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## **NUST Past Paper – Engineering**

Total Time: 3 Hrs Total Question: 200

- 1. If V = [2,1,3] and W = [-1,4,0] then [V-2W] =
  - a.  $\sqrt{76}$
  - b.  $\sqrt{74}$
  - c. √89
  - d. 0
- 2. The projection of a = i-2j + k along b = 4i 4j + 7k is
  - a. 19/8
  - b. 9/19
  - c. 8/19
  - d. 19/9
- 3. 0 is a
  - a. A Rational number
  - b. An Irrational number
  - c. Whole number
  - d. A positive integer
- 4. If u = -1 + 2j + 4k and v = 2i j + 4k are two adjacent sides of a parallelogram then area of parallelogram is
  - a. √290
  - b.  $\sqrt{279}$
  - c. √297
  - d. 0
- 5. The value of 3j(k + i) =
  - a. 3
  - b. 4
  - c. 6
  - d. 0
- 6. If z = (1, 2), then 1/z = ?
  - a. 0.2,0.4
  - b. -0.2,0.4
  - c. 0.2,-0.4
  - d. -0.2,-0.4

- 7. a vector of magnitude 5 and perpendicular to a = I + 3j k and b=3i j is
  - a.  $\frac{5}{\sqrt{110}}(-i-3j-10k)$
  - b.  $\frac{5}{\sqrt{17}}(-i-3j-10k)$
  - c.  $\frac{5}{\sqrt{110}}(-i+3j-10k)$
  - d.  $\frac{5}{\sqrt{17}}(-i+3j-10k)$
- 8. The area enclosed by the triangle ABC whose vertices are A(1,2,-3) B(0,0,0) and C(2,7,4) is
  - a.  $\sqrt{676}$
  - b.  $\sqrt{845}/2$
  - c.  $\sqrt{184}$
  - d. 27
- 9. [k-1, i-j, j-k] =
  - a. 1
  - b. -1
  - c. 1/2
  - d. 0
- 10. It Q, R. are any sets, then Q R =
  - a.  $Q \cap (Q R)$
  - b.  $Q-(Q \cup R)$
  - c.  $Q-(Q \cap R)$
  - d.  $Q \cup (Q R)$
- 11. The equation |x + 4| = x has solution
  - a. X = -2
  - b. X = 2
  - c. X = -4
  - d. X = 4
- 12. Geometrically, the modulus of a complex number represents its distance from the
  - a. Point (1,0)
  - b. Point (0, 1)
  - c. Point (1, 1)
  - d. Point (0,0)
- 13. Associative law of multiplication
  - a. ab = ba
  - b. a(bc) = (ab)c
  - c. a(a+b) = ab+bc
  - d. (a + b)c = ac + bc

#### 14. a.a-1 = a-1.a =1 is a

- a. Commutative law of multiplication
- b. Multiplicative identity
- c. Associative law of multiplication
- d. Multiplicative inverse

#### 15. (a + bi) - (c + di) =

a. 
$$(a + b) = (c + d)$$

b. 
$$(a + c) + i(b + d)$$

c. 
$$(a - c) + i(c - d)$$

d. 
$$(a - c) + i(b - d)$$

16. 
$$(a, b) + (-a, b) =$$

17. 
$$(a,0)x(c,0) =$$

18. 
$$(7,9) + (3,-5) =$$

c. 
$$(9,-5)$$

#### 19. If z1 = 2 + 6i and z2 = 3 + 7i, then which expression defines the products of z1 and z2?

a. 
$$36 + (-32)i$$

#### 20. Which element is the additive inverse of (a, b) in complex numbers?

#### 21. The set (Z, t) forms a group

- a. Forms a group w.r.t addition
- b. Non commutative group w.r.t multiplication
- c. Forms a group w.r.t multiplication
- d. Does not form group



| 22. | Which    | of the following has the same value as i <sup>113</sup> ?                                  |
|-----|----------|--|
|     | a.       | i  |
|     | b.       | -1   |
|     | С.       | −i   |
|     | d.       | 1  |
| 23. | P: Islan | nabad is a capital of Pakistan q: Lahore is not a city of Pakistan, the conjunction of p q |
|     | is       |  |
|     | a.       | False  |
|     | b.       | True   |
|     | C.       | Not valid  |
|     | d.       | Known  |
| 24. | -        | nction of two statement p and q is true if   |
|     | a.       | P is false   |
|     | b.       | Both p and q is true   |
|     | C.       | One of P and q is true   |
|     |          | Q is false   |
| 25. |          | t of real number R is a subset of  |
|     |          | The set of natural Numbers N   |
|     |          | The set of inters Z  |
|     |          | The set of complex numbers C   |
|     |          | The set of even integer E  |
| 26. | An eler  | ment 'b' of a set B can be written as  |
|     | a.       | $b \subseteq B$  |
|     | b.       | b < B  |
|     | c.       | $b \in B$  |
|     | d.       | $B \in b$  |
| 27. | The set  | t A is   |
|     | a.       | Improper subset of A   |
|     | b.       | Proper submit of A   |
|     | C.       | Not a subset of A  |
|     | d.       | Not superset of A  |
| 28. | A set co | ontaining only one element is called the   |
|     | a.       | Empty set  |
|     | b.       | Singleton set  |
|     | c.       | Null set   |
|     | d.       | Solution set   |
|     |          |  |



