COMBINED TECHNICAL SERVICES EXAMINATION

(INTERVIEW POSTS)

COMPUTER BASED TEST

PAPER – II – BASICS OF ENGINEERING

(DEGREE STANDARD)

1. Using Laplace transform, the value of the integral $\int\limits_{0}^{\infty} t\, e^{-2t} \sin t\, dt$ is

   (A) $\dfrac{2}{25}$

   (B) $\dfrac{4}{25}$ ✓

   (C) $\dfrac{6}{25}$

   (D) $\dfrac{8}{25}$

   (E) Answer not known

2. Using convolution theorem, $L^{-1}\left(\dfrac{s}{\left(s^2 + a^2\right)^2}\right)$ is

   (A) $\int\limits_{0}^{t} \cos au \dfrac{\cos a\,(t - u)}{a}\, du$

   (B) $\int\limits_{0}^{t} \sin au \dfrac{\sin a\,(t + u)}{a}\, du$

   (C) $\int\limits_{0}^{t} \cos au \dfrac{\sin a\,(t + u)}{a}\, du$

   (D) $\int\limits_{0}^{t} \cos au \dfrac{\sin a\,(t - u)}{a}\, du$ ✓

   (E) Answer not known

3. If $f(t)$ is a periodic function with period T, then $L(f(t))$ is

   (A) $\left(1 + e^{-ST}\right)\int\limits_{0}^{T} e^{-st} f(t)\, dt$

   (B) $\left(1 - e^{-ST}\right)\int\limits_{0}^{T} e^{-st} f(t)\, dt$

   (C) $\dfrac{1}{1 + e^{-ST}} \int\limits_{0}^{T} e^{-st} f(t)\, dt$

   (D) $\dfrac{1}{1 - e^{-ST}} \int\limits_{0}^{T} e^{-st} f(t)\, dt$ ✓

   (E) Answer not known

4. Using Cauchy's residue theorem, the value of $\int_C \dfrac{e^{2z}}{(z+1)^3} dz$ is, where $C : |Z| = \dfrac{3}{2}$.

    (A) $\dfrac{2\pi i}{e^2}$ ✓(B) $\dfrac{4\pi i}{e^2}$

    (C) $2\pi i e^2$ (D) $4\pi i e^2$

    (E) Answer not known

5. The Taylor's series for $f(z) = \cosh z$ about $z = 0$ is,

    (A) $1 + \dfrac{z}{1!} + \dfrac{z^2}{2!} + \dfrac{z^3}{3!} \cdots + \dfrac{z^n}{n!} + \cdots \infty$

    (B) $1 - \dfrac{z^2}{2!} + \dfrac{z^4}{4!} - \cdots + (-1)^{n+1} \dfrac{z^{2n-2}}{(2n-2)!} + \cdots \infty$

    (C) $\dfrac{z}{1!} + \dfrac{z^3}{3!} + \dfrac{z^5}{5!} + \cdots + \dfrac{z^{2n-1}}{(2n-1)!} + \cdots \infty$

  ✓(D) $1 + \dfrac{z^2}{2!} + \dfrac{z^4}{4!} + \cdots + \dfrac{z^{2n}}{(2n)!} + \cdots \infty$

    (E) Answer not known

6. Let C denote the unit circle $|z| = 1$, the value of the integral $\int_C \dfrac{e^z}{z} dz$ is

    (A) 0   (B) 1

  ✓(C) $2\pi i$ (D) $2\pi i e$

    (E) Answer not known

7. The transformation $w = \dfrac{az + b}{cz + d}$, $ad - bc \neq 0$ where a, b, c, d are complex numbers, is called a

    (A) Linear transformation   (B) Bilinear transformation

    (C) Laplace transformation   (D) Bilaplace transformation

    (E) Answer not known

8. If $f(z)$ is an analytic function, then $\left(\dfrac{\partial^2}{\partial x^2} + \dfrac{\partial^2}{\partial y^2} \right) |f(z)|^2$ is

    (A) $2|f'(z)|^2$ (B) $4|f'(z)|^2$

    (C) $4|f(z)|^2$ (D) 0

    (E) Answer not known

9. The complex function $f(z) = \dfrac{1}{1 - |z|^2}$ is analytic in

    (A) The entire plane except $z = 0$

    (B) The entire plane except $z = \pm i$

    (C) The entire plane except the points on the line $x = 0$

    (D) The entire plane except the circle $x^2 + y^2 = 1$

    (E) Answer not known

10. $div\,(grad\,\phi)$ is

    (A) 0 (B) $\nabla \phi$

    (C) $\nabla^2 \phi$ (D) $\nabla \times \phi$

    (E) Answer not known

11. A fluid motion is given by $\overline{V} = (y + z)\overline{i} + (z + x)\overline{j} + (x + y)\overline{k}$, this motion is

    (A)   incompressible only

    (B)   irrotational only

  ✓(C)   both incompressible and irrotational

    (D)   neither incompressible nor irrotational

    (E)   Answer not known

12. If $\overline{F} = grad\left(x^3 + y^3 + z^3 - 3xyz\right)$, then $curl\ \overline{F}$ is

  ✓(A) $\overline{0}$

    (B) $6x + 6y + 6z$

    (C) $3x\overline{i} + 3y\overline{j} + 3z\overline{k}$

    (D) $\left(3x^2 - 3yz\right)\overline{i} + \left(3y^2 - 3xz\right)\overline{j} + \left(3z^2 - 3xy\right)\overline{k}$

    (E)   Answer not known

13. Let $I = \int\limits_{0}^{2}\int\limits_{x^2}^{2x} f(x, y)\, dy dx$. The corresponding equivalent double integral is

    (A) $\int\limits_{0}^{2}\int\limits_{y^2}^{2y} f(x, y)\, dxdy$
                (B) $\int\limits_{0}^{2}\int\limits_{y/2}^{\sqrt{y}} f(x, y)\, dxdy$

  ✓(C) $\int\limits_{0}^{4}\int\limits_{y/2}^{\sqrt{y}} f(x, y)\, dxdy$
                (D) $\int\limits_{0}^{4}\int\limits_{2y}^{y^2} f(x, y)\, dxdy$

