

- 1) Consider the reaction below, if 5 moles each of hydrogen and oxygen are reacted to form water, the reaction reveals:
- $$2H_2 + O_2 \rightarrow 2H_2O$$
- A) H_2 is excess reagent
 B) O_2 is limiting reagent
 C) H_2 is limiting reagent
 D) Reaction has no limiting reagent
- Oxygen can be prepared by the decomposition of potassium chlorate ($KClO_3$). How many moles of oxygen $O_2(g)$ can be formed by taking 12 moles of potassium chlorate ($KClO_3$) according to the following equation?
- $$2KClO_{3(s)} + \text{heat} \rightarrow 2KCl_{(s)} + 3O_{2(g)}$$
- A) 12 moles of oxygen
 B) 15 moles of oxygen
 C) 18 moles of oxygen
 D) 21 moles of oxygen
- 3) 117.0g of $NaCl$ have
- A) 1.204×10^{24} formula units of $NaCl$
 B) 12.04×10^{22} formula units of $NaCl$
 C) 1.204×10^{23} molecules of $NaCl$
 D) 6.023×10^{23} molecules of $NaCl$
- 4) The number of orientations of a sub-shell for which $n = 4$ and $l = 3$ will be:
- A) 5
 B) 3
 C) 7
 D) 1
- 5) Photon of the lowest wavelength is related to:
- A) Balmer series
 B) Pfund series
 C) Brackett series
 D) Paschen series
- 6) The maximum e/m ratio for positive rays is obtained when the discharge tube contains:
- A) He
 B) N_2
 C) Ne
 D) H_2
- 7) 1 atm of pressure is equal to all of the following except:
- A) 760 cm Hg
 B) 760 mm Hg
 C) 760 torr
 D) 101325 Pa
- 8) The volume of a given mass of an ideal gas at certain pressure is x at constant temperature. What will be its volume when the pressure is reduced to half:
- A) $\frac{x}{2}$
 B) $2x$
 C) $4x$
 D) $\frac{x}{4}$

- 9) The volume occupied by 3.2 g of oxygen gas at S.T.P is:
- A) 1.12 dm^3
 B) 2.24 dm^3
 C) 22.4 dm^3
 D) 24 dm^3
- 10) All of the following crystal systems have $\beta = \gamma = 90^\circ$ except:
- A) Cubic
 B) Orthorhombic
 C) Tetragonal
 D) Rhombohedral
- 11) Compound having lowest boiling point is:
- A) Carbon tetrachloride
 B) Ethyl alcohol
 C) Benzene
 D) Acetic acid
- 12) Which of the following can form Hydrogen bonding with each other?
- A) Methanal & Ethanal
 B) Propanone & ethyl methyl ketone
 C) 3^o Amine & H_2O
 D) Acetone & Acetaldehyde
- 13) Identify the molecular formula of Furan:
- A) C_4H_6O
 B) C_5H_8O
 C) C_4H_2O
 D) C_5H_4O
- 14) Haber's process is used for the synthesis of ammonia. The optimum temperature for the Haber process is:
- A) 35 - 50°C
 B) 130 - 150°C
 C) 400 - 450°C
 D) 500 - 600°C
- 15) If ionic product is less than K_{sp} then:
- A) Solution will be saturated
 B) Precipitation will occur
 C) Solution will be super saturated
 D) No precipitation will occur
- 16) For $\Delta n = 0$
- A) $K_p = K_n$
 B) $K_p \neq K_n$
 C) $K_p > K_n$
 D) $K_p < K_n$
- 17) Reaction that follows third order kinetics is:
- A) Decomposition of nitrogen dioxide
 B) Decomposition of hydrogen iodide
 C) Gas phase oxidation of nitric oxide
 D) Formation of hydrogen iodide

