

SINDH MCAT

Time Allowed = 1 hour

2015

Total MCQs = 100

Choose the lettered word or phrase that is most nearly opposite in meaning to the word in capital

1) Succeed:

- a. Do well
- b. Flourish
- c. Fail
- d. Bloom

2) Violent:

- a. Aggressive
- b. Sadistic
- c. Nasty
- d. Obsessive
- e. Peaceful

Read the passage to answer question 3-4

There is a striking and unhappy contrast between man's brilliant success at solving scientific problems and his miserable failure to solve so many of his political and social problems. It is natural indeed wise to ask whether science cannot be applied more effectively to the cure of the social and political ills of the world. There is of course much that science can do and is doing. Science adds enormously to the comfort and interest of modern living. It is doing much to diminish the social evils of poverty and disease. Beyond doubt, many social political and economic problems would be more wisely handled if they were treated with the unprejudiced objectivity and strict regard for truth which characterize the work of the physical scientist.

3) It is possible to handle political and economic problems scientifically?

- a. The aptness and truth loving parameters of scientific methods can help a great deal in solving political and economic problems.
- b. The political and economic problems do not prevail in scientifically developed societies.
- c. The political and economic problems are impossible to be solved anyway.

- d. Solution of social and economic problems is not necessary for development.
- 4) Which of the following contrast is drawn in the passage?
- a) Difference between social and economic problems
 - b) Difference between comforts and modern living
 - c) Difference between scientific successes and social and economic failures.
 - d) Difference between poverty and disease.
- 5) Young people are often----- than old people.
- a) More enthusiastic
 - b) Most enthusiastic
 - c) Have enthusiastic
 - d) Had enthusiastic
- 6) I forget ----- take down his telephone number.
- a) To
 - b) Too
 - c) The
 - d) This
 - e) Though

Identify the word or phrase that needs to be changed for the sentence to be correct:

- 7) For his birthday which is on 1st February I shall give him a bicycle. No error
- 8) We intend to have this wall taken down in order to converts the two rooms into one. No error

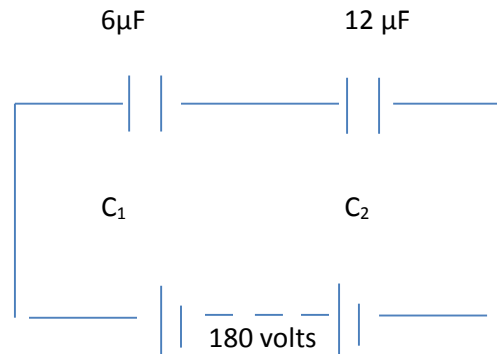
Choose the word most similar in meaning to capitalized one

- 9) Furious:
- a. Cool
 - b. Peaceful
 - c. Angry
 - d. Sensible
- 10) Doubtful
- a. Unsure
 - b. Certain
 - c. Accurate
 - d. Selected

- e. Neglected
- 11) Identify the example/s of thin films:
- I. Soap bubble
 - II. Thin layer of oil floating on water
 - III. Flowing of honey
- a. I only
 - b. II only
 - c. III only
 - d. I and II only
 - e. I, II and III only
- 12) An object 4cm high is located 10 cm, from the converging lens, whose focal length is 20cm, the image formed is:
- a. Virtual
 - b. Erect
 - c. Real
 - d. Both A and B
 - e. Both B and C
- 13) The energy that flows from high temperature object to a low Temperature object is called
- a. Electricity
 - b. Sound
 - c. Solar energy
 - d. Heat
 - e. Hydro energy
- 14) The amount of charge that flows through a given cross section of a wire in one second , if there is a steady current of 1 ampere in the wire is known as
- a. Electrical potential
 - b. Coulomb
 - c. Joule
 - d. Flux density
 - e. Electron volt
- 15) Two opposite point charges each of magnitude 'q' are separated by a distance 2d. What is the electric potential at a point 'p' mid-way between them?
- a. 0
 - b. 10

- c. 20
- d. 30
- e. 40

- 16) Two capacitors $C_1(6\mu\text{F})$ and $C_2(12\mu\text{F})$ are in series across a 180 volts d.c supply. Calculate the charges on C_1 and C_2 .