    (E)   Answer not known

14. The value of the integral $\int \sec^2 x \tan x \, dx$ is

(A) $\dfrac{1}{2} \tan^2 x + c$

✓(B) $\dfrac{1}{2} \sec^2 x + c$

(C) $\dfrac{2}{3} \tan^2 x + c$

(D) $2 \sec^2 x + c$

(E) Answer not known

15. The value of the integral $\int\limits_{0}^{\pi} \theta \sin^2 \theta \cos^4 \theta \, d\theta$ is

(A) $\dfrac{\pi^2}{8}$

(B) $\dfrac{\pi^2}{16}$

✓(C) $\dfrac{\pi^2}{32}$

(D) $\dfrac{\pi^2}{36}$

(E) Answer not known

16. For the function $f(x, y) = 100 - x^2 - y^2$, the level curve $f(x, y) = 51$ represents

(A) Circle of radius 10 centered at origin

(B) Parabola with vertex at origin

✓(C) Circle of radius 7 centered at origin

(D) Circle of radius 5 centered at origin

(E) Answer not known

17. If $u = x \log(xy)$ where $x^3 + y^3 + 3xy = 1$ then the value of $\dfrac{du}{dx}$ is

(A) $\dfrac{1 + \log xy}{y\left(y^2 - x\right)}$

(B) $\dfrac{\log xy - x\left(x^2 + y\right)}{\left(y^2 + x\right)}$

(C) $\dfrac{1 + \log xy}{y\left(y^2 + x\right)}$

✓(D) $\dfrac{1 + \log xy - x\left(x^2 + y\right)}{y\left(y^2 + x\right)}$

(E) Answer not known

18. If $f(x, y) = e^x \ln\left(x^2 + y^2 + 1\right)$, then $\dfrac{\partial f}{\partial y} =$

(A) $\dfrac{2e^x}{x^2 + y^2 + 1}$

(B) $\dfrac{2xe^x}{x^2 + y^2 + 1}$

✓(C) $\dfrac{2ye^x}{x^2 + y^2 + 1}$

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

(E) Answer not known

19. The particular solution for the second order differential equation $y'' + 4y' - 2y = 2x^2 - 3x + 6$ is

(A) $x^2 + \dfrac{5}{2}x + 9$

✓(B) $-x^2 - \dfrac{5}{2}x - 9$

(C) $x^2 + \dfrac{5}{2}x - 9$

(D) $-x^2 - 5x + 9$

(E) Answer not known

20. The general solution of the differential equation $2y'' - 5y' - 3y = 0$ is

(A) $y = c_1 e^{-2x} + c_2 e^{3x}$

(B) $y = c_1 e^{\frac{x}{2}} + c_2 e^{\frac{3}{2}x}$

✓(C) $y = c_1 e^{\frac{-x}{2}} + c_2 e^{3x}$

(D) $y = c_1 e^{x} + c_2 e^{3x}$

(E) Answer not known

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

(A) 3 and 2

✓(B) 2 and 3

(C) 2 and 4

(D) 3 and 4

(E) Answer not known

22. If a square matrix A is orthogonal, then $|A|$ is

✓(A) ± 1

(B) 0

(C) $\pm i$

(D) None of these

(E) Answer not known

23. If $A = \begin{bmatrix} 1 & 3 & 4 \\ 0 & 2 & 5 \\ 0 & 0 & 3 \end{bmatrix}$, then the eigen values of A^{10} and A^{-1} are

   (A) $1^{10}, 2^{10}, 3^{10}$ and 1, 2, 3   ✓(B) $1^{10}, 2^{10}, 3^{10}$ and $\dfrac{1}{1}, \dfrac{1}{2}, \dfrac{1}{3}$

   (C) 1, 2, 3 and 1, 4, 9   (D) 1, 2, 3 and $\dfrac{1}{1}, \dfrac{1}{2}, \dfrac{1}{3}$

   (E) Answer not known

24. Which of the following is already being used as a nanotechnology application?

   (A) Golf ball   (B) Fishing lure
   ✓(C) Sun screen lotion   (D) Magnetic tunnel junctions
   (E) Answer not known

25. The diameter of human hair is ——————— m.

   (A) 75000   (B) 75
   ✓(C) 7.5×10^{-5} (D) 7.5×10^{-9}
   (E) Answer not known

26. Which of the following statements is made by Richard Feynman's famous Caltech Lecture?

   (A) There is a tiny room at the bottom
   (B) A small room at the bottom
   (C) Nano lies at the bottom
   ✓(D) There is plenty of room at the bottom
   (E) Answer not known

27. The over voltage of platinum black is lowest

    (A) Due to decrease in surface area of platinised black electrode

    ✓(B) Due to increase in surface area of platinised black electrode

    (C) Due to the same surface area of platinised black electrode

    (D) None of the above

    (E) Answer not known

28. Match the following :

    (a) Chromium   1. Space technology
    (b) Tungsten   2. Aircrafts
    (c) Aluminium   3. Fire wires for lamp bulbs
    (d) Beryllium   4. Parts in Chemical Engineering

	(a)	(b)	(c)	(d)
✓(A)	4	3	2	1
(B)	1	2	3	4
(C)	3	4	1	2
(D)	1	4	3	2

    (E) Answer not known

29. Which of the following is used as stabilizer in the preparation of nitro cellulose?

    (A) 2, 4 Dinitro chloro benzene   ✓(B) Diphenyl amine

    (C) Nitro glycerine   (D) 2, 4 dinitro phenol

    (E) Answer not known

30. Choose the correct raw material used to prepare PETN

    (A) Benzene   (B) Toulene

    (C) Phenol   ✓(D) Acetaldehyde

    (E) Answer not known

31. Gun powder is a mixture of

    (A) 65% KNO₃, 20% charcoal and 15% sulphur

    ✓(B) 75% KNO₃, 15% charcoal and 10% sulphur

    (C) 50%, KNO₃, 25% charcoal and 25% sulphur

    (D) 80% KNO₃, 10% charcoal and 10% sulphur

    (E) Answer not known

32. The process by which a dense homogenous layer of coating metal is bonded firmly to the base metal is

    (A) Galvanising   ✓(B) Metal cladding

    (C) Hot - dipping   (D) Tinning

    (E) Answer not known

33. Galvanised container are not used for storage of food products.

    (A) Zinc get dissolved in strong acids to form highly toxic compounds

    ✓(B) Zinc get dissolved in dilute acids to form highly toxic compounds

    (C) Zinc get dissolved in dilute alkali to form highly toxic compounds

    (D) Zinc get dissolved in strong alkali to form highly toxic compounds

    (E) Answer not known

34. Wire mesh corrodes faster at the joints. Why?

    (A) Joints become anodic, where reduction takes place

    (B) Joints become cathodic, where reduction takes place

    ✓(C) Joints become anodic, where oxidation takes place

    (D) Joints become cathodic, where oxidation takes place

    (E) Answer not known

35. Which statement are correct for good refractory material as follows?

   (i)   They should possess low permeability

   (ii)   They should be able to withstand very high temperature

   (iii) They should possess good resistance by molten salts

   (iv)   They should be chemically stable by acidic (or) basic

   (A) (i), (ii), (iii)   (B) (i), (iii), (iv)