- 18) As compared to exothermic reaction, formation of activated complex in endothermic reaction requires:
- Greater E_a
 - Smaller E_a
 - Equal E_a
 - No E_a
- 19) SI unit of specific heat capacity is:
- $Jg^{-1}K^{-1}$
 - JK^{-1}
 - $JmolK^{-1}$
 - kJ/mol
- 20) Processes involving solids and liquids have their:
- $\Delta H = \Delta E + P\Delta V$
 - $\Delta H = P\Delta V$
 - $\Delta H = \Delta E$
 - $\Delta H = 0$
- 21) In redox reaction of SO_2 with $KMnO_4$ in acidic medium:
- SO_2 oxidizes $KMnO_4$
 - SO_2 reduces $KMnO_4$
 - $KMnO_4$ is inert in acidic medium
 - SO_2 can't undergo redox reaction
- 22) Zinc displaces copper from its solution because:
- Atomic no. of zinc is higher than that of copper
 - Zinc has higher reduction potential than copper
 - Zinc is more soluble
 - Zinc has smaller reduction potential than copper
- 23) The molecular shape of a molecule with three bonded atoms and one lone pair electron on the central atom will be:
- Trigonal planar
 - Tetrahedral
 - Trigonal pyramidal
 - Linear
- 24) Molecule having the highest bond energy (Experimentally) is:
- HCl
 - HF
 - HBr
 - HI
- 25) The bond length between double bonded carbon atoms is:
- 1.34\AA
 - 1.10\AA
 - 1.54\AA
 - 1.82\AA
- 26) Choose the element that forms normal oxide only:
- Li
 - Na
 - K
 - Rb
- 27) Element whose salts do not impart color to flame test is:
- Be
 - Cs
 - Ca
 - K
- 28) Indicate superoxide in the following:
- CaO
 - BaO₂
 - Na₂O₂
 - RbO₂
- 29) Which one of the following is covalent in nature?
- Mg_3N_2
 - Be_3N_2
 - Ca_3N_2
 - Ba_3N_2
- 30) Which one has one unpaired electron in the valence shell?
- Zn^{+2}
 - Cu^+
 - Ti^{+3}
 - Fe^{+3}
- 31) The oxidation number of Cobalt in the given coordination complex is:
 $[Co(H_2NCH_2CH_2NH_2)_3]_2(SO_4)_3$
- III
 - II
 - IV
 - VI
- 32) Pyrole belongs to which class of compounds:
- Hydrocarbons
 - Homocyclic
 - Alicyclic
 - Heterocyclic
- 33) Ethyl alcohol in the presence of H_2SO_4 at $170^\circ C$ produces:
- Ether
 - Ethene
 - Ester
 - Ethane
- 34) Lindlar's catalyst is used in hydrogenation of alkyne:
- To increase activation energy
 - To enhance hydrogenation of alkene
 - To prevent hydrogenation of alkene
 - To start polymerization reaction

- 34) Which one of the following is not Meta directing group?
 A) $-\text{COR}$
 B) $-\text{NO}_2$
 C) $-\text{CHO}$
 D) $-\text{NR}_2$
- 35) Benzene-1,3-diol is also known as:
 A) Catechol
 B) Resorcinol
 C) Hydroquinone
 D) O-cresol
- 37) Identify the electrophile called as acylium ion:
 A) R_3N^+
 B) RCO^+
 C) RCOO^+
 D) RNO^+
- 38) Among the following hydrocarbons which one has acidic hydrogen?
 A) C_2H_6
 B) C_2H_4
 C) C_2H_2
 D) C_6H_6
- 39) Greater number of alkyl groups on substrate favours:
 A) Substitution reaction
 B) Elimination reaction
 C) Oxidation reaction
 D) Free radical reaction
- 40) $\text{S}_\text{N}1$ reactions mostly results in partial racemization. In partial racemization there is:
 A) Inversion only
 B) Retention only
 C) Equal inversion and retention
 D) More inversion than retention
- 41) Which of the following involve the same steps?
 A) $\text{E}1$ and $\text{E}2$
 B) $\text{E}1$ and $\text{S}_\text{N}1$
 C) $\text{S}_\text{N}1$ and $\text{S}_\text{N}2$
 D) $\text{E}2$ and $\text{S}_\text{N}1$
- 42) The correct sequence of electronic configuration is:
 A) $4p\ 5s\ 4d\ 5p\ 6s\ 4f\ 5d$
 B) $4p\ 4s\ 4d\ 5p\ 5s\ 5f\ 6d$
 C) $4p\ 4s\ 4d\ 5p\ 5s\ 4f\ 5d$
 D) $4p\ 3s\ 4d\ 5p\ 6s\ 4f\ 5d$
- 43) When phenol reacts with excess of bromine in aqueous solution it results in the formation of:
 A) Ortho/para bromophenol
 B) Meta-bromophenol
 C) 2,4,6-Tribromophenol
 D) 3,5-Dibromophenol
- 44) Propylene glycol and trimethylene glycol are:
 A) Functional group isomers
 B) Metamers
 C) Position isomers
 D) Tautomers
- 45) The reduction of Aldehydes and Ketones to alkanes in the presence of Zinc amalgam and HCl is called:
 A) Clemmenson reduction
 B) Williamson's synthesis
 C) Wolf-Kishner reduction
 D) Dow process
- 46) Aldehyde and Ketone on reaction with hydroxylamine form:
 A) Hydrazine
 B) Hydrazone
 C) Oxime
 D) Imine
- 47) Fehling's solution works on the principle of redox reaction which results in:
 A) Reduction of Aldehydes
 B) Oxidation of Copper (II)
 C) Oxidation of Aldehyde
 D) Oxidation of Ketone
- 48) In conversion of acid halides to ester, pyridine is used to:
 A) Stabilize acid halides
 B) Consume HCl formed in the reaction
 C) Dehydrate alcohol
 D) Dehydrogenate acid halides
- 49) Number of carbon atoms in valeric acid is:
 A) 4
 B) 5
 C) 6
 D) 7
- 50) The IUPAC name of formyl chloride is:
 A) Chloro methanoic acid
 B) Chloro methane
 C) Methanoyl chloride
 D) Chloro methanoate
- 51) The inhibition, in which the inhibitor does not combine directly with the enzyme but binds to the enzyme substrate complex is called:
 A) Reversible inhibition
 B) Competitive inhibition
 C) Non-competitive inhibition
 D) Uncompetitive inhibition
- 52) Trypsinogen can be activated by the action of:
 A) Amylase
 B) HCl
 C) Glucokinase
 D) Enterokinase
- 53) Crystal having orthorhombic crystal system is:
 A) PbCrO_4
 B) BaSO_4
 C) ZnO
 D) $\text{K}_2\text{Cr}_2\text{O}_7$

