DOW UNIVESITY OF HEALTH AND SCIENCE - KARACHI

VERBAL:

Identify the word or phrase that's need to be changed for the sentence to be correct:

1. How <u>will</u> they <u>got across</u> the river <u>if</u> they ferry is not <u>running</u>? <u>No error</u>
       A   B   C   D   E
2. Children <u>depend</u> on <u>their</u> parents <u>for</u> food <u>and</u> clothing. <u>No error</u>
                    A   B   C   D   E

Choose the lettered word or phrase that is mostly nearly opposite in meaning to the word in capital letters.

3. ASSERTION:
    a) Statement
    b) Denial
    c) Claim
    d) Unrest
    e) Tiring
4. OBSTINATE:
    a) Persistent
    b) Constant
    c) Daring
    d) Courageous
    e) Flexible

Choose the word most similar in meaning to the capitalized ones.

5. UNAMBIGUOUS:
    a) Stagnant
    b) Hidden
    c) Clear
    d) Muddy
    e) Grubby
6. WRECKED:
    a) Defined
    b) Developed
    c) Registered
    d) Ruined
    e) Counted

Questions 7-8 are based on the following passage.

The fact that area were all as safe as kitten's under a cook-stove did not, however, assuage in the least the fine despair and the grotesque desperation which seized upon the residents of the east side when the cry spread like a grass fire that the dam had given way. Some of the most dignified, staid, cynical, and clear thinking men in town abandoned their wives. Stenographers, homes, and offices, and ran east. There are few alarms in the world more terrifying than 'the dam has broken!' there are few persons capable of stopping to reason when that clarion cry strikes upon their ears, even person who live in towns no nearer than five hundred miles to a dam.

7. The phrase 'spread like a grass fire' means
   a) Rapid spread
   b) Fire fighting
   c) Grass growth
   d) Dreadful sight
   e) Hidden news
8. Identify the phrase in which the people of the East side experienced one of the deadliest fears of their lives:
   a) 'The dam has been destroyed'
   b) 'The dam is safe'
   c) 'The dam has broken'
   d) 'The dam has not broken'
   e) 'The dam is over flowing'

Complete the sentence by choosing the most appropriate word, from the given letter choices (A to E) below each.

9. The injured player was taken _____ the field.
   a) Of
   b) Off
   c) Out
   d) In
   e) By
10. The box is _____ green outside and white inside.
   a) Carved
   b) Created
   c) Painted
   d) Chiseled
   e) Molded

Physics:

11. A car starts from rest and moves with a constant acceleration. During the 5th second of its motion, it covers a distance of 36 meters. What is the acceleration of the car?
    a) $12.5 \, m/s^2$
    b) $8 \, m/s^2$
    c) $15 \, m/s^2$
    d) $16 \, m/s^2$
    e) $14 \, m/s^2$ 14.

12. Law of conservation of Momentum states that:
    I.   If there is no external force applied to a system, then the total momentum of that system remains constant
    II. If there is an external force applied to a system, then the total momentum of that system remains constant
    III. If there is an external force applied to a system, then the total momentum of that system keeps changing
    a) I only
    b) I and II only
    c) I and III only
    d) III only
    e) I, II and III

13. Projectile must be launched at which angle with the horizontal to attain maximum range?
    a) 90°
    b) 45°
    c) 75°
    d) 105°
    e) 145°

14. A player throws a ball at an initial velocity of 36 m/s. The maximum distance the ball can reach (assume ball is caught at the same height at which it was released) is:
    a) 146 m
    b) 130 m
    c) 132 m
    d) 129 m
    e) 145 m

15. Artificial gravity can be supplied by which of the following ways so that normal force of gravity can be generated for the astronaut:
    a) Rotating the space craft
    b) Back and forth motion of space craft
    c) Up and down movement of space craft
    d) Keeping the space craft stationary
    e) All of the above

16. A 70 kg man runs up a hill through a height of 3 meters in 2 seconds. His average power output is ($g = 10m/sec^2$):
    a) 1050 watts
    b) 970 watts
    c) 1500 watts
    d) 1300 watts
    e) 500 watts