   (C) (ii), (iii), (iv)   ✓(D) (i), (ii), (iii), (iv)

   (E) Answer not known

36. Which is correct example for basic refractories?

   (A) Fire clay refractories   (B) Silica refractories

   (C) Alumina refractories   ✓(D) Graphite refractories

   (E) Answer not known

37. Isoprene is a monomer of

   (A) Polyethylene   (B) Bakelite

   (C) Nylon 66   ✓(D) Rubber

   (E) Answer not known

38. Which of the following statements are true about thermoplastics?

   (i)   It is formed by condensation polymerization

   (ii)   They consist of long chain linear macro molecules

   (iii) It is soluble in organic solvents

   (A) (i)   (B) (i), (ii)

   ✓(C) (ii), (iii)   (D) (i), (ii), (iii)

   (E) Answer not known

39. Weight average molecular mass $\left(\overline{M}_w\right)$ of a polymer is calculated by

(A) $\overline{M}_w = \dfrac{\sum W_i\, M_i}{\sum W_i}$ ✓

(B) $\overline{M}_w = \dfrac{\sum N_i\, M_i}{\sum W_i\, N_i}$

(C) $\overline{M}_w = \dfrac{\sum W_i\, M_i}{\sum N_i}$

(D) $\overline{M}_w = \dfrac{\sum N_i\, M_i}{\sum N_i}$

(E) Answer not known

40. Which one is not correct for units of water?

(A) ppm

(B) mg/L

(C) meq/L

(D) $^{\circ}F_S$ ✓

(E) Answer not known

41. What are the substances to cause permanent hardness?

(A) $CaCO_3$ and $Ca(HCO_3)_2$

(B) $CaCO_3$ and $CaCl_2$

(C) $CaCl_2$ and $CaSO_4$ ✓

(D) None of the above

(E) Answer not known

42. Which impurity in water lead to formation of scale are?

(A) $CaSO_4$ ✓

(B) $MgSO_4$

(C) $CaCl_2$

(D) $MgCO_3$

(E) Answer not known

43. Kjedahl method is used to determine of _____ in coal.

(A) Carbon

(B) Hydrogen

(C) Nitrogen ✓

(D) Oxygen

(E) Answer not known

44. Water gas is a mixture of

   (A) CO and N_2 (B) CO and O_2
   ✓(C) CO and H_2 (D) CO and CO_2
   (E) Answer not known

45. Octane number is a mixture of

   (A) Iso octane and n-hexane   ✓(B) Iso octane and n-heptane
   (C) Iso octane and naphthalene   (D) Iso octane and octane
   (E) Answer not known

46. The principal application of VSB is found in

   (A) Commercial Satellite Broadcasting
   (B) Commercial Cellular Broadcasting
   ✓(C) Commercial Television Broadcasting
   (D) Commercial Radio Broadcasting
   (E) Answer not known

47. The LEO (Low Earth Orbit) satellites are at about 500-1500 km above earth's surface and circle the earth once in approximately 90

   ✓(A) Minutes   (B) Hours
   (C) Seconds   (D) Milliseconds
   (E) Answer not known

48. With respect to frequency modulation, which of the following statements are true?

   (1) Frequency of the modulated wave varies in accordance with the message signal

   (2) Transmission efficiency of FM is very high compared to AM

   (3) A much wider channel is required by FM compared to AM

   (4) Area of reception for FM is much smaller than for AM

   (A) (1), (3) and (4)   (B) (1), (2) and (4)

   (C) (2) and (4)   ✓(D) (1), (2), (3) and (4)

   (E) Answer not known

49. Communication satellites are invariably

   (A) Stationary   ✓(B) Geostationary

   (C) Revolving at their own speed   (D) Changing their track and speed

   (E) Answer not known

50. In a RS Flip-flop no change occurs during

   (A) Set mode   (B) Reset mode

   (C) Prohibited mode   ✓(D) Disabled mode

   (E) Answer not known

51. Which of the following binary addition is incorrect?

   (A) $1000 + 0110 = 1110$ (B) $11111 + 10001 = 110000$

   (C) $11111 + 10000 = 101111$ ✓(D) $11111 + 1111 = 111110$

   (E) Answer not known

52. Simplify the Boolean expressions : $A + A + B$

   ✓(A) $A + B$ (B) $2A + B$
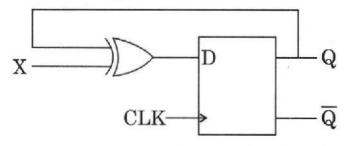   (C) B (D) A
    (E) Answer not known

53. In an amplifier, CMRR is 50,000 and its difference mode gain is 500. The common mode gain is

    (A) 1   (B) 0.1
   ✓(C) 0.01   (D) 0.001
    (E) Answer not known

54. The digital circuit shown in figure works as

    (A) JK flip flop   (B) Clocked RS flip flop
   ✓(C) T flip flop   (D) Ring counter
    (E) Answer not known

55. The standard binary code for the alphanumeric characters ASCII is

   ✓(A) American Standard Code for Information Interchange
    (B) American Scheme Code for Information Interaction
    (C) American Scheme Council for Information Institution
    (D) American Sub-standard Code for Information Interchange
    (E) Answer not known

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56. For the non-inverting amplifier with $R_1 = 2k\Omega$ and $R_f = 20k\Omega$, calculate the closed loop voltage gain and the feedback factor

 ✓(A) $A_v = 11$ and $\beta = 0.0909$ (B) $A_v = 10$ and $\beta = 1$

 (C) $A_v = 11$ and $\beta = 1$ (D) $A_v = 10$ and $\beta = 0.0909$

 (E) Answer not known

57. If supply frequency in a transformer is doubled

 (A) Iron losses will be doubled   ✓(B) Hysteresis loss decreases .