- 54) Alkoxy carbonyl functional group is present in:
- Ether
 - Aldehyde
 - Carboxylic acid
 - Ester
- 55) Statements:
Some teachers are students. All students are girls. No student is a boy.
Conclusions:
I. Some teachers are boys.
II. Some girls are teachers.
III. Some girls are students.
- Only I follows
 - Only I, II and III follow
 - Only II follows
 - Only II and III follow
- 56) Complete the following series:
KCD, LEF, MGH, _____, OKL
- NQM
 - PJI
 - NIJ
 - NII
- 57) Read the following statements and decide about the arguments.
Statement: Does Pakistan need so many plans for development?
Arguments:
I. Yes. Nothing can be achieved without proper planning.
II. No. Too much time, money and energy is wasted on planning.
- Only I is True.
 - Only II is True.
 - Either I or II is True.
 - Neither I nor II is True.
- 58) Methyl tetrachloride (MTC) is a chemical found in some pesticides, glues, and sealants. Exposure to MTC can cause people to develop asthma. In order to halve the nation's asthma rate, the government plans to ban all products containing MTC. The government's plan to halve the nation's asthma rate relies on which of the following assumptions?
- Exposure to MTC is responsible for no less than half of the nation's asthma cases.
 - Products containing MTC are not necessary to the prosperity of the country's economy.
 - Asthma has reached epidemic proportions.
 - MTC products are helpful for asthma.

- 59) Statements:
I. Importance of yoga and exercise is being realized by all sections of the society.
II. There is an increasing awareness about health in the society particularly among middle ages group of people.
- Statement I is the cause and statement II is its effect.
 - Statement II is the cause and statement I is its effect.
 - Both the statements I and II are independent causes.
 - Both the statements I and II are effects of independent causes.
- 60) Statement: The rates of interest on Post Office recurring deposit accounts have been increased with effect from 1st March. This has been done to attract more deposits.
Course of Action
I. Efforts should also be made to make the public aware about this increase in the rate of interest.
II. If the deposits don't increase in next six months, the rate of interest should be further increased.
- Only conclusion I follows
 - Only conclusion II follows
 - Neither I nor II follows
 - Both conclusions I and II follows
- 61) Equal forces F act on isolated bodies A and B. The mass of B is $1/5$ times that of A. The magnitude of the acceleration of A is:
- $1/5$ times that of B
 - $1/3$ times that of B
 - the same as B
 - nine times that of B
- 62) A body is moved through a displacement of 15m towards North, the total displacement will be zero when body covered the same displacement towards:
- North
 - South
 - West
 - East
- 63) When the range of a projectile is equal to one fourth of the height then which one is true:
- $\tan\theta = 10$
 - $\tan\theta = 12$
 - $\tan\theta = 16$
 - $\tan\theta = 1$