- 29. To each element of a group there correspond how many inverse element
  - a. Only one
  - b. At least one
  - c. More than one
  - d. Two
- 30. The set of students of your class is
  - a. Infinite set
  - b. Finite set
  - c. Empty set
  - d. Null set
- 31. To draw general conclusions from accepted or well-known facts is called:
  - a. Induction
  - b. Proposition
  - c. Deduction
  - d. Aristotelian logic
- 32. The truth value of the proportion is a positive number or 2+2=4 is
  - a. True
  - b. False
  - c. Contingency
  - d. None
- 33. The draw general conclusions from a limited number of observation or experiences is called
  - a. Proposition
  - b. Deduction
  - c. Induction
  - d. Knowledge
- 34. A declarative statement which may be 3 true or false but not both is called
  - a. Proposition
  - b. Deduction
  - c. Induction
  - d. Knowledge
- 35. Which of the following is not mooned w.r.t addition?
  - a. Z
  - b. N
  - c. W
  - d. R
- 36. DEDUCTIVE LOGIC IN WHICH EVERY STATEMENT IS REGARDED AS TRUE OR FALSE AND THERE IS SCOPE FOR A THIRD OR FOURTH POSSIBILITY IS CALLED
  - a. PROPOSITION
  - b. DEDUCTION
  - c. NON Aristotelian logic
  - d. Aristotelian logic



- 37. A disjunction of two statements  $\boldsymbol{p}$  and  $\boldsymbol{q}$  is true if
  - a. P IS FALSE
  - b. Both p and q are false
  - c. One of p and q is true
  - d. Q is false
- 38. The identity element of N, w.r.t addition is
  - a. 1
  - b. 0
  - c. 2
  - d. None
- 39. The set of the first element of the ordered pairs forming a relation is called ots:
  - a. Relation of A to B
  - b. Relation from B to A
  - c. Relation in A
  - d. Relation in B
- 40. A subset of B x A is called a
  - a. Relation of A to B
  - b. Relation from B to A
  - c. Relation in A
  - d. Relation in B
- 41. Cos  $[-150(\pi/2) = ?$ 
  - a. 0
  - b. 1
  - c. -1
  - **d.** ∞
- 42.  $45^0 = ?$ 
  - a.  $3\pi/2$  radians
  - b.  $2\pi/3$  radians
  - c.  $\pi/4$
  - d.  $180\pi$  radians
- 43. A circular wire of radius 3cm us cut straightened and then bent so as to lie along the circumference of a hoop of radius 24cm.the measure of the angle subs tended at the center of the hope is
  - a. 15<sup>0</sup>
  - b.  $30^{\circ}$
  - c.  $45^{\circ}$
  - d.  $60^{\circ}$



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|-----|----------|---|
| 44. | The are  | ea of a sector with a central angle of 0.5 radians in a circular region whose radius is 2m is |
|     | a.       | $\pi/2 \text{ m}^2$   |
|     | b.       | $\pi/3 \text{ m}^2$   |
|     | c.       | $\pi$ /6 m <sup>2</sup>   |
|     | d.       | 1m <sup>2</sup>   |
| 45. | The mu   | ultiplicative inverse of – 1 in the set {-1,1}is:   |
|     | a.       | 1   |
|     | b.       | -1  |
|     | C.       | ±1  |
|     | d.       | 0   |
| 46. | The va   | llues of cos 20+ sec 20 is always   |
|     | a.       |   |
|     | b.       | Equal to 1  |
|     | C.       | Greater then 1,but less than 2  |
|     |          | Greater than or equal to 2.   |
| 47. |          | aximum value of sin x + Cos x is  |
|     | a.       | 1   |
|     | b.       |   |
|     |          | $\sqrt{2}$  |
|     |          | 1/√2  |
| 48. |          | nool, there are 150 students. Out of these 80 students enrolled for mathematics class, 50     |
|     |          | d for English class, and 60 enrolled for physics class. The student enrolled for English      |
|     |          | attend any other class, but the students of mathematics and physics can take two              |
|     |          | s at a time. Find the number of students who have taken both physics and mathematics.         |
|     | a.<br>b. | 40<br>30  |
|     |          | 50  |
|     | C.       | 20  |
| 49  |          | t {{a, b}} is   |
| 73. | a.       | Infinite set  |
|     | b.       | Singleton set   |
|     | C.       | Two points set  |
|     | d.       | None  |
| 50. |          | 0- sin700 + sin100 is equal to  |
|     | a.       | 1   |
|     | b.       | 2   |
|     | c.       | 1/2   |
|     | d.       | 2.  |



- 51. The graph of a quadratic function is
  - a. Circle
  - b. Ellipse
  - c. Parabola
  - d. hexagon
- 52. The set of complex number forms a group under the binary operation of
  - a. Addition
  - b. Multiplication
  - c. Division
  - d. Subtraction
- 53. The multiplicative inverse of -1 in the  $\{1,-1\}$  is
  - a. 1
  - b. -1
  - c. ±1
  - d. 0
  - e. Does not exist
- 54. The set  $\{1, -1/, i, i\}$ , form a group under
  - a. Addition
  - b. Multiplication
  - c. Subtraction
  - d. None
- 55. The set of all positive even integers is
  - a. Not a group
  - b. A group w.r.t, subtraction
  - c. A group w.r.t, division
  - d. A group w.r.t, multiplication
- 56. The vector quantity in the following
  - a. Distance
  - b. Impulse
  - c. Energy
  - d. 1
- 57. The set (Q,)
  - a. Forms a group
  - b. Does not room a group
  - c. Contains no additive identity
  - d. Conations on additive inverse