 (C) Eddy current losses doubles   (D) Hysteresis loss also doubles

 (E) Answer not known

58. The interpoles in DC machines have a tapering shape in order to

 (A) Increase the acceleration of commutation

 (B) Reduce the cost of interpoles and their winding

 ✓(C) Reduce the saturation in the interpole

 (D) Reduce the overall weight

 (E) Answer not known

59. When forward biased, a diode

 (A) Blocks current   ✓(B) Conducts current

 (C) Has a high resistance   (D) Drops a large voltage

 (E) Answer not known

60. The current gain of an emitter follower is

 (A) Zero   ✓(B) Greater than unity

 (C) Less than unity   (D) All of them

 (E) Answer not known

61. The efficiency of full wave rectifier is

(A) 40.6% ✓(B) 81.2%

(C) 50% (D) 100%

(E) Answer not known

62. A transistor is a ——————— operated device.

✓(A) Current (B) Voltage

(C) Both Voltage and Current (D) Power

(E) Answer not known

63. The minimum current required to hold the SCR in the ON state is called as

✓(A) Holding current (B) Latching current

(C) Gate current (D) Cathode current

(E) Answer not known

64. A very high value of resistance can be measured with the help of

(A) Milli ohm meter ✓(B) Megger

(C) Voltmeter (D) Ammeter

(E) Answer not known

65. An instrument which can be used for the testing of insulation resistance of a circuit is called as

(A) Voltmeter ✓(B) Megger

(C) Ammeter (D) Wattmeter

(E) Answer not known

66. Three identical resistances are connected in a star fashion against a balanced 3 phase voltage supply. If one of the resistances be removed, by how much the power be reduced?

   (A) Open circuit and hence no power
   ✓(B) 50%
   (C) 33.33%
   (D) Same power as it is Y connected
   (E) Answer not known

67. The graph associated with an electrical network has 7 branches and 5 nodes. The number of independent Kirchoff's Current Law (KCL) equations and the number of Kirchoff's Voltage Law (KVL) equations respectively are

   (A) 5 and 2   (B) 2 and 5
   (C) 3 and 4   ✓(D) 4 and 3
   (E) Answer not known

68. Quality in products comes through

   (i)   Physical standards
   (ii) System standards
   (iii) Behavioural standards
   (iv) Philosophical standards

   (A) (i) and (ii) only   (B) (iii) and (iv) only
   (C) (i), (ii) and (iii) only   ✓(D) (i), (ii), (iii) and (iv) only
   (E) Answer not known

69. ——————— translates customer requirements based on marketing research and benchmarking data into an appropriate number of engineering targets to be met by a new product design.

✓(A) House of quality   (B) QFD
(C) TQM   (D) JIT
(E) Answer not known

70. ——————— means mistake proofing.

(A) Kaizen   ✓(B) Poka yoke
(C) Six sigma   (D) QFD
(E) Answer not known

71. ——————— covers design, development, production, installation and servicing.

(A) ISO 9000   ✓(B) ISO 9001
(C) ISO 9002   (D) ISO 9003
(E) Answer not known

72. ——————— is defined as the fundamental rethinking and radical redesign of business process to achieve dramatic improvement in critical, contemporary measures of performance such as cost, quality and speed of products/services delivered/provided by an organization.

(A) Six sigma

(B) Kaizen

✓(C) BPR (Business Process Reengineering)

(D) QFD

(E) Answer not known

73. The main purpose of check sheets is

(A) To analyze quick and safe

✓(B) To ensure that the data is collected carefully

(C) To record the data

(D) User friendly

(E) Answer not known

74. _____ called by different names and deviations, such as PERT, CPM and AON.

(A) Process decision program chart

(B) Force field analysis

(C) Interrelationship digraph

✓(D) Activity network diagram

(E) Answer not known

75. Arrange the following steps for benchmarking in correct order :

(1) Plan

(2) Decide what to benchmark

(3) Study others

(4) Understand current performance

(5) Use the findings

(6) Learn from data

(A) (4), (2), (1), (3), (6), (5)   (B) (2), (1), (4), (6), (3), (5)

(C) (1), (2), (3), (4), (5), (6)   ✓(D) (2), (4), (1), (3), (6), (5)

(E) Answer not known

76. —————— is the systematic search for best practices, innovative ideas and highly effective operating procedures.

(A) Continuous process improvement

(B) Quality function deployment

✓(C) Benchmarking

(D) Quality certification

(E) Answer not known

77. Statistical process control used for

✓(A) Improving quality   (B) Customer satisfaction

(C) Benchmarking   (D) Educate and train personnel

(E) Answer not known

78. Green Belt, Black Belt and Master Black Belt are associated with

(A) Kaizen

✓(B) Six sigma

(C) Quality function deployment

(D) Statistical process control

(E) Answer not known

79. Seiso in 5S means

(A) Systematise   ✓(B) Sweep

(C) Sort   (D) Standardise

(E) Answer not known

80. The Japanese term Seiketsu means

    (A) Arrange everything in proper order

    (B) Sort out all items into necessary and unnecessary

    ✓(C) Maintaining a high standard of work place

    (D) Sweep the work place

    (E) Answer not known

81. PDCA cycle steps are listed below. Select the correct one

    (A) Take action, Analyse, Evaluate the current process, Identify improvement opportunity

    (B) Analyse, Take action, Evaluate the current process, Identify improvement opportunity

    ✓(C) Identify improvement opportunity, Evaluate the current process, Analyse, Take action

    (D) Identify improvement opportunity, Take action, Evaluate the Current process, Analyse

    (E) Answer not known

82. The External failure cost is associated with

    ✓(A) Investigation and adjustments of proven complaints

    (B) Development and reproduction stages of a new product

    (C) Calibrating measuring instruments and maintaining

    (D) Re-Inspection/Re-Testing

    (E) Answer not known

83. The condition for successful implementation of quality circles is

✓(A) Quality circles must be staffed entirely by volunteers

(B) Only few participant should be representative of a different functional activity

(C) The problem to be addressed by the management

(D) Circle members not receive appropriate training

(E) Answer not known

84. Match the following :

(a) Total   1. Degree of excellence
(b) Quality   2. Manner of handling
(c) Management   3. Made up of whole

	(a)	(b)	(c)
(A)	2	3	1
(B)	1	2	3
✓(C)	3	1	2
(D)	1	3	2

(E) Answer not known

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85. Deming's 14 points provide a theory for management to improve

    (i)   Quality

    (ii)   Productivity

    (iii)   Competitive position

    (iv)   Supplier partnering

    (A)   (i), (ii), (iii) and (iv)

✓ (B)   (i), (ii), (iii) only

    (C)   (i), (ii) only

    (D)   (i) only

    (E)   Answer not known

86. Vision statement declares that

✓ (A)   What an organisation aspires to be tomorrow

    (B)   Describes the function of organisation

    (C)   Quality and business plan

    (D)   Customers' expectation

    (E)   Answer not known

87. "Doing it right the first time" is less expensive than the costs of detecting and correcting nonconformities. This statement argued by