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- 64) A body is moving with momentum of 100 kg m/s . What is the magnitude of force required to stop this body in 25 sec ?
- A) 4 N
B) 25 N
C) 100 N
D) 2500 N
- 65) Doubling the initial velocity of a projectile while keeping all other parameters the same, the height reached by the projectile increases by:
- A) two times
B) three times
C) four times
D) remains the same
- 66) Neglecting the effect of air resistance how long a stone takes to dropped off a 125 m high building lands on the ground, take $g = 10 \text{ m/s}^2$:
- A) 3 sec
B) 4 sec
C) 18 sec
D) 5 sec
- 67) The weight of a body is 120 N and it is lifted to height 10 m , work done on the body is:
- A) 120 J
B) 100 J
C) 1000 J
D) 1200 J
- 68) A 200 N force acts on 8 kg crate that starts from rest. At the instant the object has gone 2 m , the rate at which the force is doing work is:
- A) 2.5 W
B) 25 W
C) 75 W
D) 2000 W
- 69) Which of the following bodies has the largest kinetic energy?
- A) Mass $3M$ and speed V
B) Mass $3M$ and speed $2V$
C) Mass $3M$ and speed $3V$
D) Mass M and speed $4V$
- 70) A 2 kg object is released from rest 8 m above the surface of Earth. During the fall work done against air resistance is 60 J . Just before it hits the surface its speed is: (Hint: take $g = 10 \text{ m/sec}^2$)
- A) 10 m/sec
B) 36 m/sec
C) 40 m/sec
D) 45 m/sec
- 71) The speedometer of a car shows 36 km/hr . The angular speed of the wheels having 0.5 m radius is:
- A) 5 rad/sec
B) 10 rad/sec
C) 15 rad/sec
D) 20 rad/sec
- 72) The angular speed in radian/hour for daily rotation of our earth is?
- A) $\pi/12$
B) 12π
C) 24π
D) $\pi/24$
- 73) A fly wheel rotates at constant speed of 600 rpm . The angle described by the shaft in radian in one second is:
- A) 100π
B) 20π
C) 0
D) 20
- 74) The angular speed of the second hand of a watch is:
- A) $(\pi/1800) \text{ rad/sec}$
B) $(\pi/60) \text{ rad/sec}$
C) $(\pi/30) \text{ rad/sec}$
D) $(2\pi) \text{ rad/sec}$
- 75) A stretched string vibrates with frequency f , when tension in the string is T , for what value of tension, the frequency of the same string is doubled?
- A) $2T$
B) $4T$
C) $8T$
D) $16T$
- 76) The longitudinal waves travel more slowly in _____ than in _____
- A) Solids, gases
B) Solids, liquid
C) Gases, solids
D) Liquid, gases
- 77) Sinusoidal water waves are generated in a large ripple tank. The waves travel at 25 cm/s and their adjacent crests are 5.0 cm apart. The time required for each new whole cycle to be generated is:
- A) 100 sec
B) 4.0 sec
C) 2.0 sec
D) 0.2 sec
- 78) The distance between adjacent node and anti-node is equal to:
- A) λ
B) $\frac{\lambda}{2}$
C) 2λ
D) $\frac{\lambda}{4}$
- 79) A string clamped at its both ends, vibrates in four segments (loops). The length of string is 150 cm . The wavelength of the wave is:
- A) 33.3 cm
B) 66.7 cm
C) 150 cm
D) 75 cm

- 80) The square root of the ratio of elasticity to mass density is equal to:
 A) Force
 B) Product of frequency and wavelength
 C) Co-efficient of Viscosity
 D) Refractive index
- 81) If the pressure of air enclosed in a long tube is increased 10 times, then speed of sound will:
 A) Increase
 B) Decrease
 C) Remain constant
 D) Become zero
- 82) The expression, $C_p - R$ is equal to:
 A) C_v
 B) R
 C) $C_p - C_v$
 D) $R + C_v$
- 83) In a certain process, 200J of heat energy is supplied to a system and at the same time 50J of work is done by the system. The increase in the internal energy of the system is:
 A) 25J
 B) 100J
 C) 150J
 D) 250J
- 84) Work done during isochoric process is:
 A) Negative
 B) Maximum Negative
 C) Maximum Positive
 D) Zero
- 85) Two charges of magnitude $q_1 = 1 \mu\text{C}$ and $q_2 = 5 \mu\text{C}$, are separated at a distance $r = 1 \times 10^{-2}\text{m}$ apart, the ratio of the magnitude of the forces acting on them will be:
 A) 1:5
 B) 1:25
 C) 1:3
 D) 1:1
- 86) For 0.5 Siemens of conductance, resistance will be:
 A) 10
 B) 20
 C) 200
 D) 100
- 87) 1 volt \times 1 ampere is equal to:
 A) 1 coulomb
 B) 1 newton
 C) 1 watt
 D) 1 hp
- 88) A wire of length L has resistivity ρ . If the wire is divided in two halves, then resistivity of each half is:
 A) $\rho/2$
 B) ρ
 C) 2ρ
 D) $\rho/3$
- 89) In how many hours a 1000-watt AC will consume one unit of electricity?
 A) 0.5 hr
 B) 1 hr
 C) 1.5 hr
 D) 2 hr
- 90) Of the following, the copper conductor that has the least resistance must be:
 A) thick, short and cool
 B) thin, long and hot
 C) thick, long and hot
 D) thin, short and cool
- 91) A certain x-ray tube requires a current of 5 mA at a voltage of 60 kV. The rate of energy dissipation (in watts) is:
 A) 560
 B) 300
 C) 200
 D) 800
- 92) Ampere-Second is the unit of:
 A) Power
 B) Charge
 C) Potential difference
 D) Current
- 93) The magnitude of the magnetic flux through area A has exactly the same value at angles:
 A) 0° and 180°
 B) 90° and 180°
 C) 180° and 270°
 D) 270° and 360°
- 94) A hydrogen atom that has lost its electron is moving east in a region where the magnetic field is directed from south to north. It will be deflected
 A) Up
 B) Down
 C) North
 D) South
- 95) When the magnetic force acts on a charge particle, change occurs in:
 A) Magnitude of velocity only
 B) Magnitude and direction of velocity
 C) Only the direction of velocity
 D) Neither direction nor magnitude of velocity
- 96) A constant magnetic field of 5T is passing through a static conducting loop of area 0.8m^2 , the induced emf is:
 A) 4V
 B) 10V
 C) Zero
 D) 32V