- 58. The set (Z, +) forms a group
  - a. Forms a group w.r.t addition
  - b. Non commutative group w.r.t multiplication
  - c. Forms a group w.r.t Multiplication
  - d. Doesn't form a group
- 59. Total number of subsets that can be formed out of the set{a, b, c}is
  - a. 1
  - b. 4
  - c. 8
  - d. 12
- 60. Additive inverse of a-b is
  - a. A
  - b. -a+ b
  - c. A-b
  - d. A+ b
- 61. If x = 1/x for  $x \in R$  then the respect to subtraction is
  - a. 0
  - b. 1
  - c. 2
  - d. 4
- 62. The identity element with respect to subtraction is
  - a. 0
  - b. 1
  - c. ±1
  - d. Does not exist
- 63. Multiplicative inverse of 0 is
  - a. 0
  - b. 1
  - c. ±1
  - d. Does not exist
- 64. Decimal part of irrational number is
  - a. Terminating
  - b. Repeating only
  - c. Neither repeating nor terminating
  - d. Repeating and terminating
- 65. The trigonometric ratio change into co- ratio and vice versa if  $\phi$  is added to or subtracted from
  - a. Even multiple of right angle
  - b. Odd of  $\pi/2$  multiple
  - c. Both a and b
  - d. None of these



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| a.           | 45  |
|--------------|---|
| b.           | 30  |
| c.           | 25  |
| d.           | 50  |
| 67. If a fun | ction f: $A \rightarrow B$ is such that fan f=B then f is a/ an?            |
| a.           | Into function   |
| b.           | Onto function   |
| с.           | Bi-jective function   |
| d.           | one – one function  |
| 68. the set  | of the first elements of the orders pairs forming a relation is called its  |
| a.           | relation in B   |
| b.           | range   |
| С.           | Domain  |
| d.           | Relation in A   |
| 69. A funct  | tion in which the second elements of the order pairs are distinct is called |
| a.           | Onto function   |
| b.           | One-one function  |
| С.           | Identity function   |
| d.           | Inverse function  |
| 70. A funct  | ion whose range is just one element is called                               |
| a.           | One –one function   |
| b.           | Constant function   |
| C.           | Onto function   |
| d.           | Identity function   |
| 71. The gra  | aph of a quadratic function is  |
| a.           | Circle  |
| b.           | Straight line   |
| C.           | Parabola  |
| d.           | Triangle  |
|              | h element of a group there corresponds inverse element                      |
| a.           | Two   |
| b.           | One   |
| С.           | No  |
| d.           | Three   |
|              | t of integer is   |
| a.           | Finite group  |
| b.           | A group w.r.t addition  |
| C.           | A group w.r.t multiplication  |
| d.           | Not a group   |
|              |   |

66. In a country, 55% of the male population has houses in cities while 30% have houses both in cities and in villages. Find the percentage of the population that has houses only in villages,



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| 74. | The set  | of complex number forms   |
|-----|----------|---|
|     | a.       | Commutative group w.r.t addition  |
|     | b.       | Commutative group w.r.t multiplication  |
|     | c.       | Commutative group w.r.t division  |
|     | d.       | Non commutative group w.r.t addition  |
| 75. | The set  | R is w.r.t subtraction  |
|     | a.       | Not a group   |
|     | b.       | A group   |
|     | c.       | No conclusion drawn   |
|     | d.       | Non commutative group   |
| 76. | Power    | set of x I.e. p(x)under the binary operation of union U                                       |
|     | a.       | Forms a group   |
|     | b.       | Does not form a group   |
|     | C.       | Has no identity element   |
|     | d.       | Infinite set although x is infinite   |
| 77. | Any po   | int, where f is neither increasing nor decreasing and $f''(x) = 0$ at that point, is called a |
|     | a.       | Minimum   |
|     | b.       | Maximum   |
|     | С.       | Stationary point  |
|     |          | Constant point  |
| 78. | If A={1, | 2,3,4,5,6} and gives relation {(1,1),(2,2),(3,3),(4,4),(5,5),(6,6)} is called:                |
|     | a.       | Binary relation   |
|     | b.       | Inverse relation  |
|     | c.       | Range at a relation   |
|     | d.       | Identity relation   |
| 79. | The tra  | nspose of a row matrix is a   |
|     | a.       | Column matrix   |
|     | b.       | Diagonal matrix   |
|     | C.       | Zero matrix   |
|     | d.       | Scalar matrix   |
| 80. | Which    | of the following is unary operation:  |
|     | a.       | Square root   |
|     | b.       | Union of sets   |
|     | C.       | Addition  |
|     | d.       | Multiplication  |
| 81. | Mass o   | defect of an atom refers to   |
|     | a.       | Inaccurate measurement of mass of nucleons  |
|     | b.       | Mass annihilated to produce energy to bind the nucleus  |
|     | c.       | Packing fraction  |