    (A)   Juran

    (B)   Ishikawa

    (C)   Masaaki Imai

✓ (D)   Crosby

    (E)   Answer not known

88. From the following find the odd

   (A) Masaaki Imai

   ✓(B) Maslow

   (C) Feigenbaum

   (D) Crosby

   (E) Answer not known

89. Deming, Crosby and Juran are similar in advocating

   (A) Quality campaigns

   ✓(B) Importance of customer

   (C) Quality planning

   (D) Quality control

   (E) Answer not known

90. In a dielectric material all the electrons are ————— bound to the nuclei of the atoms.

   (i) Moderately

   (ii) Loosely

   (iii) Tightly

   (A) (ii) only

   ✓(B) (iii) only

   (C) (i) only

   (D) (i) and (ii) only

   (E) Answer not known

91. In dielectrics, the relative permittivity is always

(A) Smaller than unity

✓(B) Greater than unity

(C) Smaller than zero

(D) Equal to zero

(E) Answer not known

92. A partial ionization happens which permits conduction through it when the dielectric material is subjected to a sufficiently large electric field. It is called as

(A) Dielectric Strength

(B) Dielectric Electrostriction

✓(C) Dielectric Break down

(D) Dielectric Polarization

(E) Answer not known

93. Niobium is an example for

(A) Perfect paramagnetic

(B)✓ Perfect diamagnetic

(C) Perfect ferromagnetic

(D) Perfect antiferromagnetic

(E) Answer not known

94. Name the crystal system, if the lattice parameters is said to be $a = b \neq c$ and $\alpha = \beta = \gamma = 90°$

   (A) Trigonal
   (B) Triclinic
   (C) Monoclinic
   (D) Tetragonal
   (E) Answer not known

95. The magnetic lines of force cannot penetrate the body of a superconductor a phenomenon is known as

   (A) Isotopic effect
   (B) BCS theory
   (C) Meissner effect
   (D) London theory
   (E) Answer not known

96. A domain is

   (A) A small region in ferromagnetic material with zero magnetisation
   (B) A small region in ferromagnetic material with complete magnetisation
   (C) A void in ferromagnetic material
   (D) None of the above
   (E) Answer not known

97. Fundamental wave equation used to describe the dual nature of Matter waves by combining the De Broglie wave length and classical wave equation

   (i) Time dependent Schröedinger wave equation

   (ii) Time independent Schröedinger wave equation

   (iii) De Broglie wave equation

   (A) (iii) only

   (B) (ii) only

   (C) (i) only

   (D) Both (i) and (ii)

   (E) Answer not known

98. The Hamiltonian operator defines the

   (A) Total energy of the system

   (B) Potential energy of the system

   (C) Kinetic energy of the system

   (D) None of the above

   (E) Answer not known

99. Interference and diffraction phenomenon confirms light's ———— nature.

   (A) Particle

   (B) Wave

   (C) Dual

   (D) All the above

   (E) Answer not known

100. Which of the following statements are true about the characteristics of diffraction?

(i) All bright and dark fringe are of equal width

(ii) All bright fringes are of same intensity

(iii) The central bright fringe have got double width to that of width of secondary maxima or minima

(iv) Central fringe is the brightest and intensity of secondary maxima, decreases with the increase of order of secondary maxima on either side of central maxima

(A) (i) only

(B) (ii) only

(C) (i) and (ii) only

✓(D) (iii) and (iv) only

(E) Answer not known

101. The basic principle of fibre optics is

(A) Total Internal Refraction   (B) Total Internal Emission

(C) Total Internal Absorption   ✓(D) Total Internal Reflection

(E) Answer not known

102. The emission wavelength of Nd-YAG laser is

✓(A) 10,600 Å   (B) 1.6 μm

(C) 1.8 μm   (D) 9.6 μm

(E) Answer not known

103. The Pressure P and Volume V of an ideal gas both increase in a process
    (i)   Such a process is not possible.
    (ii) The work done by the system is positive
    (iii) The temperature of the system must increase
    (iv) Heat supplied to the gas is equal to the change in internal energy

    (A) (i) only   (B) (iv) only
    (C) (ii) and (iii) only   (D) All the above
    (E) Answer not known

104. Thermal conductivity is defined as the heat flow per unit time

    (A) Across the unit area where temperature gradient is unity
    (B) Across the wall with no temperature
    (C) When the temperature gradient is a non unity
    (D) Across the non unit thickness of wall
    (E) Answer not known

105. Many objects such as train tracks and road joints are specifically designed to allow extra space for

    (A) Thermal energy   (B) Thermal expansion
    (C) Specific heat   (D) Latent heat
    (E) Answer not known

106. Determining the presence of submerged submarines using ultrasonic waves is known as

    (A) Rador   (B) Sonar
    (C) Lidar   (D) Sidar
    (E) Answer not known

107. Certain crystals undergo periodic mechanical deformation when subjected to AC voltage. This is known as

    (A)   Magnetostriction effect   (B) Piezo-electric effect

    (C)   Inverse piezoelectric effect   (D) Zeeman effect

    (E)   Answer not known

108. Give the relation between sound intensity and loudness

    (A)   Sound intensity level $= 10 \log\left(\dfrac{I}{I_0}\right) dB$

    (B) $I = 2\pi^2 v^2 a^2 v \rho$

    (C) $L = K \log I$

    (D)   Sound intensity level $= \log\left(\dfrac{I}{I_0}\right) dB$

    (E)   Answer not known

109. Linear elasticity or elasticity of length corresponding to linear or tensile strain is called

    (i)   Rigidity modulus

    (ii) Bulk modulus

    (iii) Young's modulus

    (A)   (i) and (ii) only   (B) (i) only

    (C)   (ii) only   (D) (iii) only

    (E)   Answer not known

110. The energy possessed by a body by virtue of its velocity of motion is called as

(A) Potential energy   ✓(B) Kinetic energy

(C) Thermal energy   (D) Solar energy

(E) Answer not known

111. The gravitational or engineer's unit of force in terms of Newton is

(A) 1 N   (B) 981 N

✓(C) 9.81 N   (D) 0.981 N

(E) Answer not known

112. ————— provides a set of operations that take one or more relations as input and return a relation as an output.

✓(A) Relational algebra   (B) Domain relational calculus

(C) Tuple relational calculus   (D) Cardinality of a relation

(E) Answer not known

113. The small, green square at the bottom right of an active cell is the ——————, which can be used to copy data and formula or to enter a series.

✓(A) fill handle   (B) flash fill

(C) fill button   (D) auto fill

(E) Answer not known

114. The integrity constraint —————— allows only the records that has matching values in the master table or the primary key of the referencing table.