17. The torque will be greater if :
    a) Both magnitude of force and moment arm are smaller
    b) Both magnitude of force and moment arm are greater
    c) Only magnitude of force is greater
    d) Only moment arm is greater
    e) None of the above

18. Example (s) of spin motion is/are:
    a) The daily rotation of the earth about its own axis
    b) Jumping of a paratrooper from an helicopter
    c) Flow of a viscous liquid
    d) Rotation of fly wheel about its axle
    e) Both A and D

19. The sum of kinetic energy and the potential energy is always constant provided:
    a) There is some force of friction involved during the motion of the body
    b) There is no force of friction involved during the motion of the body
    c) There is greater force of friction involved during the motion of the body
    d) Both A and C
    e) None of the above

20. A block with a mass of 0.1 kg is attached to a spring and placed on a horizontal frictionless table. The spring is stretched 20 cm when a force of 5N is applied. The spring constant is:
    a) $50\ Nm^{-1}$
    b) $25\ Nm^{-1}$
    c) $75\ Nm^{-1}$
    d) $100\ Nm^{-1}$
    e) $125\ Nm^{-1}$

21. If the resultant intensity of the interfering waves is zero or less than the intensity of the individual wave, then this type of interference is:
    a) Destructive interference
    b) Constructive interference
    c) Stable interference
    d) Both A and B
    e) None of the above

22. The smaller the distance of the object from the eye, the visual angle will be:
    a) Smaller
    b) Greater
    c) Constant
    d) Negligible
    e) None of the above

23. A system absorbs 2000 joules of heat and delivers 1200 joules of work while losing 200 joules of heat by conduction to the atmosphere. The change in the internal energy of the system is:
    a) 300 J
    b) 600 J
    c) 1200 J
    d) 900 J
    e) 1500 J

24. The efficiency of the Carnot's engine working between 150ºC and 50ºC is:
    a) 22.3%
    b) 20.0%
    c) 23.6%
    d) 30.6%
    e) 33.6%

25. An electron is situated midway between two parallel plates 0.5cm apart. One of the plates is maintained at a potential of 60 volts above the other. The force on the electron is ($e = 1.6 \; x \; 10^{-19}$)
    a) $1.92 \; x \; 10^{-15} N$
    b) $3.00 x \; 10^{-15} N$
    c) $1.92 \; x \; 10^{-30} N$
    d) $3.00 \; x \; 10^{-30} N$
    e) $5.00 \; x \; 10^{-30} N$

26. The principal of a capacitor is based on which of the following facts?
    a) Potential of a conductor is greatly increased with a decrease in the charge in it
    b) Potential of a conductor is greatly reduced with an increase in the charge in it
    c) Potential of a conductor is greatly increased without affecting the charge in it
    d) Potential of a conductor is greatly reduced without affecting the charge in it
    e) Potential of a conductor is greatly increased with an increase in the charge in it

27. A current of 4.4 amperes is flowing in a wire. How many electrons pass a given point in the wire in one second, if the charge on an electron is $1.6 \; x \; 10^{-19}$ coloumb?
    a) $1.5 \; x \; 10^{19}$ electrons
    b) $2.75 \; x \; 10^{19}$ electrons
    c) $3.25 \; x \; 10^{19}$ electrons
    d) $2.75 \; x \; 10^{15}$ electrons
    e) $3.25 \; x \; 10^{17}$ electrons

28. An electric kettle of 1500 watts rating boils a certain quantity of water in 5 minutes, the heat which is generated for boiling this water is:
    a) $45 \times 10^4 \ joules$
    b) $48 \times 10^4 \ joules$
    c) $56 \times 10^4 \ joules$
    d) $36 \times 10^4 \ joules$
    e) $59 \times 10^4 \ joules$

29. A force which is experienced in a magnetic field depends on:
    a) Magnitude of charge q
    b) Speed of the moving charge V
    c) Magnetic field of induction B
    d) All of the above
    e) None of the above