d. Difference in number of neutron and protons in the nucleus



- 82. In alternating current the average value of current in cycle is
  - a. 0
  - b. Constant
  - c. +ive
  - d. Max
- 83. Radioactivity is purely a nuclear phenomenon, and is not affected by
  - a. Physical or chemical reaction
  - b. Temperature
  - c. Pressure
  - d. All
- 84. A radioactive reaction  $_{92}$  U<sup>238</sup>  $\rightarrow$   $_{82}$  Pb<sup>206</sup> . How many  $\alpha$  and  $\beta$  particles are emitted?
  - a.  $10\alpha$  and  $6\beta$
  - b. 4 proton and 8 neutrons
  - c. 6 electron and 8 proton
  - d.  $8\alpha$  and  $6\beta$
- 85. The time taken by the entire electron pulse to reach anode, n Geiger Muller tube is
  - a. 1 ms
  - b. Less than  $1\mu$ s
  - c. More than 1  $\mu$ s
  - d. None of these
- 86. Geiger Muller counter can be used to determine the
  - a. Range of ionizing particle
  - b. Mass of ionizing particle
  - c. Charge of ionizing particle
  - d. None
- 87. In a nuclear reaction, which of the following is conserved?
  - a. Atomic number only
  - b. Mass number only
  - c. Atomic number, mass number and energy
  - d. Energy only
- 88. The half-life (T) and the disintegration constant ( $\lambda$ ) of a radioactive substance are related as
  - a.  $\lambda T = 1$
  - b.  $\lambda T = 0.693$
  - c.  $T/\lambda = 0.693$
  - d.  $\lambda/T = 0.693$



- 89. Which of the following is true?
  - a. Lyman series is a continuous spectrum
  - b. Ballmer series is a line spectrum in the ultraviolet
  - c. Panchen series is a line spectrum in the infrared
  - d. The spectral series formula can be derived from the Ruther ford model of the hydrogen atom
- 90. Typical source of  $\beta$  particle is
  - a. Radon 222
  - b. Cobalt 62
  - c. Strontium 94
  - d. None
- 91. The effect of the decrease in pressure with the increase in speed of the fluid in horizontal tube gives that
  - a. Torricelli effect
  - b. Bernoulli effect
  - c. Venture effect
  - d. Doppler's effect
- 92. For better resolution and clear visibility trough microscope we use
  - a. Longer wavelength light
  - b. Shorter wavelength light
  - c. Wavelength has no effect
  - d. It depend only on design of microscope not on a light
- 93. Which of the following processes will result into fission reaction?
  - a. 92 U<sup>235</sup> is bombard with fast moving neutron
  - b. <sub>92</sub> U<sup>235</sup> is bombard with thermal neutron
  - c. 92 U<sup>238</sup> is bombard with slow moving neutron
  - d. <sub>92</sub> U<sup>235</sup> is being unstable breaks into smaller fragments
- 94. Which one of the following is possible?
  - a.  $_{7}N^{14} + _{0}n^{1} \rightarrow _{7}N^{16} + _{1}H^{1}$
  - b.  ${}_{16}S^{32} + {}_{1}H^1 \rightarrow {}_{17}Cl^{35} + {}_{2}He^4$
  - c.  ${}_{8}O^{16} + {}_{0}n^{1} \rightarrow {}_{7}N^{14} + 3{}_{1}H^{1} + 2{}_{-1}\beta^{0}$
  - d.  $_{1}H^{1} + _{1}H^{1} \rightarrow _{2}He^{4}$
- 95. Which of the following is example of vector product of two vectors?
  - a. Linear momentum;
  - b. Angular momentum
  - c. Force
  - d. Electric flux



- 96. The radius of second orbit of hydrogen atom is
  - a.  $0.53A^0$
  - b. 2.12A<sup>0</sup>
  - c.  $3.53A^0$
  - d.  $4.12 A^0$
- 97. Element with atomic number Z >82 are
  - a. Stable
  - b. Unstable
  - c. Small
  - d. None
- 98. The number of neutrons 'N' is equal to
  - a. N = A-Z
  - b. N = A+Z
  - c.  $N = A \times Z$
  - d.  $N = \frac{1}{2}A + Z$
- 99. When sound waves move from one medium to other medium the quantity which remains unchanged is
  - a. Wavelength
  - b. Frequency
  - c. Speed
  - d. Intensity
- 100. Rutherford's experiments on scattering of  $\alpha$  particles proved that:
  - a. Atom is mostly empty
  - b. +ive charge is uniformly distributed in the atom
  - c. Number of +ive charge is equal to the number of -ive charge
  - d. Atoms contains electron
- 101. Which of the following source give discrete emission spectrum?
  - a. Incandescent electric bulb
  - b. Sun
  - c. Mercury vapor lamp
  - d. Candle
- 102. When a hydrogen atom is raised from the ground state to an excited state
  - a. P.E increases and K.E decreases
  - b. P.E decreases and K.E increases
  - c. Both P.E and K.E increases
  - d. Both P.E and K.E decreases
- 103. The half-life of a radioactive substance is 10 days. This mean that
  - a. The substance completely disintegrates in 20 days
  - b. The substance completely disintegrates in 40 days
  - c. 1/8 parts of the mass if the substance will be left intact at the end of 40 days
  - d. 7/8 parts of the mass if the substance disintegrates in 30 days