(A) Check   ✓(B) Foreign key ... references

(C) Foreign key   (D) Default

(E) Answer not known

115. JPEG compression uses —————— method for coding transformation.

(A) Discrete Fourier transform   ✓(B) Discrete Cosine transform

(C) Wavelet transform   (D) Discrete wavelet transform

(E) Answer not known

116. Network layer in OSI model offers the —————— service.

(A) Dialog control   (B) Token management

✓(C) Routing   (D) Synchronization

(E) Answer not known

117. The activity of interlinking of different networks is known as

✓(A) Internetworking   (B) ARPANET

(C) WAN   (D) LAN

(E) Answer not known

118. A —————— holds the directory that associates an internet address with a web address.

✓(A) DNS server   (B) Home page

(C) Hyper link   (D) Blogs

(E) Answer not known

119. The most common type of application gateway is

    (A)   Scheduling applications

    ✓(B)   E-mail applications

    (C)   Allocation – based applications

    (D)   Error – control based applications

    (E)   Answer not known

120. The following characterize the typical features of C language.

    (A)   High level   (B) Machine independent

    (C)   Structured   ✓(D) All the above

    (E)   Answer not known

121. Identify the correct statements about while statement in C.

    (i)   While is an entry – controlled loop statement.

    (ii) The test – condition is evaluated if the condition is false.

    (iii) The body of the statements executed only once.

    (A)   (i) and (ii) only   (B) (iii) only

    ✓(C)   (i) only   (D) (ii) and (iii) only

    (E)   Answer not known

122. Identify the following Logic which is used to execute an instruction or group of instructions more than once without having to recode them in flow chart?

    (A)   Sequential execution   (B) Transfer of control

    ✓(C)   Looping   (D) Either sequential or Looping

    (E)   Answer not known

123. A special operator in C which is used to manipulate data at bit level

    (A) Size of ( ) Operator   (B) Ternary Operator

    (C) Type Casting Operator   ✓(D) Bitwise Operator

    (E) Answer not known

124. ———— should be independent of programming languages.

    (A) Algorithms   (B) Flow charts

    (C) Pseudo code   ✓(D) Algorithms and flowcharts

    (E) Answer not known

125. ———— is a utility used to increase disk speed and efficiency by rearranging files.

    (A) File Manager   ✓(B) Disk Defragmenter

    (C) Disk Cleanup   (D) Disk Backup and Restore

    (E) Answer not known

126. The comment statements in a program is discarded first in ———— phase of a compiler.

    ✓(A) Lexical Phase   (B) Syntax Analysis Phase

    (C) Code Generation Phase   (D) Code Optimization Phase

    (E) Answer not known

127. ———— is the process of putting together other program files and functions that are required by the program.

    (A) Compiling   (B) Loading

    ✓(C) Linking   (D) Execution

    (E) Answer not known

128. What are the three requirements to solve the critical – section problem?

1. Mutual Exclusion

2. Semaphore

3. Bounded waiting

4. Progress

5. Link allocation

(A) 1, 2, 3   ✓(B) 1, 3, 4

(C) 2, 3, 4   (D) 3, 4, 5

(E) Answer not known

129. Sequence of steps involved in design of an assembler :

1. Specify data structures

2. Specify algorithm

3. Specify the problem

4. Define format of data structures

5. Look for modularity

6. Repeat step 1 through 5 on modules

✓(A) 3, 1, 4, 2, 5, 6   (B) 1, 2, 3, 4, 5, 6

(C) 3, 2, 1, 4, 5, 6   (D) 4, 1, 2, 3, 5, 6

(E) Answer not known

130. ——————— contains the Instruction most recently fetched.

✓(A) Instruction register   (B) Programme counter

(C) Memory address register   (D) Memory buffer register

(E) Answer not known

131. The computer memory used for temporary storage of data and programme is called

(A) ROM   ✓(B) RAM

(C) EROM   (D) EPROM

(E) Answer not known

132. Linkage between the CPU and users is provided by

(i) Storage unit and control unit

(ii) Peripheral devices

(iii) System software and hardware

(iv) Control unit

(A) (i) and (ii) only   ✓(B) (ii) only

(C) (iv) only   (D) (ii), (iii) and (iv) only

(E) Answer not known

133. Find the following are the valid Data transfer operations

(i) Store

(ii) Jump

(iii) Load

(iv) Compare

(A) (i) only   ✓(B) (i) and (iii) only

(C) (i), (ii) and (iii) only   (D) (i), (iii) and (iv) only

(E) Answer not known

134. A lift carries a weight of 100 N and is moving with a uniform acceleration of 2.5 m/s². Find the tension in a supporting lift cable when the lift move upwards. Take g = 10 m/s²

(A) 25 N
(B) 80 N
✓(C) 125 N
(D) 100 N
(E) Answer not known

135. The weight of a body on earth is 980 N if the acceleration due to gravity on earth = 9.8 m/s². What will be weight of a body on the sun where gravitational acceleration is 200 m/s²?

✓(A) 20000 N
(B) 196000 N
(C) 100 N
(D) 980 N
(E) Answer not known

136. A bullet of mass 100 gm moving with a velocity of 100 m/s is fired into a block of wood and it penetrates to a depth of 10 cm. Find the force of Resistance.

✓(A) 5000 N
(B) 3645 N
(C) 7500 N
(D) 1822.5 N
(E) Answer not known

137. Consider the following equation used in the Dynamics principles. $\int_{t_1}^{t_2} \vec{F}\, dt = m(\vec{V}_2 - \vec{V}_1)$. Here $\vec{F}$ and $\int_{t_1}^{t_2} \vec{F}\, dt$ are termed as

(A) Force Vector, Linear Impulse
✓(B) Impulsive Force, Impulse
(C) Linear Impulse, Impulse Force
(D) Linear Impulse, Impulsive Force
(E) Answer not known

138. A dyne is the unit for ————— in ————— system of units.

    (A) Mass, CGS   ✓(B) Weight, CGS

    (C) Mass, MKS   (D) Weight, MKS

    (E) Answer not known

139. The centroid of cylinder of radius 'R' and Length H is located at the

    ✓(A) centre   (B) top

    (C) bottom   (D) left

    (E) Answer not known

140. Polar moment of Inertia of a circular area of diameter 'D' is

    (A) $\dfrac{\pi D}{32}$ (B) $\dfrac{\pi D^4}{16}$

    ✓(C) $\dfrac{\pi D^4}{32}$ (D) $\dfrac{\pi D^2}{32}$

    (E) Answer not known

141. Moment of Inertia of a semi circle is

    ✓(A) $I_{xx} = \dfrac{\pi r^4}{8}; I_{yy} = \dfrac{\pi r^4}{8}$ (B) $I_{xx} = \dfrac{\pi r}{8}; I_{yy} = \dfrac{\pi r}{8}$