30. A coil of 600 turns is threaded by a flux of 8×10^{-5} webers, if this flux is reduced to 3×10^{-5} webers in 0.015 seconds. The average induced e.m.f. is:
    a) -2.0 volts
    b) -3.0 volts
    c) +2.0 volts
    d) +2.5 volts
    e) +3.0 volts

31. Which of the following work (s) on the principle of wheat stone bridge?
    a) Slide-Wire bridge
    b) Meter-Bridge
    c) Post office box
    d) All of the above
    e) None of the above

32. The sinusoidal wave from can be varied by using which of the following parameters?
    I.   Frequency of the carries waves
    II.   Amplitude of the carrier wave
    III. Phase angle
       a) I only
       b) I and II only
       c) I and III only
       d) III only
       e) I, II and III

33. A semiconductor photodiode is a:
    a) Reverse biased Junction diode
    b) Forward biased Junction diode
    c) Full water rectifier
    d) Half wave rectifier
    e) Transistor

34. The speed of light is very nearly equal to:
    a) $5 \times 10^8 \, m/sec$
    b) $3 \times 10^{16} \, m/sec$
    c) $4 \times 10^8 m/sec$
    d) $3 \times 10^8 m/sec$
    e) $7 \times 10^8 m/sec$

35. Radiation can cause:
    a) Leukemia
    b) Radiation sickness
    c) Skin cancer
    d) Gene mutations
    e) All of the above

36. Application /s of laser is/are:
    a) To perform precision surveying and length measurements
    b) As a potential energy source for including nuclear fusion reactions
    c) For telephone communications along optical fibers
    d) For precision cutting of metals and other materials
    e) All of the above

37. A nucleus consists of 11 protons and 12 neutrons. The conventional symbol of this nucleus is:
    a) $_{11}Na^{12}$
    b) $_{11}Ca^{23}$
    c) $_{11}Na^{23}$
    d) $_{11}Ca^{12}$
    e) $_{12}Na^{12}$

38. The dimensions of accelerations are:
    a) LT^{-1}
    b) LT^{-2}
    c) L^3
    d) L^2
    e) LT^2

39. All of the following is/are scalr quantity/ies, except:
    a) Temperature
    b) Density
    c) Volume
    d) Force
    e) Speed

40. R_1 and R_2 are two positions vectors making angles θ_1 and θ_2 with positive X-axis respectively. Their vector product is:
    $[R_1 = 4 \, cm, \ R_2 = 3 \, cm, \theta_1 = 30^o, \theta_2 = 90^o \ ]$
    a) $\sqrt[12]{3}$
    b) $\sqrt[6]{3}$
    c) $\sqrt[6]{12}$

d) $\sqrt[12]{6}$

e) $\sqrt[3]{6}$

Chemistry:

41. Which of the following statements is true of amorphous solids?
    a) They possess symmetry
    b) They are isotropic
    c) They are anisotropic
    d) They clave along particular direction
    e) They have definite shape

42. Which of the following statements is correct?
    a) Faraday's experiment indicates the existence of electrons
    b) Crooke's tube experiment shows the presence of electrons and protons in the atoms
    c) Radioactivity confirms the presence of electrons and protons
    d) Chadwick experiment shows the presence of neutrons
    e) All of the above

43. 'In an atom no two electrons can have the same set of four quantum numbers' is stated by:
    a) Heisenberg's uncertainly principle
    b) Aufbau principle
    c) Pauli's exclusion principle
    d) Hund's rule
    e) (n+l) rule

44. Which of the following molecules have zero Dipole moments?
    a) CCl_4
    b) CO_2
    c) Cl_2
    d) C_6H_6
    e) All of the above

45. Bond energy:
I.   Is energy required to break a bond between two atoms in a diatomic molecule
II.   Is taken as the energy released in forming a bond from free atoms
III.   Is the measure of the strength of bond
    a) I only
    b) I and II only
    c) I and III only
    d) III Only
    e) I, II and III