- 104. In step up transformer when the alternating voltage increases then the alternating current
  - a. Will increase
  - b. Will decrease
  - c. Will not change
  - d. None of the above
- 105. The transition of the electron takes place from n= 2 orbit to n=1 orbit . which if the following gives the shortest wavelength?
  - a. Hydrogen atom
  - b. Deuterium atom
  - c. Single ionized helium
  - d. Doubly ionized helium
- 106. A one microfarad capacitor of a TV is subjected to 4000V Potential difference the energy stored in capacitor is
  - a. 8j
  - b. 16j
  - c. 4 x10<sup>-3</sup> j
  - d. 2 x10<sup>-3</sup> j
- 107. A parallel plate condenser with oil between the plates (dielectric constant of oil k = 2) has a capacitance C. if the oil is removed then capacitance of the capacitor becomes
  - a.  $\sqrt{2} c$
  - b. 2c
  - c.  $c/\sqrt{2}$
  - d. c/2
- 108. a metal plate of thickness half the separation between the capacitor plates of capacitance C is inserted the new capacitance is
  - a. C
  - b. C/2
  - c. 0
  - d. 2C
- 109. As the electron in Bohr orbit of hydrogen atom passes from state n = 2 to n= 1 the Kinetic energy K and Potential energy U changes as
  - a. K two-fold, U also two-fold
  - b. K four-fold, U also four-fold
  - c. K four fold, U two fold
  - d. K two fold, U four fold



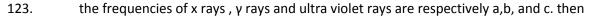
- 110. In Bohr model of hydrogen atom let PE represent PE, and TE the total energy in going to a higher orbit
  - a. PE increases ,TE decreases
  - b. PE decreases,TE increases
  - c. PE increases ,TE increases
  - d. PE decreases, TE decreases
- 111. A photon of x rays of 10.2 eV energy is absorbed by hydrogen atom. This will raise an electron from n=1 orbit to which one of the following orbits?
  - a. N =2
  - b. n= 3
  - c. n = 4
  - d. n=5
- 112. aging process of the human body is slowed by motion at
  - a. very slow speed
  - b. very high speed
  - c. very high speed along a circular path
  - d. none of these
- the amount of energy needed to remove electrons from the metal surface depends upon
  - a. work
  - b. work function
  - c. power
  - d. wavelength
- when scattered x rays photons are observed at  $\Theta = 90^{\circ}$ , the Compton shift  $\Delta\lambda$  equal to
  - a. Compton shift
  - b. Compton wavelength
  - c. Full wavelength
  - d. None
- 115. The transitions of inner shell electrons in heavy atoms give
  - a.  $\alpha$  rays
  - b. β rays
  - c. γ rays
  - d. x ravs
- 116. the temperature scale which is independent of the nature of the working substance is
  - a. Celsius scale
  - b. Fahrenheit scale
  - c. Centigrade scale
  - d. Thermodynamic scale



- 117. The period of a pendulum is measured to be 3.0 s in the inertial frame of the pendulum find the period by an observer moving at 0.95 C with respect to pendulum
  - a. 5.6s
  - b. 7.9s
  - c. 9.6s
  - d. 9.8s
- 118. A photocell with a constant potential difference of V volt across it illuminated by a point source from a distance of 25 cm. when the source is moved to a distance of 1m. The electrons emitted by the photocell.
  - a. Carry ¼th their previous energy.
  - b. Are 1/16<sup>th</sup> as numerous as before
  - c. Are 1/4<sup>th</sup> as numerous as before
  - d. Carry 1/4<sup>th</sup> their pervious momentum
- 119. The heat engine operating in reverse is called
  - a. Electric generator
  - b. Refrigerator
  - c. Carnot engine
  - d. Electric motor
- 120. Light of certain wave length and intensity ejects photoelectrons from a metal plate.

  Then this beam is replaced by another beam of smaller wavelength and smaller intensity. As a result:
  - a. No change occurs
  - b. Emission of photoelectrons stops
  - c. K.E of the photoelectrons decreases but the strength of the photoelectric current increases
  - d. K.E of the photoelectrons decreases but the strength of the photoelectric current decreases
- 121. In a nuclear reaction, which of the following is conserved?
  - a. Atomic number only
  - b. Atomic mass only
  - c. Atomic number and mass number and energy
  - d. Energy only
- 122. When a rays pass through strong uniform magnetic field, then they
  - a. Do not get deflection at all
  - b. get deflected in the direction of the field
  - c. get deflected in the direction opposite to the field
  - d. get deflected in the direction perpendicular to the field





- a. a > b, b > c
- b. a < b, b > c
- c. a < b, b < c
- d. a > b, b < c
- 124. emitter of the transistor has greater concentration of impurity as compared to
  - a. base only
  - b. collector only
  - c. both base and collector
  - d. none
- 125. Two inputs of nand gates are shorted. This gate is equivalent to
  - a. or gate
  - b. and gate
  - c. not gate
  - d. xor gate
- 126. In L.C.R series A.C circuit, the phase angle between current and voltage is
  - a. Any angle between 0 and  $\pm \frac{\pi}{2}$
  - b.  $\frac{\pi}{2}$
  - c. π
  - d. Any angle between 0 and  $\frac{\pi}{2}$
- 127. The force on electron in electric field of 10<sup>8</sup> N/C
  - a. 1.6 x 10<sup>-4</sup>
  - b. 1.6 x 10<sup>-8</sup>
  - c. 1.6 x 10<sup>-10</sup>
  - d. 1.6 x 10<sup>-11</sup>
- 128. Cause of heat production in a current carrying conductors is
  - a. Collisions of free electrons with one another
  - b. High drift speed of free electrons
  - c. Collision of free electrons with atoms or ions of conductor
  - d. High resistance value
- 129. A point charge Q is placed at the mid-point of a line joining two charges, 4 q and q. if the net force on charges q is 0, then Q must be equal to
  - a. -q
  - b. +q
  - c. -2q
  - d. +4q



