abrasive
(3) As a refractory material
(4) All

176. Feldspar is commonly used as

(1) Flux
(2) Oxidizing agent
(3) Reducing agent
(4) Colouming agent

177. Borides shows

(1) Low conductivity at all temperature
(2) High conductivity at all temperature
(3) Medium conductivity at all temperature
(4) Do not conduct at all temperature

178. Stoneware clay shows

(1) Low shrinkage
(2) High shrinkage
(3) Do not shrink
(4) None

179. Ball vitrify at _____ °C.

(1) 1320
(2) 1330
(3) 1350
(4) 1430

180. Physical geology is a branch which deals with the study of

(1) Changes in earth surface
(2) Structures that form in rocks
(3) Crystals
(4) Minerals

SPACE FOR ROUGH WORK

CR

A-4