- 97) Magnetic flux linked with a conducting loop "A" is increased at the rate of 15 weber/second and in another conducting loop "B" is decreased at the rate of 15 weber/second, the magnitude of induced emf of:
- Loop A will be equal to loop B
 - Loop A is smaller than loop B
 - Loop B is smaller than loop A
 - Both will be zero
- 98) For induced emf to be produced in a coil, the magnetic flux linked with a coil must:
- only decrease
 - only increase
 - be constant
 - be changed
- 99) For half wave rectification, the number of diode needed in a circuit is:
- 1
 - 2
 - 3
 - 4
- 100) The frequency of a light beam "A" is half of that of light beam "B". The ratio E_A/E_B of photons energies is.
(Hint: where E_A & E_B are the respective energies of light Beam "A" & "B")
- 1/2
 - 1/4
 - 1
 - 2
- 101) The wavelength of photon "A" is half the wavelength of photon "B". The energy of a photon "A" is:
- half the energy of a photon B
 - one-fourth the energy of a photon B
 - equal to the energy of photon B
 - twice the energy of photon B
- 102) If frequency of light is greater than threshold frequency then in photoelectric effect the number of electrons increases with increase in _____ of light:
- frequency
 - kinetic energy
 - intensity
 - momentum
- 103) The shortest wavelength associated to Paschen series is:
- $\lambda = \frac{R_H}{9}$
 - $\lambda = \frac{R_H}{16}$
 - $\lambda = \frac{R_H}{36}$
 - $\lambda = \frac{R_H}{81}$
- 104) The ratio of shortest wavelength to longest of Lyman series is:
- 9/16
 - 4/3
 - 3/4
 - 4
- 105) Half-life of a radioactive element is 100 days. How much quantity of the 88 g of such element will remain after three half-lives?
- 8 g
 - 10 g
 - 11 g
 - 44 g
- 106) Radioactive ^{90}Sr has a half-life of 30 years. What percent of a sample of ^{90}Sr will remain after 90 years?
- 0%
 - 12.5%
 - 50%
 - 75%
- 107) At the end of 15min, 1/32 of a sample of radioactive polonium remains. The corresponding half-life is:
- 0.459min
 - 32min
 - 15min
 - 3min
- 108) Two equal and opposite charges of 10 C are separated at a distance of 10 cm, the electric potential at mid-point between the charges is:
- 20 V
 - 10 V
 - 5 V
 - 0 V
- 109) The force of repulsion between two alike charges is 10N in vacuum. When a material of $\epsilon_r = 2$ is placed between them, new force will be:
- 20 N
 - 15 N
 - 10 N
 - 5 N
- 110) The slope of the charge-time graph for a charging capacitor gives:
- Current
 - Voltage
 - Force
 - Energy
- 111) Two small charged objects attract each other with a force F when separated by a distance d . If the charge on each object is reduced to one-fourth of its original value and the distance between them is reduced to $d/2$ the force becomes:
- $F/16$
 - $F/8$
 - $F/4$
 - $F/2$