- a. $720 \times 10^{-6} \text{ C}$ $720 \times 10^{-6} \text{ C}$
 - b. $920 \times 10^{-6} \text{ C}$ $730 \times 10^{-6} \text{ C}$
 - c. $660 \times 10^{-6} \text{ C}$ $480 \times 10^{-6} \text{ C}$
 - d. $440 \times 10^{-6} \text{ C}$ $770 \times 10^{-6} \text{ C}$
 - e. $910 \times 10^{-6} \text{ C}$ $750 \times 10^{-6} \text{ C}$
- 17) 1×10^7 electrons pass through a conductor in $1.0\mu\text{s}$. Find the current in ampere flowing through the conductor. Electronic charge is $1.6 \times 10^{-19} \text{ C}$.
- a. $1.6 \times 10^{-6} \text{ A}$
 - b. $3.6 \times 10^{-6} \text{ A}$
 - c. $5.6 \times 10^{-6} \text{ A}$
 - d. $7.6 \times 10^{-6} \text{ A}$
 - e. $9.6 \times 10^{-6} \text{ A}$
- 18) An electric device has a resistance of 300Ω , Find the current in it when it is connected to 450V source?
- a. 1.5 A
 - b. 3.5 A
 - c. 5.5 A
 - d. 7.5 A
 - e. 9.5 A
- 19) A battery of 12 volts is connected to two resistors of 6Ω and 4Ω joined together in series. Find the potential drop across each resistor respectively?

- a) 3.7V.....2.5V
b) 5.9V3.1V
c) 7.2V.....4.8V
d) 8.1V.....5.3V
e) 9.7V.....7.7V
- 20) The Sum of the products of the tangential component of magnetic field of induction and the length of an element of a closed curve taken in the magnetic field is μ_0 times the current which passed through the area bounded by this curve is known as
- a) Ampere's law
b) Faraday's law
c) Coulomb 's law
d) Newton's law
e) Ohm's law
- 21) If two coils are close together, then a changing current in one coil(the primary) sets up a changing magnetic field in the other(the secondary) and so induces an e .m.f in it .This effect is known as:
- a) Simple induction
b) Self-induction
c) Mutual induction
d) Relative induction
e) Non Relative induction
- 22) What will be value of shunt resistance that must be connected across a galvanometer of 50 ohm resistance which gives full scale deflection with 2.0mA current, so as to convert it into an ammeter of range 10.0A?
- a) 5.07 ohm
b) 4.09 ohm
c) 3.05 ohm
d) 0.01 ohm
e) 2.07 ohm
- 23) When an external voltage applied to the junction is in such a direction that it cancels the potential barrier, thus permitting current flow is known as:
- a) Forward biasing
b) Reverse biasing
c) Intermediate biasing
d) Simple biasing

- e) Collective biasing
- 24) Identify the postulate/s of special theory of Relativity:
- 1 There is no preferred or absolute inertial frame for reference i.e. all the inertial frames are equivalents for the description of all physical laws.
 - 2 The speed of light in vacuum is the same for all observers in uniform translational relative motion and is independent of the motion of the observer and the source.
- a) 1 only
b) 2 only
c) 1 and 2
d) Neither 1 and 2
e) In 2, there is insufficient information
- 25) Ruby is a crystal of:
- a) Al_2O_3
b) PbO_3
c) KO_4
d) CO_2
e) SO_4
- 26) Identify the property/ies of good coolant:
- 1 it should have as little effect on neutrons as possible.
 - 2 It should not induce any chemical effect with other materials in contact with system.
 - 3 The coolant should not breakup under the effect of radiations.
- a) 1 only
b) 2 only
c) 3 only
d) 1 and 3 only
e) 1, 2, and 3
- 27) A positive charged particle with mass one fourth and charge one half of and α particle is:
- a) Neutron
b) Proton
c) Beta particle
d) Gamma particle
e) Atomic particle

- 28) The time that is referred to rotation of the earth about its axis is known as
- Scalar time
 - Vector time
 - Universal time
 - Half time
 - Rotation time
- 29) Find the angle between 2 forces of equal magnitude when the magnitude of their resultant is also equal to the magnitude of either of these forces.
- 30 degree
 - 45 degree
 - 55 degree
 - 65 degree
 - 120 degree
- 30) Find the projection of vector $A = 2i - 8j + k$ in direction of the vector $B = 3i - 4j - 12k$.
- 1
 - 2
 - 5
 - 7
 - 9
- 31) A truck starts from rest and moves with a constant acceleration during the 5th second of its motion it cover a distance of 36 meters. What is the acceleration of the truck?
- 8 m/s²
 - 12 m/s²
 - 16 m/s²
 - 20 m/s²
 - 24 m/s²
- 32) Kg x meter/second² = ?
- 0.5newton
 - 1 Newton
 - 2.5 Newton
 - 5 Newton
 - 7.5 Newton