46. Oxidation number of nitrogen in HNO_3 is:
    a) +4
    b) +2
    c) +6
    d) +5
    e) +7

47. A certain chemical reaction follows the following rate law:
    Rate = K [A] [B]^2
    The order of reaction is:
    a) 1
    b) 2
    c) 3
    d) 4
    e) 5

48. Only two elements are present in :
    a) Period – 1
    b) Period – 2
    c) Period – 3
    d) Period – 4
    e) Period – 5

49. The unit of rate of reaction is:
    a) Mole (dm^3) sec
    b) Mole $(dm^3)^{-1}$ sec^{-1}
    c) Mole $(dm^3)^{-2}$ sec^{-1}
    d) Mole $(dm^3)^{-2}$ sec^{-2}
    e) Mole $(dm^3)^{-1}$ sec^{-2}

50. Hydrides which are prepared by passing hydrogen gas over hot alkali metals or alkaline earth metals are called:
    a) Covalent hydrides
    b) Ionic hydrides
    c) Complex hydrides
    d) Metallic hydrides
    e) Polymeric hydrides

51. When gypsum is heated to about 100°C, it loses some water of crystallization and becomes:
    a) Epsom salt
    b) Kieserite
    c) Plaster of Paris
    d) Bleaching powder
    e) Caustic soda

52. The chemical property (ies) of sulphuric acid is/are:
    a) Acidic properties
    b) Oxidizing properties
    c) Dehydrating properties
    d) Sulphonating properties
    e) All of the above

53. Complete the following equation:

$$Al + H_2SO_4 \xrightarrow{\text{Dilute}} \underline{\hspace{2cm}}$$
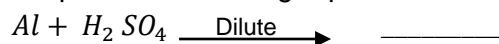
    a) $Al_2(SO_4)_2 + H_2O$
    b) $Al_2(SO_4)_3 + H_2$
    c) $Al_2(SO_4)_3 + H_2O + SO_2$
    d) $Al_2(SO_4)_3 + H_2 + SO_2$
    e) None of the above

54. The electronic configuration of iron is:
    a) $1S^2, 2S^2, 2P^6, 3S^2, 3P^6, 3d^5, 4S^2$
    b) $1S^2, 2S^2, 2P^6, 3S^2, 3P^6, 3d^5, 4S^1$
    c) $1S^2, 2S^2, 2P^6, 3S^2, 3P^6, 3d^6, 4S^2$
    d) $1S^2, 2S^2, 2P^6, 3S^2, 3P^6, 3d^3, 4S^2$
    e) $1S^2, 2S^2, 2P^6, 3S^2, 3P^6, 3d^2, 4S^2$

55. The chemical name of the baking powder is:
    a) Sodium carbonate
    b) Sodium bicarbonate
    c) Sodium hydrogen carbonate
    d) Sodium hydroxide
    e) Sodium chloride

56. IUPAC nomenclature of
    $CH_3 - CH=CH_2 - CH = CH_2$ is:
    a) 2 – Pentene
    b) 1, 4 – hexadiene
    c) 3 – Methyl butane
    d) 1, 3, 5 – heptatriene
    e) 1, 3, 6 hexatriene

57. Benzene can be prepared _____.
    a) From petroleum
    b) From coal
    c) From acetylene
    d) From phenol
    e) All of the above

58. The electrophilic reactions of Benzene are:
    a) Halogenations
    b) Nitration
    c) Sulphonation
    d) Alkylation and acylation