- 130. Find the average speed of oxygen molecule in the air at S.T.P
  - a. 591m/s
  - b. 461m/s
  - c. 396m/s
  - d. 372m/s
- 131. The life time of an ordinary excited state is
  - a. 10<sup>-35</sup> sec
  - b. 10<sup>-8</sup> sec
  - c. 10<sup>-3</sup> sec
  - d. 0.1 sec
- 132. In case of a vibrating pendulum the potential energy is maximum at
  - a. Mean position
  - b. Extreme position
  - c. Both A and B
  - d. None
- 133. With the increase of temperature viscosity.
  - a. Increase
  - b. Decrease
  - c. Remain same
  - d. Doubles
- 134. The unit of angular acceleration is
  - a. Radian
  - b. Radian per second
  - c. Radian per second<sup>2</sup>
  - d. None
- 135. A body moves a distance of 10 m along a straight line under the action of a force of 5 newton if the work done is 25 joules, the angle which the force takes with the direction of motion of the body is
  - a.  $0^{0}$
  - b.  $30^{\circ}$
  - c.  $60^{\circ}$
  - d. 90<sup>0</sup>
- 136. The horizontal range of a projectile, at a certain place, depends upon:
  - a. The mass of the projectile
  - b. The velocity of the projection
  - c. The angle of the projection
  - d. The angle and as well as velocity of the projection



- 137. The dot product of two vectors is negative is
  - a. They are parallel vectors
  - b. They are perpendicular vectors
  - c. They are anti-parallel vectors
  - d. They are negative vectors
- 138. From the following pairs, choose the pair that does not have identical dimensions
  - a. Angular momentum and Planck constant
  - b. Moment of inertia and moment of force
  - c. Work and torque
  - d. Impulse and momentum
- 139. Resistive forces are:
  - a. Non conservative
  - b. Conservative
  - c. Both A and B
  - d. None
- 140. Si unit of the intensity of wave is
  - a.  $jm^{-2}s^{-2}$
  - b. jm<sup>-1</sup> s<sup>-1</sup>
  - c. wm<sup>-2</sup>
  - d. im<sup>-2</sup>
- 141. the branch of chemistry which convert the chemical energy into electrical energy and electrical energy into chemical energy
  - a. thermochemistry
  - b. electrochemistry
  - c. bio chemistry
  - d. none
- 142. electrolytes have the ability to pass electricity because they posses
  - a. free electrons
  - b. fused electrolyte
  - c. charged ions
  - d. none
- an organic compound X (molecular formula of  $C_6H_7O_2N$ ) has six atom in a ring system two double bonds and also a nitro group as substituents
  - a. heterocyclic
  - b. hemicyclic and aromatic
  - c. aromatic but not hemicyclic
  - d. hemicyclic but not aromatic



- 144. Which one of the following is not a pollution?
  - $a. \quad CO_2 \\$
  - b. NO<sub>2</sub>
  - c. CO
  - d. SO<sub>2</sub>
- 145. Ozone hole refers to
  - a. Hole in ozone layers
  - b. Reduction in thickness of ozone layer in stratosphere
  - c. Reduction of thickness of ozone in troposphere
  - d. Increase concentration of ozone
- 146. Which of the following is not present in RNA?
  - a. Uracil
  - b. Thymine
  - c. Ribose
  - d. Phosphate
- 147. In fructose the possible optical isomers are
  - a. 12
  - b. 8
  - c. 16
  - d. 4
- 148. Straight chain hydrocarbons are
  - a. In which atoms of C are in a series
  - b. Not in a series
  - c. In which each carbon is attached at least with three other carbon atom
  - d. None
- 149. In Friedal-craft's alkylation besides AlCl<sub>3</sub> the other reactants are
  - a.  $C_6H_6 + NH_3$
  - b.  $C_6H_6 + CH_4$
  - c.  $C_6H_6 + CH_3CI$
  - d. C<sub>6</sub>H<sub>6</sub> + CH<sub>3</sub>COCl
- 150. Benzene is obtained from benzene sulphuric acid by treating with
  - a. HCL
  - b. NaOH
  - c. H<sub>2</sub>O
  - d. NaHCO<sub>3</sub>
- 151. Limestone is not used in which of the following manufacturing processes?
  - a. Phosphorus from phosphorite
  - b. Ordinary(soda lime) glass
  - c. Iron from hematite
  - d. Solvay process of sodium carbonate



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| 152.     | Which one of the following allotropic form of carbon is isomorphous with crystalline |
|----------|--|
| silicon? |  |

- a. Graphic
- b. Coal
- c. Coke
- d. Diamond
- 153. Redox chemical reaction equation can be balanced by
  - a. Oxidation no method
  - b. Ion electron method
  - c. Both
  - d. None
- 154. The elements with atomic numbers 9,17,35,53,85 and all
  - a. Noble gases
  - b. Halogens
  - c. Heavy metals
  - d. Light metals
- 155. The conductivity of strong electrolyte
  - a. Increases on dilution slightly
  - b. Does not change on dilution
  - c. Decreases on dilution
  - d. Depends on density of electrolyte itself
- 156. Metals will displace another metal from the solution of its salt if
  - a. It lies above in electrochemical series
  - b. It lies below in electrochemical series
  - c. Cannot replace
  - d. None
- 157. Calculate the percentage by weight of NaCl, if 2.0 g of NaCl us dissolved in 20g of