- 33) A ball is thrown with a speed of 30 m/s in a direction 30° above the horizon. What is the height to which it rises?
- 9.5m
 - 11.5m
 - 13.5m
 - 15.5m
 - 17.5m
- 34) Saad has mass 80kg when resting on the ground at the equator. What will be the centripetal acceleration on Saad if the radius of the earth R is 6.4×10^6 m.
- $2.21 \times 10^{-2} \text{ m/s}^2$
 - $3.37 \times 10^{-2} \text{ m/s}^2$
 - $5.91 \times 10^{-2} \text{ m/s}^2$
 - $7.76 \times 10^{-2} \text{ m/s}^2$
 - $9.99 \times 10^{-2} \text{ m/s}^2$
- 35) The gravitational force between two bodies does not depend upon :
- Size of the bodies
 - Their separation
 - The product of their masses
 - The sum of their masses
 - Both A and B
- 36) A body at rest or moving with uniform velocity has zero acceleration. From Newton's law of the motion the vector sum of all forces acting on it must be 0. This is ----- condition of equilibrium
- 1st
 - 2nd
 - 3rd
 - 4th
 - 5th
- 37) Ali pushes a toy car, initially at rest towards the wall by exerting a constant horizontal force vector F of magnitude 10N through a distance of 2 meters. How much work is done on the toy car?
- 5 j
 - 10 j
 - 20 j
 - 25 j
 - 35 j
- 38) Calculate the change in gravitational potential energy when a 9000N lift moves from ground level to the top of a building 400m above the ground level?
- $1.2 \times 10^2 \text{ j}$

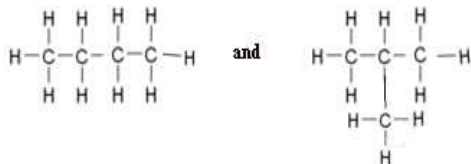
- b. $2.3 \times 10^2 \text{ J}$
c. $3.6 \times 10^6 \text{ J}$
d. $4.6 \times 10^9 \text{ J}$
e. $5.9 \times 10^7 \text{ J}$
- 39) A train is approaching a station at 90 km/h sounding a whistle of frequency 1000 Hz. What will be the apparent frequency of the whistle as heard by a listener sitting on the platform? (Speed of sound = 340 m/s)
- a. 9079.4 Hz
b. 1079.4 Hz
c. 1177.1 Hz
d. 1311.9 Hz
e. 1715.7 Hz
- 40) What will be the spring constant when a body of mass 0.5 kg is attached to a spring and placed on a horizontal frictionless table? The spring is stretched 40 cm when a force of 10 N is applied
- a. 5 N/m
b. 10 N/m
c. 20 N/m
d. 25 N/m
e. 35 N/m
41. 250 cm³ of the sample of hydrogen effuses four times as rapidly as 250 cm³ of an unknown gas. Calculate the molar mass of unknown gas.
- A. 45 g mol⁻¹
B. 40 g mol⁻¹
C. 41.2 g mol⁻¹
D. 38.2 g mol⁻¹
E. 32 g mol⁻¹
42. The following reaction was allowed to reach the state of equilibrium,
 $2A(aq) + B(aq) \rightleftharpoons C(aq)$
The initial amounts of the reactants present in one dm³ of solution were 0.50 mole of A and 0.60 mole of B. At equilibrium, the amounts were 0.20 moles of A and 0.15 mole of C, Calculate the equilibrium constant K_c ,
- A. 7.5
B. 10
C. 8.3

- D. 11.7
E. 12.5
43. $N_2(g)$ and $H_2(g)$ combine to give $NH_3(g)$ the value of K_c in this Reaction at $500^\circ C$ is 6.0×10^{-2} Calculate the value of K_p for this reaction.
- A. 1.5×10^{-7}
B. 1.5×10^{-7}
C. 1.5×10^{-6}
D. 3.5×10^{-5}
E. 4.5×10^{-5}
- 44) How will the Equilibrium of the following reaction be affected a more chlorine is added
- $$PCl_5(g) \rightleftharpoons PCl_3 + Cl_2$$
- a) It will be shifted to the right
b) It will be shifted to the left
c) It will be unaffected
d) The effect on the equilibrium cannot be determined without more information
e) More PCl_3 will be produced.
- 45) The biggest ion is:
- a) Al^{3+}
b) Ba^{2+}
c) Na^+
d) Mg^{2+}
- 46) Titanium has the electron structure $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^2, 4s^2$. Which of the following compound is unlikely to exist?
- a) K_2TiO_4
b) K_3TiO_6
c) $TiCl_3$
d) TiO
e) TiO_2
- 47) The structure of H_2SO_4 is :
- a) Pyramidal
b) Tetrahedral
c) Irregular Pentagonal
d) Distorted

48) Why are larger alkane molecules cracked to form smaller molecules?