- 112) If both the plate area and the plate separation of a parallel-plate capacitor are doubled, the capacitance is:
- doubled
 - halved
 - unchanged
 - tripled
- 113) A 20 μ F capacitor is charged to 200 V. Its stored energy is:
- 4000 J
 - 4 J
 - 0.4 J
 - 2000 J
- 114) The primary winding of a transformer has a 120 V AC supply. What is the value of secondary voltage if the turn ratio is 20. (Hints: turn ratio = N_2/N_1)
- 2400 V
 - 1200 V
 - 24000 V
 - 200 V
- 115) I like ___ blue T-shirt over there better than ___ red one.
[Choose the correct articles]
- no article, the
 - the, the
 - the, a
 - a, the
- 116) All you think and hanker ___ is government service.
[Choose the correct preposition]
- on
 - for
 - at
 - upon
- 117) Choose the correct sentence.
- I have always and I am always your friend.
 - I have always and am still your friend.
 - I have always been and I have still your friend.
 - I have always been and still am your friend.
- 118) The director as well as the manager of the hotel ___ attending the meeting.
- is
 - are
 - were
 - has

Read the passage and answer the question given at the end.

For my 25th birthday, my uncle gave me a gift card to go skydiving at a special place near Miami. I was happy because I wanted to do something wild. On the day of my jump, I could not take breakfast because of the nerves. Before I knew the danger involved in it, I was on the plane with a parachute on my back. After the fall, I could feel adrenaline running through me. Then the parachute opened, and I was floating freely, like a bird. Those wonderful moments helped me to realize that I am the kind of person who can take risks in life.

- 119) The author learns from the experience of skydiving that:
- Skydiving is dangerous.
 - Miami is a good place for skydiving.
 - He is capable of doing risky things in life.
 - Skydiving made him so nervous that he could not take breakfast in the morning.
- 120) The novice teacher was excited about her first teaching job.
[The word closest in meaning to the underlined word is]
- Experienced
 - Beginner
 - Erudite
 - Stern
- 121) Choose the correct spelling:
- Loqacious
 - Loquetious
 - Loquicious
 - Loquacious
- 122) If I were younger, I ___ around the world.
- will travel
 - would have travelled
 - would travel
 - travel
- 123) The flower girl sold him flowers.
[The underlined word is]
- Direct object
 - Indirect object
 - Complement
 - Predicate
- 124) Identify the past simple tense in the following.
- We have been reading in the classroom since morning.
 - He had broken this window.
 - They spoke in Urdu to the waitress.
 - She is enjoying the weather on the roof.

- 125) Something odd was happening all around the world
 [Identify the underlined clause]
 A) Subordinate clause
 B) Independent clause
 C) Dependent clause
 D) Relative clause
- 126) We met rather few people who spoke English.
 [The sentence is]
 A) Complex
 B) Simple
 C) Compound
 D) Compound complex
- 127) Identify the sentence with correct punctuation and capitalization.
 A) The automobile dealer handled three makes of cars: Toyota, Suzuki, and Honda
 B) The automobile dealer handled three makes of cars: Toyota, Suzuki, and Honda.
 C) The automobile dealer handied three makes of cars: toyota, suzuki, and honda
 D) The automobile dealer handled three makes of cars, Toyota, Suzuki, and Honda.
- 128) Which of the following sentences is in correct order?
 A) We up right drove to Karachi in two days.
 B) We to Karachi drove in two days right up.
 C) We right drove to Karachi up in two days
 D) We drove right up to Karachi in two days.
- 129) You can either come with me now nor walk home later.
 [The word which does not fit in the sentence is]
 A) Can
 B) Either come
 C) Now
 D) Nor
- 130) I just don't want to get out off bed today.
 [Find an error in the sentence if any]
 A) Get out
 B) Just
 C) Off
 D) No error

Read the passage and answer the questions given at the end (Q131-132)

Efforts should be made to control the use of tobacco in the campuses of educational institutions because it is gateway to drug abuse. Most of the youths usually start with soft drugs like cigarettes, *chhalya*, *gutka*, *naswar* and *pan*, and then move to hard drugs like heroin, opium, cocaine, ice and sheesha, etc. People who start smoking cigarettes or drink alcohol at a young age are much more likely to experiment with illegal drugs than people who do not smoke or drink.