#### water

- a. 11.2%
- b. 9.09%
- c. 13.1%
- d. 14.25%
- 158. Which of them are coinage metals
  - a. Cu, Pb, Ni
  - b. Mn, Cr, Fe
  - c. Cu, Ag, Au
  - d. None



c. Protond. A-particle

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159. Which of the following is a buffer solution? a. Brine b. Blood c. Glue d. Solution of CuSO<sub>4</sub> 160. Which of the following statement regarding catalyst is not true? a. A catalyst remains unchanged in composition and quantity at the end of the reaction b. A catalysts can initiate a reaction c. A catalyst does not alter the equilibrium in a reversible reaction d. Catalysts are sometimes very specific respect of reaction 161. Free energy change for a reversible process is a. >0 b. <0 c. Equal to 0 d. Unpredictable What would be the heat released when an aqueous solution containing 0.5 mole of 162. HNO<sub>3</sub> is mixed with 0.3 mole of OH<sup>-</sup> (enthalpy of neutralization is -57.1 kj) a. 28.5 kj b. 17.1 kj c. 45.7 kj d. 1.7 kj 163. Lateral overlapping expected a. O bond b.  $\overline{\Lambda}$ -bonds c. Ionic bond d. Metallic bond 164. Flourine molecule is formed by a. The axial p-p overlap b. The sidewise p-p overlap c. The axial s-p overlap d. The overlap of two sp<sup>2</sup> hybird orbital 165. In BrF<sub>3</sub> molecule, the lone pairs occupy equatorial positions to minimize a. Lone pair – lone pair repulsion b. Lone pair -bond pair repulsion c. Bond pair -bond pair repulsion d. Lone pair –lone pair repulsion and lone pair –bond pair repulsion 166. Rutherford's experiment led to the discovery of a. Nucleus b. Electron



| 167. |       | The total number of orbitals ina shell with principal quantum number 'n' us           |
|------|-------|---|
|      | a.    | 2n  |
|      | b.    | 2n²   |
|      | c.    | n <sup>2</sup>  |
|      | d.    | n+1   |
| 168. |       | Which is not true with respect to cathode rays?                                       |
|      | a.    | A stream of electron  |
|      | b.    | Charged particles   |
|      | c.    | Move with speed as that of light  |
|      | d.    | Can be deflected by magnetic fields   |
| 169. |       | The ability to lose electron in electrochemical series                                |
|      | a.    | Increase from top to bottom   |
|      | b.    | Decrease from top to bottom   |
|      | c.    | No effect   |
|      | d.    | None of these   |
| 170. |       | What is the concentration of nitrate ions? If equal volumes of 0.1M AgnO₃ and 0.1 M   |
| Na   | Cl ar | e mixed together?   |
|      | a.    | 0.1M  |
|      | b.    | 0.2M  |
|      | c.    | 0.05M   |
|      | d.    | 0.25M   |
| 171. |       | If the applicant for a new IT job in US more on the interview preparation. The result |
| of   | thei  | r efforts would have been quite different   |
|      | a.    | Have focused  |
|      | b.    | Had focused   |
|      | c.    | Focused   |
|      | d.    | Were focused  |
| 172. |       | Ifthe match, I will go to Lahore to meet the sports board chairman.                   |
|      | a.    | I will win  |
|      | b.    | l win   |
|      | c.    | I shall win   |
|      | d.    | I wins  |
| 173. |       | Ifyour jobs what would you do?  |
|      | a.    | You had lost  |
|      | b.    | you have lost   |
|      | c.    | You loss  |
|      | d.    | you lost  |
|      |       |   |



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| 174.  |            | If I there, I would make a speed | h.  |
|-------|------------|----------------------------------|---|
| a     | Э.         | Had been                         |   |
| k     | ).         | Have been                        |   |
| c     | <b>:</b> . | Were                             |   |
| c     | d.         | Was                              |   |
| 175.  |            | Unless a studentwit              | h the collage regulations, he can be removed from the |
| colla | ge.        |                                  |   |
| a     | Э.         | Will comply                      |   |
| k     | ).         | Had complied                     |   |
| c     | <b>.</b>   | Complies                         |   |
| c     | d.         | Complied                         |   |

The public distribution system, which provides food at low prices, is subject if vital concern. There is a growing realization that though Pakistan has enough food to feed its masses three square meals a days, the monster of s starvation and food insecurity continues to haunt the poor in our country.

Increasing the purchasing power of the poor through providing productive employment leading to rising income, and thus good standard of living is the ultimate objective of public policy. However, till then, there is a need to provide assured supply of food through a restructured more efficient and decentralized public distribution system (PDS).

Although the PDS is extensive- it is one of the largest such systems in the world - it has yet to reach the rural poor and the far off places.it remains an urban phenomenon, with the majority of the rural poor still out of its reach due to lack of economic and physical access. The poorest in the cities and the migrants are left out, for they generally do not possess ration cards. The allocation of PDS supplies in big cities is larger than in rural areas. In view of such deficiencies in the system, the PDS urgently needs to be steam lined. In addition, considering the large food grains production combined with food subsidy on one hand and the continuing slow starvation and dismal poverty of the rural population on the other, there is strong case for making PDS target group oriented

The growing salaried class is provided job security, regular income, and %age insulation against inflation. These gains of development have not percolated down to the vast majority of our working population. If one compares only dearness allowance to the employees in public and private sector and looks at its growth in past few years. The rising food subsidy is insignificant to the point of in equality. The food subsidy is a kind of D.A to the poor, the self-employed and those in the organized sector of economy. However, what is most unfortunate is that out of the large budget of the so-called food subsidy, the major part of it is administrative cost and wastages. A small portion of the above budget goes to real consumer and even lesser portion to the poor who are in real need.