- A. Alkanes with large molecules are not use ful
- B. Small alkane molecules can be polymerized
- C. Crude oil does not contain small alkane molecules
- D. To meet the demand for small alkane molecules

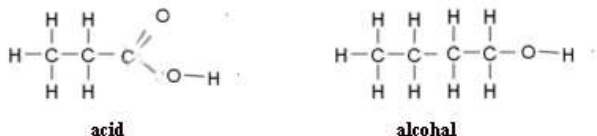
49) The structures of two compounds are shown.



The compounds have same

- a. Boiling point
- b. Melting point
- c. % composition by mass
- d. Structural formula

50) The structures of an acid and an alcohol are shown.



Which pairing of names correctly identify the two compounds?

	Acid	Alcohol
A	Ethanoic	Butanol
B	Ethanoic	Propanol
C	Propanoic	Propanol
D	Propanoic	Butanol

51) The Electromagnativity of cesium is 0.7 and that of fluorine is 4.0 the bond formed between the twois :

- a. Covalent
- b. Electrovalent

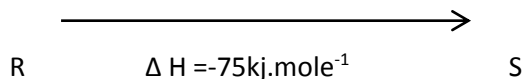
- c. Coordinate
d. Metallic
- 52) Which of the Following statements is not correct for an electron that has the quantum number s $n=4$ and $m=3$
- a. The electron may have the quantum number $S=+1/2$
b. The electron may have the quantum number $i=2$
c. The electron may have the quantum number $i=3$
d. The electron may have the quantum number $i=0,1,2,3$
- 53) Sodium carbonate reacts with SO_2 in Aqueous solution to give:
- e. $NaHCO_3$
a. $NaHSO_3$
b. Na_2SO_3
c. $NaHSO_4$
- 54) In the extraction of aluminium The function of cryolite is to:
- a. Lower the melting point of alumina
b. increase the melting point of alumina
c. Remove impurities from alumina
d. Minimize the anodic effect
- 55) Copper can be extracted from:
- a. Kupferrical
b. Sulphide ore
c. Malachite
d. Galena
- 56) Formula for potassium hexacyano ferrate (II) is:
- a. $K_4[Fe(CN)_6]$
b. $K_3[Fe(CN)_6]$
c. $K_4[Fe_2(CN)_6]$
d. $K_4[Fe(NO_2)_6]$
e. $K_4[CO(NO_2)_6]$
- 57) Natural gas contains -----% of nitrogen in its composition.
- a) 1.05
b) 0.28
c) 3.38

- d) 0.02
e) 0.17
- 58) Hexadecanoic acid is IUPAC name of
- a) Stearic acid
 - b) Palmitic acid
 - c) Butyric acid
 - d) Formic acid
 - e) Valeric acid
- 59) Which of the following factors/ affect the s rate of reaction
- a) Concentration of reactants
 - b) Nature of reactant and temperature
 - c) Presence of catalyst
 - d) Radiation and surface area of reactants
 - e) All of above
- 60) The dipole moment of NH_3 in coulombs meters is :
- a) 5.002×10^{-30}
 - b) 5.002×10^{30}
 - c) 6.137×10^{-30}
 - d) 3.436×10^{-30}
 - e) 3.436×10^{30}
- 61) Radius of Cl atom is -----and Cl^- ion is -----?
- a) $0.99\text{\AA} \dots 1.81\text{\AA}$
 - b) $1.57\text{\AA} \dots 0.95\text{\AA}$
 - c) $0.99\text{\AA} \dots 0.99\text{\AA}$
 - d) $1.81\text{\AA} \dots 0.99\text{\AA}$
- 62) Why the BCl_3 molecule is planar, whereas the PH_3 molecule is pyramidal?
- a. The boron atom has no d electron available for bonding
 - b. The covalent radius of phosphorous is greater than t ha of boron
 - c. The covalent radius of chlorine is greater than is that of hydrogen
 - d. The boron atom in BCL_3 HAS six electrons in its valency shell, whereas the phosphorous atom has eight
- 63) The diagram illustrates the energy change of a set of reactions.

$$\Delta H = -134 \text{ kJ} \cdot \text{mole}^{-1}$$



$$\Delta H = +92 \text{ kJ.mole}^{-1}$$



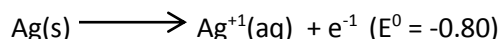
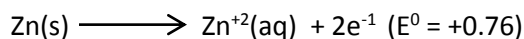
Which of the following statements/s is /are correct?