- 131) According to the paragraph:
 A) Educational institutions are gateways to the control of tobacco
 B) Youths who start with soft drugs are likely to experiment with illegal drugs
 C) People who do not smoke or drink are less likely to experiment with illegal drugs
 D) People who start smoking at a young age are less likely to experiment with illegal drugs
- 132) Smoking cigarettes or drinking alcohol leads to:
 A) Legal drugs
 B) Illegal drugs
 C) Soft drugs
 D) The use of tobacco in educational institutions
- 133) Which of the following statements is not correct about alveoli:
 A) Alveoli form the gas exchange surface
 B) The wall of each alveolus is 0.1 cm thick
 C) Alveoli has a dense network of capillaries
 D) Collagen and elastin present in alveoli allow it to expand and recoil easily during breathing
- 134) Which of the following connective tissues consist of cells known as chondrocytes:
 A) Myocardium
 B) Cartilage
 C) Bone
 D) Periosteum
- 135) The joint present between wrist bones is:
 A) Fibrous joint
 B) Cartilaginous joint
 C) Hinge joint
 D) Ball and socket joint
- 136) A sarcomere is the region of a myofibril between two successive:
 A) I-line
 B) A-Line
 C) Z-line
 D) M-line

- 137) The size of synaptic cleft (the gap separating nerve cells) in electrical synapse is:
 A) 0.2 nm
 B) 2 nm
 C) 20 nm
 D) 200 nm
- 138) The activities like sleeping, walking and dreaming are controlled by which part of brain:
 A) Pons
 B) Cerebellum
 C) Olfactory bulb
 D) Hippocampus
- 139) The hormone "calcitonin" is secreted by:
 A) Thyroid gland
 B) Parathyroid gland
 C) Pancreas
 D) Adrenal gland
- 140) Fallopian tube is also known as:
 A) Oviduct
 B) Ovaries
 C) Uterus
 D) Cervix
- 141) The syphilis is a _____ disease:
 A) Bacterial
 B) Fungal
 C) Protazoic
 D) Viral
- 142) The most common symptom of gonorrhoea in males is:
 A) Skin rash on neck
 B) Joint pain
 C) Painful urination
 D) Chancre
- 143) G. J. Mendel chose _____ as an experimental plant for his study:
 A) *Medicago sativa*
 B) *Pisum sativum*
 C) *Delonix regia*
 D) *Lens culinaris*
- 144) When round and yellow color seeded plant (RrYy) is self-crossed the number of plants with round and yellow color seeds obtained is _____ in 32 plants:
 A) 18
 B) 9
 C) 3
 D) 1
- 145) In crossing over, exchange of maternal and paternal chromatid parts occurs while homologous chromosomes are paired during:
 A) Prophase of meiosis I
 B) Prophase of meiosis II
 C) Metaphase of meiosis I
 D) Metaphase of meiosis II

- 146) *Drosophila melanogaster* is the scientific name of:
 A) House fly
 B) Fruit fly
 C) Flesh fly
 D) Sand fly
- 147) A condition that renders the individual less able to form blood clot is:
 A) Alport's syndrome
 B) Coffin-Lowry syndrome
 C) Hemophilia
 D) Thalassemia
- 148) Intra-specific struggle refers to:
 A) Competition between members of the same species
 B) Competition between members of different species
 C) Environmental struggle
 D) Prey or predation
- 149) Identify fossil bird among the following:
 A) Equus
 B) Python
 C) Archaeopteryx
 D) Dawn horse
- 150) Which of the following organelle is regarded as self-replicating organelle:
 A) Endoplasmic reticulum
 B) Golgi bodies
 C) Mitochondria
 D) Vacuole
- 151) The prokaryotic cell wall composed of:
 A) Cellulose
 B) Chitin
 C) Murein
 D) Pectin
- 152) _____ is found in the exoskeleton of crabs.
 A) Cellulose
 B) Chitin
 C) Murein
 D) Hemi-cellulose
- 153) Choose the unsaturated fatty acid among the following:
 A) Palmitic acid
 B) Arachidic acid
 C) Stearic acid
 D) Oleic acid
- 154) The conjugated molecule that is primarily present in egg albumin is:
 A) Lipoprotein
 B) Nucleoprotein
 C) Glycolipid
 D) Glycoprotein

155) FSH (Follicle Stimulating Hormone) stimulates spermatogenesis by stimulating _____ cells to complete the development of sperms.

- A) Leydig
- B) Inhibin
- C) Sertoli
- D) TSH

156) The process of photophosphorylation takes place in:

- A) Nucleolus
- B) Chloroplast
- C) Nucleus
- D) Golgi bodies

157) Which of the following hormones is released by the posterior lobe of pituitary gland?

- A) Antidiuretic hormone
- B) Growth hormone
- C) Estrogen
- D) Prolactin

158) Which of the following agents can easily pass through filter paper?