   e) All of the aabove
59. OR is the nucleophile of:
   a) Alcohols
   b) Esters
   c) Cyanides
   d) Ethers
   e) Alehydes
60. Primary alcohol is produced by reaction of Grignard's reagent with _____ followed by hydrolysis in acidic medium.
   a) Carbon dioxide
   b) Formaldehyde
   c) Acetaldehyde
   d) Ketone
   e) Methyl chloride
61. An ester is prepared by the reaction of:
   a) Two alcohols
   b) Carboxylic acid and alcohol
   c) Ketone and alcohol
   d) Aldehyde and alcohol
   e) All of the above
62. Which of the following acids is used for etching of glass?
   a) Hydrochloric acid
   b) Nitric acid
   c) Hydrofluoric acid
   d) Sulphuric acid
   e) Acetic acid
63. By heating 25g of limestone ($CaCO_3$), the weight of carbon dioxide produced is:
   a) 14g
   b) 71g
   c) 11g
   d) 2g
   e) 10g
64. A child's balloon has a volume 3.80 dm^3, when temperature is 35°C. if the balloon is put in refrigerator and cooled at 5°C, the approximate volume of the balloon is (assume pressure inside the balloon is equal to atmospheric pressure):
   a) 3.00 dm^3
   b) 3.43 dm^3
   c) 3.08 dm^3
   d) 3.25 dm^3
   e) 0.54 dm^3

65. If the matter in a given system at a given conditions is divided into two equal parts, then the value of the extensive properties will become:
    a) Double of the original value
    b) Half of the original value
    c) Remains same as the original value
    d) One-fourth of the original value
    e) One-eighth of the original value

66. The measurement of heat absorbed or given out in a chemical reaction is referred to as:
    a) Enthalpy
    b) Endothermic reaction
    c) Exothermic reaction
    d) Thermo chemistry
    e) Heat of formation

67. In a reaction

    $A + B \rightleftharpoons 2C$

    When equilibrium was attained the concentration was

    $[A] = [B] = 4$ moles / dm^3

    $[C] = 6$ moles / dm^3

    The equilibrium constant K_c of this reaction is:
    a) 1.25
    b) 2.25
    c) 3.25
    d) 2.75
    e) 3.75

68. If the ratio of initial concentration of the reagents is greater than the K_c then:
    a) The reaction will shift towards the reverse direction
    b) More quantity of products is obtained
    c) The ratio increases to the value of K_c
    d) Equilibrium has been attained
    e) There is no shifting of reaction

69. Aqueous solution of Na_2CO_3 is:
    a) Acidic
    b) Alkaline
    c) Both acidic and alkaline
    d) Neutral
    e) None of the above

70. Which of the following is TRUE regarding Methyl Alcohol?
    a) It is a colorless, volatile, thin liquid with specific gravity 0.796 at 15°C.
    b) It is used for low temperature thermometer and as fuel substitute
    c) It is extensively used in the formation of different beverages
    d) It is used as a base for perfumes
    e) It is used an antiseptic and disinfectant

Biology:

71. Which of the following fungus is utilized in baking industry?
   a) Mushrooms
   b) Yeast
   c) Bread mold
   d) Pen cilium
   e) Neomycin

72. Which of the following is included in Bryophytes?
   a) Mosses
   b) Club mosses
   c) Ferns
   d) Seed plants
   e) Horse tails

73. Species of Phylum Platyhelminthes are:
   a) Round worms
   b) Flat worms
   c) Hook worms
   d) Thread worms
   e) Pin worms

74. A characteristics features of echinoderm is:
   a) Canal system
   b) Water vascular system
   c) Tracheal system
   d) Blood vascular system
   e) None of the above

75. The light dependent reaction of photosynthesis occurs is:
   a) Storma of chloroplast
   b) Guard cells of stomata
   c) Thylakoid membrane of chloroplast
   d) Cytoplasm of leave cell
   e) None of the above

76. The end product of Glycol sis is:
   a) Glucose – 6 – phosphate
   b) fructose – 6 – phosphate
   c) Pyruvate
   d) 3 – phospho glycerate
   e) Phospho glycerol dehyde

77. The massive accumulation of blood with in a tissue is called as:
   a) Hemorrhage
   b) Hematoma
   c) Hepatoma
   d) Haemacel

    e) Haematemesis

78. Malphigian tubules are involved in excretion in:
   a) Cockroach
   b) Earthworm
   c) Human
   d) Planaria
   e) Hydra

79. Growth movement caused in response to gravitational stimulus is called:
   a) Nutation
   b) Geotropism
   c) Nastic movement
   d) Tropic movement
   e) Turgor movement