- The enthalpy change for reaction p R is -33 kJ.mole^{-1}
 - The enthalpy change for the transformation $\text{R} \rightarrow \text{P}$ will be $+42 \text{ kJ.mole}^{-1}$
 - The enthalpy change for the transformation $\text{R} \rightarrow \text{Q}$ will be endothermic
 - Data is insufficient
- 64) How many isomeric compound will be obtained when di substituted benzene is prepared from its mono substituted benzene?
- 1
 - 2
 - 3
 - 4
 - 5
- 65) Some standard and reduction values are given in the table below:

Electrode Reaction	Reduction potential
$\text{Fe}^{+2} (\text{aq}) + 2\text{e}^{-1} \longrightarrow \text{Fe}$	-0.44
$\text{Fe}^{+3} (\text{aq}) + 1\text{e}^{-1} \longrightarrow \text{Fe}^{+2}$	+0.77
$\text{Li}^{+1} (\text{aq}) + \text{e}^{-1} \longrightarrow \text{Li}$	-3.05
$\text{Mg}^{+2} (\text{aq}) + 2\text{e}^{-1} \longrightarrow \text{Mg}$	-2.37
$\text{Sn}^{+4} (\text{aq}) + 2\text{e}^{-1} \longrightarrow \text{Sn}^{+2}$	+0.15

Which of the following is capable of oxidizing an aqueous solution of Sn^{+2} ion to Sn^{+4} ions?

- Aqueous Fe^{+2}
 - Aqueous Li^{+1}
 - Aqueous Mg^{+2}
 - Aqueous Fe^{+3}
- 66) In an electrochemical cell, the half-cell reactions and their oxidation potential are



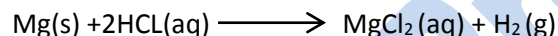
Which of the following reaction actually occurs?

- $\text{Zn}^{+2}(\text{aq}) + 2\text{Ag}(\text{s}) \longrightarrow \text{Zn}(\text{s}) + 2 \text{Ag}^{+1}(\text{aq})$
- $\text{Zn}(\text{s}) + \text{Ag}^{+1}(\text{aq}) \longrightarrow \text{Zn}^{+2}(\text{aq}) + 2 \text{Ag}(\text{s})$
- $\text{Zn}^{+2} + \text{Ag}(\text{s}) \longrightarrow \text{Zn}(\text{s}) + \text{Ag}^{+1}(\text{aq})$
- $\text{Zn}(\text{s}) + 2\text{Ag}^{+1}(\text{aq}) \longrightarrow \text{Zn}^{+2}(\text{aq}) + 2 \text{Ag}(\text{s})$

- 67) The combustion analysis of an organic compound shows it to contain 65.44% carbon, 5.50% hydrogen and 29.06% Oxygen. If the molecular; mass of this compound is 110.15g/mole. Calculate the molecular formula of the compound>

- $\text{C}_6\text{H}_6\text{O}_2$
- $\text{C}_6\text{H}_3\text{O}_2$
- $\text{C}_6\text{H}_6\text{O}_4$
- $\text{C}_4\text{H}_6\text{O}_2$
- $\text{C}_6\text{H}_4\text{O}_2$

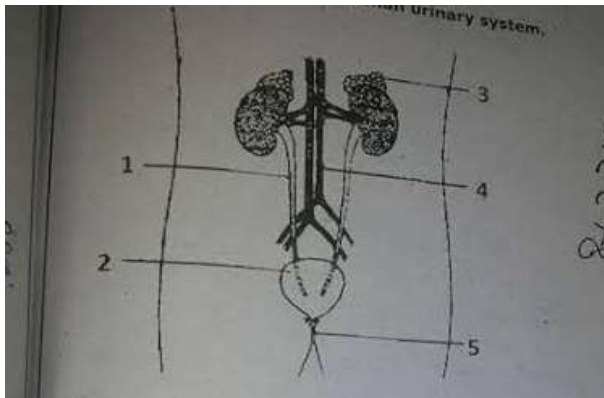
- 68) Mg metal reacts with hcl to give hydrogen gas what is the minimum volume of HCL solution (27% by weight) required to produce 12.1g of H_2 The density of HCL solution is $1.14\text{g}/\text{cm}^3$