    (C) $I_{xx} = \dfrac{\pi r^2}{8}; I_{yy} = \dfrac{\pi r^2}{8}$ (D) $I_{xx} = \dfrac{\pi r^3}{8}; I_{yy} = \dfrac{\pi r^3}{8}$

    (E) Answer not known

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142. Moment of Inertia of a rectangle of width 'b' and depth 'd' is found as

(A) $I_{xx} = \dfrac{bd}{12}; I_{yy} = \dfrac{db}{12}$

(B) $I_{xx} = \dfrac{bd^2}{12}; I_{yy} = \dfrac{db^2}{12}$

✓(C) $I_{xx} = \dfrac{bd^3}{12}; I_{yy} = \dfrac{db^3}{12}$

(D) $I_{xx} = \dfrac{b^2 d^3}{12}; I_{yy} = \dfrac{d^2 b^3}{12}$

(E) Answer not known

143. The polar moment of Inertia of the area A with respect to the pole 'O' is given by

(A) $I_p = I_{xx}$

(B) $I_p = I_{yy}$

✓(C) $I_p = I_{xx} + I_{yy}$

(D) $I_{pp} = I_{xx} + I_{yy} + I_{zz}$

(E) Answer not known

144. Centre of gravity of the plane area is given by

✓(A) $\bar{x} = \int \dfrac{x\,dA}{A}$

(B) $\bar{x} = \int \dfrac{x^2 dA}{A}$

(C) $\bar{x} = \dfrac{x\,dA}{A}$

(D) $\bar{x} = \int \dfrac{x\,dA}{A^2}$

(E) Answer not known

145. Problems involving wedges can be solved by drawing ———— of each object and using the conditions of equilibrium.

(A) Moment diagram

✓(B) Free body diagram

(C) Force polygon

(D) Couple polygon

(E) Answer not known

146. A ladder of length 10 m and weighing 20 N is placed against a smooth vertical wall with its lower end is 8 m from the wall. Find the coefficient of friction between wall and ladder for the condition of just slip.

(A) 0.67   (B) 0.33

(C) 0.5   (D) 0.8

(E) Answer not known

147. A body of weight 'w' is placed on an inclined rough plane. The inclination of the plane with horizontal is more than the angle of friction. The body will

(A) be in equilibrium   (B) move downwards

(C) move upwards   (D) be at rest

(E) Answer not known

148. A rail road freight car having a weight of 80 metric tons. The diameter of the wheel is 0.8 m and coefficient of rolling resistance between wheel and track is 0.01 mm. Find the horizontal force required to maintain uniform speed. Take one kg = 10N

(A) 2 N   (B) 10 N

(C) 20 N   (D) 200 N

(E) Answer not known

149. A body resting on a rough horizontal plane required a pull of 180 N inclined at 30° to the plane just to move it. Under equilibrium condition find the force of friction exerted.

(A) 90 N   (B) 136 N

(C) 156 N   (D) 180 N

(E) Answer not known

150. Two forces acting on a body will keep it in equilibrium, if the two forces are

   ✓(A)   equal, opposite and collinear
   (B)   unequal, opposite
   (C)   collinear
   (D)   opposite
   (E)   Answer not known

151. Three forces acting on a body will keep it in equilibrium, if the three forces are

   (A)   opposite
   (B)   concurrent
   ✓(C)   coplanar and concurrent
   (D)   coplanar
   (E)   Answer not known

152. If the moment is also zero, these will not be any rotational motion, such a state of condition is called as

   (A)   Dynamic equilibrium   (B)   Acceleration
   ✓(C)   State equilibrium   (D)   Moment of force
   (E)   Answer not known

153. The particle may be treated as a rigid body if

   (A)   the body will have only rotational motion
   (B)   the body will have only translational motion
   ✓(C)   the body will have rotational motion in addition to the translational motion
   (D)   the body will have no rotational motion
   (E)   Answer not known

154. Newton's Law of Universal Gravitation is

(A) $F = \dfrac{G\, m_1\, m_2}{r}$

(B) $F = \dfrac{G\, m_1\, m_2}{r^2}$

(C) $F = \dfrac{Gm_1^2\, m_2^2}{r}$

(D) $F = G\, m_1\, m_2$

(E) Answer not known

155. Multiplication factor for "terra" is

(A) 10^{12}

(B) 10^9

(C) 10^3

(D) 10^2

(E) Answer not known

156. The control aimed at evaluating the performance of the organization as a whole including SBU, Divisions and Departments is

(A) Strategic control

(B) Organizational control

(C) Divisional control

(D) Operational control

(E) Answer not known

157. Controlling process is always forward looking because

(A) Guided by past activities

(B) Forecast about future

(C) Guided by past experiences

(D) Initiates corrective action for improvements

(E) Answer not known

158. ———————— will not make control automatic, although it establishes an environment where sound control principles can be appreciated and used.

   (A) Critical path method

   (B) PERT

   (C) Gantt chart

   (D) Quality control

   (E) Answer not known

159. ———————— focuses on the income the organisation expects to receive from normal operations.

   (A) Revenue budget   (B) Expense budget

   (C) Project budget   (D) Cash budget

   (E) Answer not known

160. Following are the examples of feed forward control except

   (A) Employee selection

   (B) Material inspection

   (C) Employee performance evaluation

   (D) Capital budgeting

   (E) Answer not known

161. A traditional conflict management technique in which neither party is a definite loser or distinct winner

   (A) Smoothing   (B) Compromise

   (C) Confrontation   (D) Avoidance

   (E) Answer not known

162. A leadership related to inspirational and charismatic approach is,

    (A) Transactional Leadership   (B) Transformational Leadership

    (C) Autocratic Leadership   (D) Democratic Leadership

    (E) Answer not known

163. The degree to which employees of an organization able to satisfy personal needs through their experiences in the organization.

    (A) Quality of work life   (B) Work life balance

    (C) Promotion   (D) Recognition

    (E) Answer not known

164. The inducements which are offered to employees inorder to direct their behaviour towards enterprise objectives.

    (A) Empowerment   (B) Leadership

    (C) Incentives   (D) Encouragement

    (E) Answer not known

165. Ingratiation and self promotion are associated with ————— in an interview process.

    (A) Non verbal behavior   (B) Impression management

    (C) Assertiveness   (D) Rapport building

    (E) Answer not known

166. Injecting the following things in training except ————— can improve engagement and morale of trainees.

    (A) Point systems   (B) Badges

    (C) Leader boards   (D) Multi tasks

    (E) Answer not known

167. A forecasting tool in manpower planning that analyse and study the firm's past employment needs over a period of years to predict future needs.