80. A psychological condition usually seen in girls and young women, with loss of appetite is:
   a) Obesity
   b) Malnutrition
   c) Anorexia nervosa
   d) Dyspepsia
   e) Peptic ular

81. Hemoglobin carries more oxygen than plasma by:
   a) 52 times
   b) 20 times
   c) 70 times
   d) 100 times
   e) 200 times

82. Bones of the skull are joined by:
   a) Fixed joints
   b) Sliding joints
   c) Pivot joints
   d) Hinge joints
   e) Gliding joints

83. Cytoplasmic localization is a consequence is:
   a) Fertilization
   b) Cleve rage
   c) Morula
   d) Blastula
   e) Gastrula

84. Highly condensed portion of the chromatin are called:
   a) Euchromatin
   b) Hetero chromatin
   c) Nucleosome
   d) Super coils

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e) None of the above

85. The disease in which patients passed urine that rapidly turned black on exposure to air is called:
    a) Phenyl ketonuria
    b) Alkaptonuria
    c) Sickle cell anaemia
    d) Hemophilia
    e) Anuria

86. Diplotene is the sub-stage of:
    a) Anaphase I
    b) Telophase I
    c) Prophase I
    d) Metaphase I
    e) All of the above

87. Deficient production of hormones by adrenal glands results in:
    a) Cushing's syndrome
    b) Addison's disease
    c) Diabetes mellitus
    d) Goiter
    e) Epilepsy

88. All of the following are sexually transmitted diseases except:
    a) Syphilis
    b) Gonorrhea
    c) Alzheimer's disease
    d) Genital herpes
    e) AIDS

89. The producers pond ecosystem include:
    a) Bacteria
    b) Zooplankton
    c) Fungi
    d) Phytoplankton
    e) All of the above

90. Erythroblast sis fort ails occurs when:
    a) Mother is R^h positive and baby is R^h negative
    b) Mother is R^h negative and baby is R^h positive
    c) Both mother and baby are R^h negative
    d) Both mother and baby are R^h positive
    e) All of the above statements are true

91. Amniocentesis is performed between the:
    a) 16th and 18th week of gestation
    b) 1st and 2nd week of gestation
    c) 30th and 32nd week of gestation
    d) 37th and 38th week of gestation

e) After the delivery of the baby

92. Lamarck's theory is based on all of the following points EXCEPT:
   I.   Effects of environment'
   II.   Use and disuse of organs
   III.   Natural selection
   IV.   Inheritance of acquired characters
      a) I only
      b) II only
      c) III only
      d) IV only
      e) I, II and IV

93. In pea plants, the allele for round seeds (R) is dominant to the allele for wrinkle seeds (r) and the allele for yellow seeds (y) is dominant to the allele for green seeds (y). a doubly heterozygous, round, yellow-seeded plant is crossed with a green, wrinkled-seeded plant.
   What percentage of the F_1 generation are recombination?
   a) 0%
   b) 25%
   c) 50%
   d) 75%
   e) 100%

94. Chicken pox is caused by:
   a) Hepatitis A virus
   b) Varicella zoster virus
   c) Influenza virus
   d) Human immunodeficiency virus
   e) Rabies virus

95. Lysosomes function is:
   a) Protein synthesis
   b) Processing and packaging
   c) Intracellular digestion
   d) Lipid synthesis
   e) Carbohydrate synthesis

96. The viruses are:
   a) Cellular
   b) Prokaryotes
   c) Non-cellular
   d) Eukaryotes
   e) Visible with naked eye

97. Bacterial pilli help in:
   a) Locomotion
   b) Conjugation
   c) Phagocytosis

d) Pinocytosis

e) Exocytosis

98. Trypanosome belongs to class:

a) Sarcodina

b) Flageliata

c) Ciliate

d) Suctoria

e) Sporozoa

99. A bacteriophage consists solely of:

a) DNA and protein

b) RNA and protein

c) RNA only

d) Protein only

e) DNA only

100.   Which of the following factors affect enzyme activity?

a) Temperature

b) pH

c) Concentration of substrate

d) Radiation

e) all of the above