- 1423 cm^3
 - 1852 cm^3
 - 4125 cm^3
 - 52.5 cm^3
- 69) 250cm^3 of hydrogen is cooled from 127°C to -27°C by maintaining the pressure constant Calculate the new volume of the gas at low temperature.
- 100 cm^3
 - 200 cm^3
 - 250 cm^3
 - 153 cm^3
 - 130 cm^3
- 70) A sample of nitrogen gas is enclosed in a vessel of volume 380 cm^3 at 120 degree centigrade and pressure of 101325 Nm^{-2} .This gas is transferred to a 10 dm^3 flask and cooled to 27 degree centigrade . Calculate the pressure in Nm^{-2} exerted by gas at 27 degree centigrade
- 3252.2 Nm^{-2}
 - 1000 Nm^{-2}
 - 2938.4 Nm^{-2}

d. 2580 Nm^{-2}

71. The diagram shows the human urinary system.



What are the correct labels for structures 1,2,3,4 and 5?

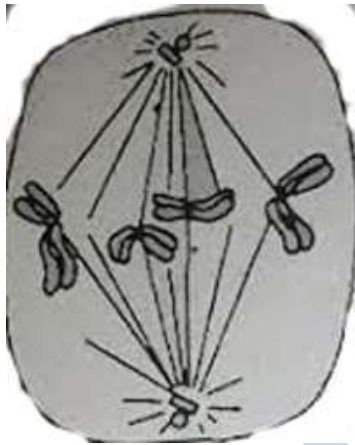
	1	2	3	4	5
A	Bladder	Ureter	Adrenal gland	urethra	Aorta
B	Urethra	Adrenal	Bladder	Aorta	ureter
C	Ureter	Bladder	Adrenal	Aorta	Urethra
D	ureter	Adrenal gland	bladder	Ureter	aorta

72. Occasionally, non – disjunction of the entire genome occurs during meiosis producing abnormal gametes. Which type of genetic variation may result when one such gamete is fertilized by a normal gamete?

- A. Aneuploidy
- B. Deletion
- C. Inversion

- D. Translocation
- E. Triploid

73) The diagram shows two pairs of homogeneous chromosomes.



Which stage of nuclear division is shown?

- a. Anaphase of mitosis
 - b. Anaphase 1 of mitosis
 - c. Metaphase of mitosis
 - d. Metaphase 1 of mitosis
- 74) A mutation involving this substitution of one nitrogenous bases from another has altered the base sequences of a DNA molecules coding for four amino acids as shown below

Normal A-G-C-A-T-G-G-A-T-C-C-T

Mutant A-G-C-A-T-G-C-A-T-C-C-T

The table shows six codons and the corresponding amino acids which each is translated.

mRNA codon

amino acid

AAG

LYSINE

CUA

LEUCINE

GGA

GLYCINE

UAC

TYROSINE

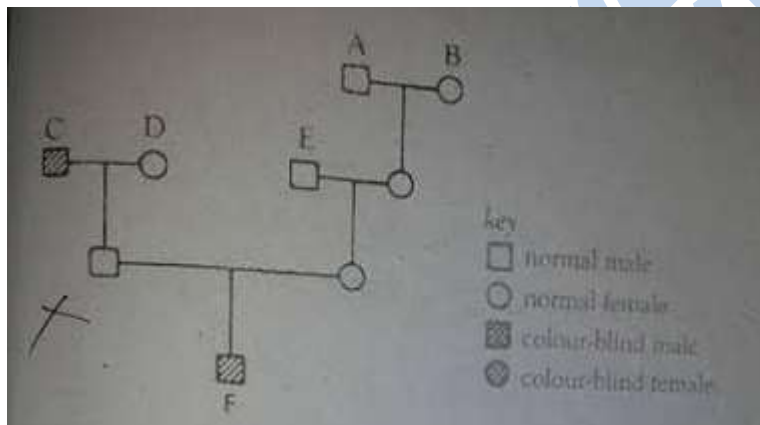
UCG

SERINE

The mutation has changed the amino acid

- Leucine to valine
- Lysine to glycine
- Serine to leucine
- Tyrosine to lysine
- Valine to serine

- 75) The diagram shows the pedigree of family carrying the sex linked allele for color-blindness



From which labeled member for his family did **F** inherit this disorder?