It is true that subsidies should not become a permanent feature, except for the destitute, disabled widows and the old. It is also true that subsidies often create a psychology of dependence and hence is habit-



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forming, killing the general initiative of the people. By making PDS target group oriented, not only the poorest and needlest would be reached without additional cost, but it will actually cut overall costs incurred on large cities and for better off localities. When the food and food subsidy are limited the rural and urban poor should have the priority in the PDS supplies. The PDS should be closely linked with PDS should be closely linked with programs of employment generation and nutrition improvement.

- 176. What according to the passage is the main concern about the PDS?
  - a. It has not been able to develop confidence in the people at large
  - b. It has not been able to utilize the entire food grains stock available
  - c. It has effectively channelized the food grains to all sectors.
  - d. It has not been able to provide sufficient food to the poorer section of the society
- 177. What should be an appropriate step to make the PDS effective?
  - a. To Make it target group oriented
  - b. To increase the amount of food grains per ration card
  - c. To decrease the allotment of food grains to urban sector
  - d. To reduce administrative cost
- 178. Which of the following, according to the passage, is compared with dearness allowance?
  - a. Food for work program
  - b. Unemployment allowance
  - c. Food subsidy
  - d. Procurement price of food grains
- 179. Food subsidy leads to which of the following?
  - a. Sense of insecurity
  - b. Increased dependence
  - c. Shortage of food grains
  - d. Decrease in food grains production
- 180. What according to the passage, would be the outcome of making the would PDS target Group Oriented
  - a. It will abolish the imbalance of urban and rural sector
  - b. It will remove poverty.
  - c. It will give food to the poorest without additional cost.
  - d. It will motivate the target group population to work more.
- 181. Knife: cut:: (analogy)
  - a. Winter: summer
  - b. Sword: sharp
  - c. Run: Fast
  - d. Drill: Hole



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182. Fish: trout:: (analogy)

a. Bird : aviary

b. Ocean : wavec. Antenna : insect

d. Mammal: cow

183. Gill: fin::(analogy)

a. Cockroach : antenna

b. Instrument : pencilc. Hard disk : keyboard

d. Bread : butter

184. Fish: school:: (analogy)

a. Puppy:dog

b. Novel: story

c. Cocks: pride

d. Ear: nose

185. Counselor : advice (analogy)

a. Artist: musician

b. Patron:support

c. Honesty: charity

d. Bank:banker

186. Wane (synonym)

a. Decline

b. Tried

c. Dead

d. Shine

187. Baptize (synonym)

a. Christen

b. Holy

c. Dehumanize

d. Something that had been ostracized

188. Indeterminate (antonym)

a. Calculated

b. Conclusive

c. Extravagant

d. Astonished

189. Foible (antonym)

a. Feasible

b. gull

c. Luxurious

d. Forte



- 190. Attract (antonym)
  - a. Progress
  - b. Circumnutates
  - c. Magnetic
  - d. Repel
- 191. Who is current chairman of ICC?
  - a. Percy sonn
  - b. David Morgan
  - c. Srinivasan
  - d. Sharad pawar
- 192. Name of the country whose court has sentenced 30 people death over heroin smuggling in what is said to be the largest such trail ever held in the country?
  - a. Brazil
  - b. Korea
  - c. France
  - d. Vietnam
- 193. Who is appointed as president of national bank of Pakistan by the government
  - a. Syed ahmad Iqbal ashraf
  - b. Waqar qureshi
  - c. Jamal din
  - d. Akhtar Hussain
- 194. Which country declared a state of emergency in her capital and surrounding areas to take protects aimed at overthrowing the government?
  - a. Austria
  - b. China
  - c. Croatia
  - d. Thailand
- 195. When Pakistan and Saudi Arabian signed hajj agreement at hajj ministry of the kingdom of Saudi Arabia?
  - a. 16/1/2014
  - b. 22/1/2014
  - c. 18/1/2014
  - d. 26/1/2014
- 196. Who was awarded with Ulysses award 2013 for the lifetime achievement by UNWTO for promoting sustainable tourism?
  - a. Dr. Tajveer singh
  - b. Richard quest
  - c. Dr. Gurbaksh
  - d. Aleni shiror



| 197. |    | Which country allowed the Sikhs to wear turban while serving in military?      |
|------|----|--|
|      | a. | UK   |
|      | b. | USA  |
|      | c. | France   |
|      | d. | Germany  |
| 198. |    | Duty: Memoirs of a secretary at war is written by                              |
|      | a. | Rober gates  |
|      | b. | Michal Johnson   |
|      | c. | Hector fanky   |
|      | d. | Timber McCollum  |
| 199. |    | Who won the Australian Open Men's single titles on 26th January 2014?          |
|      | a. | Rafael Nadal   |
|      | b. | Roger Feferer  |
|      | c. | Andy Murray  |
|      | d. | Stanislaus Waurika   |
| 200. |    | Which country has won the female gold in match played in lusofonia games 2014? |
|      | a. | Angola   |
|      | b. | Mozambique   |
|      | c. | Brazil   |
|      | d. | India  |
|      |    |  |
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