   (A) Ratio analysis   ✓(B) Trend analysis
   (C) Managerial judgement   (D) Scatter plot
   (E) Answer not known

168. The status of available managerial talent and undeveloped potential, if any could be revealed through

   ✓(A) Skills inventory   (B) Talent management
   (C) Talent Acquisition   (D) Performance evaluation
   (E) Answer not known

169. Pick out the non procurement function among the following

   (A) Selection   (B) Transfer
   (C) Job analysis   ✓(D) Job evaluation
   (E) Answer not known

170. Clear chain of command is the key advantage of practicing,

   (A) Decentralization   ✓(B) Centralization
   (C) Unity of command   (D) Unity of direction
   (E) Answer not known

171. The answerability of a person for final outcome of the work assigned to him by his superior is,

   (A) Authority   (B) Responsibility
   (C) Duty   ✓(D) Accountability
   (E) Answer not known

172. A unit, that have its own mission, plans, resources and competitors and act as an independent business.

 (A) Special business unit   (B) Strategic business unit
 (C) Structural business unit   (D) Systematic business unit
 (E) Answer not known

173. The plan that specifies who reports to whom in an organization,

 (A) Unity of command   (B) Chain of command
 (C) Scalar chain   (D) Hierarchy
 (E) Answer not known

174. "Achieving cooperation of human beings, rather than chaotic individualism" was proposed by

 (A) Henri Fayol   (B) Max Weber
 (C) F.W. Taylor   (D) Elton Mayo
 (E) Answer not known

175. The method used to estimate the changes in one variable as a result of specified changes in other variables

 (A) Extrapolation   (B) Time series analysis
 (C) Panel consensus method   (D) Regression analysis
 (E) Answer not known

176. There should be one head and one plan for a group of activities having same objective under

 (A) Division of work   (B) Unity of command
 (C) Unity of direction   (D) Centralisation
 (E) Answer not known

177. Managers greet visitors, represent the company at community events and function as emissaries of the organisation were performing the role of

 ✓ (A) Figure heads   (B) Leaders
 (C) Liaisons   (D) Spokesman
 (E) Answer not known

178. —————— is a tool used for decision making regarding developmental projects and to predict the environmental consequences.

 (A) Ecological survey
 (B) Environmental survey
 (C) Ecological assessment
 ✓ (D) Environmental impact assessment
 (E) Answer not known

179. The earth gets heated up by trapping —————— radiation by atmospheric gases.

 (A) UV   ✓ (B) Infra-red
 (C) Visible   (D) Radio-wave
 (E) Answer not known

180. Find the correct human thermoregulatory response to cold temperature

 (A) Dilution of blood
 (B) Inclination to reduced activities
 ✓ (C) Increased muscle tone
 (D) Dilation of skin blood vessels
 (E) Answer not known

181. Find the one which is not in the '4 R's of integrated waste management.

- (A) Reject
- (B) Reuse
- (C) Recycle
- (D) Recovery
- (E) Answer not known

182. Total green house gas emission caused directly or indirectly is measured by

- (A) Carbon footprint
- (B) Economic growth
- (C) Carbon cycle
- (D) Acid rain
- (E) Answer not known

183. Identify the one that is NOT a tool of green chemistry

- (A) Renewable feed stock
- (B) Green solvent
- (C) No solvent
- (D) Low atom economy
- (E) Answer not known

184. The number of individuals an environment can support without degradation is called

- (A) Carrying capacity
- (B) Environmental capacity
- (C) Conserving capacity
- (D) Ecological capacity
- (E) Answer not known

185. Identify the incorrect statement, among the following, regarding $H_2 - O_2$ fuel cell

(A) Fuel cell is pollution free

(B) Water is a by – product of reaction

(C) Noiseless operation

(D) Capital cost is very low

(E) Answer not known

186. In fuel-cell, the membrane, separating the anode and the cathode, allows the passage of

(A) Electrons
(B) Ions

(C) Neutral atoms
(D) Neutrons

(E) Answer not known

187. Identify the full form of OTEC from the following

(A) Ocean Transmission Energy Conversion

(B) Ozone Thermal Energy Conversion

(C) Other Thermal Energy Conversion

(D) Ocean Thermal Energy Conversion

(E) Answer not known

188. The term Hindenburg syndrome is known for

(A) Environmental impact

(B) Photochemical smog

(C) Hydrogen leakage

(D) Ozone layer depletion

(E) Answer not known

189. Daily activities of tide pattern during 24 hours is known as

(A) Spring tide   (B) Tidenal tide

(C) Diurnal tide   (D) Neap tide

(E) Answer not known

190. Identify the secondary pollutant among the following

(A) SO_2 (B) CO

(C) NO_2 (D) O_3

(E) Answer not known

191. The root cause of Minamata disease is

(A) Cadmium poisoning   (B) Mercury poisoning

(C) Arsenic poisoning   (D) Lead poisoning

(E) Answer not known

192. Full form of PCB is

(A) Printed Circuit Box

(B) Processed Circuit Board

(C) Printed Circuit Board

(D) Polluted Circuit Board

(E) Answer not known

193. Ozone layer is present in

(A) Troposphere   (B) Stratosphere

(C) Mesosphere   (D) Ionosphere

(E) Answer not known

194. A change in sound from 40 db to 80 db represents a —————— fold increase in loudness.

(A) 40 fold   (B) 100 fold
(C) 1000 fold   ✓(D) 10000 fold
(E) Answer not known

195. Among the following, identify the biotic component

(A) Light   (B) Fat
(C) Oxygen   ✓(D) Plasmodium
(E) Answer not known

196. An example of Lotic ecosystem is

(A) Lake   (B) Pond
✓(C) River   (D) Marshes
(E) Answer not known

197. The species, which are considered to be in imminent danger of extinction, are called

(A) Threatened species   ✓(B) Endangered species
(C) Vulnerable species   (D) Endemic species
(E) Answer not known

198. Choose the chemoautotrophs in the following

(A) Planktons   (B) Algae
✓(C) Sulfolobus   (D) Cyanobacteria
(E) Answer not known

199. The bacterium bacillus thuringiensis produces ————— that kills certain insects, but harmless to human.

(A) Toxic minerals   (B) Toxic proteins

(C) Viruses   (D) Toxic fat

(E) Answer not known

200. The microbial product chloramphenicol is used to treat

(A) Strep throat

(B) Syphilis Lyme disease

(C) Bacterial eye infections

(D) Pneumonia

(E) Answer not known