- A
 - B
 - C
 - D
 - E
- 76) The pancreas is stimulated to secrete its digestive enzymes by:
- The liver
 - Bile
 - The gallbladder
 - Secretin

e) Insulin

77) Which of the following is different from the others:

- a) Lycopsidea
- b) Mimosaceae
- c) Pteropsida
- d) Caesalpiniaceae
- e) Anthocerotae

78) Pheretima posthuma is the scientific name of

- a) Planaria
- b) Liver fluke
- c) Tape worm
- d) Ascaris
- e) Earth worm

79) Five words are shown below:

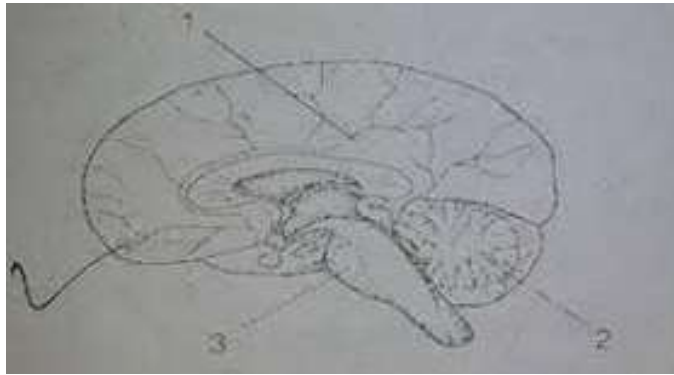
Blastocyst conception implantation zygote gestation

These words can be used in the spaces P, Q, R, S and T to complete the sentence below:

Fertilization in human beings is more commonly called as ...p... After fertilization has taken place in oviduct, theQ... begins to divide and forms a ball of cells called ...R... which travels down the oviduct and reaches the uterus to be embedded in its walls This process is called ...S.... and it marks the start of pregnancy. The Period starting from conception up to the birth of a baby is called ...T...

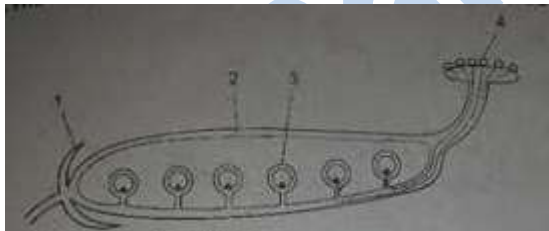
	blastocyst	conception	implantation	zygote	gestation
A	P	Q	R	S	T
B	R	P	S	Q	T
C	Q	T	R	S	P
D	P	S	T	R	Q
E	T	S	R	Q	P

80) The diagram shows a section through the human brain



	1	2	3
A	Cerebellum	Medulla oblongata	Cerebrum
B	Cerebrum	Cerebellum	Pons
C	Thalamus	Corpus callosum	Medulla oblongata
D	Cerebrum	Thalamus	Pons

81) The diagram shows part of a flower after it has been pollinated



Which row correctly identifies one of the labeled structures?

	Labeled structure	Flower part
A	1	Stigma
B	2	Seed
C	3	Ovule
D	4	pericarp

82) Which of the following statements is true about desert ecosystem?

- a) Dry season is very short and temperature ranges less than 18°C throughout the year
- b) The sub soil is permanently frozen

- c) Rain fall is upto 300cm per year
 d) Evaporation exceeds rainfall
- 83) Lamarcks theory is based on all of the following points except:
- a) Effect of environment
 b) Use and disuse of organs
 c) Natural selection
 d) Inheritance of acquired characters
- 84) The blastoderm in chicks splits into:
- a) Epimere and hypomere
 b) Epiblast and epimere
 c) Epimere and mesomere
 d) Epiblast and hypoblast
- 85) For the impulse to transfer from presynaptic to post synaptic Neuron, the substance required is
- a) Sodium
 b) Potassium
 c) Protein
 d) Calcium

86. The Moral formula of family rosaceae or family is:

- a. \oplus , $\overset{\nearrow}{\text{♀}}$, $K_{(5)}$, $C_{(5)}$, $\overline{A_{(5)}}$, $\underline{G}_{(2)}$
- B. $+$, $\overset{\nearrow}{\text{♀}}$, $K_{(5)}$, $C_{1+2(2)}$, $A_{(9)}$, $+1$, $G_{(1)}$
- C. $+$, $\overset{\nearrow}{\text{♀}}$, 5 , C_5 , A_{10} , \underline{G}_1
- D. \oplus , $\overset{\nearrow}{\text{♀}}$, $K_{50(1(5))}$, $C_{50(1\alpha)}$, A_{α} , $G_{10(1(2-5))}$ of

E. None of the above

87. The gland that responds to external conditions of light and darkness as sensed Through the eyes is:
- A. Thymus gland
 B. Adrenal gland

- C. Pineal gland
- D. Thyroid gland
- E. Parathyroid gland

88. In which of the following cell organelles (the structures that are sit of protein synthesis) Can you. Find high concentrations of FNA?

- 1. Endoplasmic reticulum
 - 2. Golgi apparatus
 - 3. Ribosomes
 - 4. Mitochondria
- A. 1 only
 - B. 2 only
 - C. 3 only
 - D. 1 and 3
 - E. 2 and 3

89) Which structures contain a cell nucleus?

Key

1=Nucleus

0=non nucleus

	Red blood cell	Root hair cell	Xylem vessel
A	1	1	1
B	1	0	0
C	0	0	1
D	0	1	0

90) Tay sachs disease occurs when cells are unable to produce an enzyme, leading to a buil up of certain lipids in cell which cell structure would not function correctly, resulting in the disease?

- a. Golgi apparatus

- b. Lysosome
 - c. Mitochondrion
 - d. Smooth endoplasmic reticulum
- 91) How does sucrose move from chloroplasts to the phloem?
- I. Apoplast pathway
 - II. Symplast pathway
 - III. Mass flow
- a. 1, 2, and 3
 - b. 1 and 2 only
 - c. 1 and 3 only
 - d. 2 and 3 only
- 92) Which nucleic acid bases are pyrimidine?
- a. Adenine , cytosine and thymine
 - b. Cytosine, thymine and
 - c. Cytosine, thymine and adenine
 - d. Guanine and adenine
 - e. Uracil, Cytosine and adenine
- 93) Which explain why phenylketonuria has not been eradicated?
- a. Phenylketonuria is an inherited disease, so vaccination is not possible
 - b. Identification of carriers is too difficult as they show no symptoms
 - c. Phenylketonuria gives the individual some resistance against malaria
 - d. The gene responsible for phenylketonuria has a high rate of mutation
94. Which process does oxygen pass out of the stem and root of a plant?
- A. Diffusion
 - B. Osmosis
 - C. Translocation
 - D. transpiration
95. organisms of which of the following kingdom have absorptive modes of nutrition?
- A. Prokaryotes
 - B. Fungi
 - C. protocista
 - D. Plantae
96. The following are all parts of the heart that control the heart action.
- 1. Purkinjie tissue

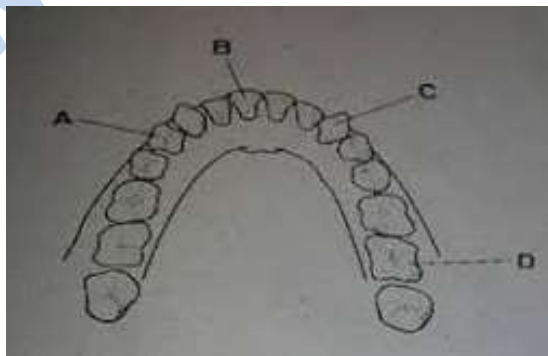
2. Sino atrial node(AVN)
3. Atrioventricular node(AVN)

Which row for atrial contraction and ventricular contraction is correct?

	Atrial contraction	Ventricular contraction
A.	AVN produces wave of excitation	SAN produces wave of Excitation
B.	SAN produces wave of Excitation	Purkinjie tissue carries Wave of excitation
C.	Purkinjie tissue carries Wace of excitation	AVN produces wave of Excitation
D.	SAN and AVN node produce Wace of excitation	Purkinjie tissue carries The wave of excitation

97. What is a characteristic of all catalysts?
- A. They are broken down in a reaction.
 - B. They are made of protein.
 - C. They are not changed by the reaction.
 - D. They cannot change the rate of the reaction.

- 98) The diagram shows the teeth of the lower jaw of the human. Which tooth is a premolar?



- a) A
- b) B
- c) C
- d) D

99) A person with emphysema must consciously contract muscles in order to breathe out. What makes this muscle contraction necessary?

- a) Contraction of the bronchioles
- b) Excess mucus blocking the air passages
- c) Paralysis of cilia in the passage air
- d) Loss of elasticity in the alveolar walls
- e) None of the above

100) which row describes the shoulder joint of an arm?

Shoulder joint			
	bones	Joint type	Action
A	Radius , ulna	Ball and socket	Flexion and extension
B	Scapula , humerus	Ball and socket	Flexion ,Rotation , Abduction and extension
C	Radius , ulna	hinge	Rotation and extension
D	Scapula , humerus	hinge	Flexion and extension