- A) Bacteria
- B) Fungi
- C) Yeast
- D) Virus

159) HIV belongs to a special class of virus known as:

- A) Retrovirus
- B) Flavivirus
- C) Norovirus
- D) Tetarvirus

160) The capsule of a bacterial cell is a sticky gelatinous structure made up of protein and:

- A) Lipid
- B) Carbohydrate
- C) Nucleotide
- D) Alcohol

161) The transgenic plants, such as golden rice are produced primarily with the help of:

- A) *Escherichia coli*
- B) *Proteus mirabilis*
- C) *Agrobacterium tumefaciens*
- D) *Roistonia solanacearum*

162) Which of the following chemicals is used to preserve biological specimens:

- A) Formalin
- B) Glutaraldehyde
- C) Ethylene Oxide
- D) Iodine

163) Coral reefs are the characteristic feature of phylum:

- A) Porifera
- B) Coelenterata
- C) Arthropoda
- D) Platyhelminthes

164) According to sliding filament hypothesis, the release of _____ ions from the sarcoplasmic reticulum causes the reorientation of certain components in thin filament, permitting them to bind with extension from the thick myosin filaments:

- A) Sodium
- B) Calcium
- C) Magnesium
- D) Potassium

165) The green glands found in arthropods are concerned with:

- A) Excretion
- B) Respiration
- C) Digestion
- D) Circulation

166) The Purkinji fibers are the specialized fibers found in:

- A) Human heart
- B) Human lungs
- C) Human stomach
- D) Human brain

167) The largest body of lymphoid tissue in the human body is:

- A) Tonsils
- B) Pancreas
- C) Spleen
- D) Thymus

168) The immune cells that clean up pus as a part of the healing process is:

- A) Natural killer cell
- B) Macrophages
- C) Antibodies
- D) Neutrophils

169) Lipid synthesis occurs in which one of the following organelle of the cell?

- A) Ribosome
- B) Golgi bodies
- C) Mitochondria
- D) Endoplasmic reticulum

170) The testes are male gonads which are situated outside the abdomen within a skin pouch called:

- A) Vas deferens
- B) Epididymis
- C) Scrotum
- D) Vasa efferentia

171) The term polydipsia refers to:

- A) A condition in which abnormally large volume of urine is produced
- B) A condition of excessive thirst
- C) A condition of excessive hunger
- D) A condition in which the concentration of blood decreases in the body

- 172) Lactose is composed of:
 A) Glucose + Fructose
 B) Glucose + Galactose
 C) Glucose + Glucose
 D) Fructose + Galactose
- 173) Saprophytic bacteria are:
 A) Autotrophs
 B) Decomposers
 C) Parasites
 D) Photosynthetic
- 174) In human heart right atrium communicates with right ventricle through:
 A) Inter-auricular septum
 B) Ventricular septum
 C) Tricuspid valve
 D) Bicuspid valve
- 175) The first segment of the small intestine is:
 A) Duodenum
 B) Jejunum
 C) Ileum
 D) Colon
- 176) Which one of the following factors does not affect the rate of enzyme action?
 A) Temperature
 B) Substrate concentration
 C) Enzyme concentration
 D) Water concentration
- 177) Light reaction occurs in the _____ of chloroplast:
 A) Outer membrane
 B) Inner membrane
 C) Granum
 D) Stroma
- 178) How many pieces of ribonucleic acid (RNA) make up the genome of influenza virus?
 A) 4
 B) 6
 C) 8
 D) 10
- 179) In Mendelian cross for heterozygous flower (P_p), what is the probability that the dominant allele will be in sperm and the recessive in the egg:
 A) 0.05
 B) 0.5
 C) 0.25
 D) 0.75
- 180) Mastication causes exocrine glands under the tongue and in the back of mouth to secrete a watery liquid called:
 A) Bolus
 B) Bile
 C) Pancreatic juice
 D) Saliva
- 181) In phylum Aschelminths (Nematoda), nervous system consists of a nerve ring which encircles the _____ and sends its branches in different parts of the body.
 A) Lips
 B) Teeth
 C) Stomach
 D) Pharynx
- 182) *Salmonella typhi* causing typhoid and *Clostridium tetani* causing tetanus are which type of bacteria?
 A) Bacilli
 B) Spirilla
 C) Cocci
 D) Comma
- 183) Who formulated the principle that 'ontogeny recapitulates phylogeny':
 A) Von bear
 B) Haeckel
 C) Herbert Spencer
 D) Darwin
- 184) Aquatic mammals belong to the order _____
 A) Cetacea
 B) Pholidota
 C) Chiroptera
 D) Proboscidea
- 185) All of the following paired organs/structures have homology except:
 A) Human hand: Bat's wing
 B) Bat's wing: Wings of butterfly
 C) Horse front leg: Front flappers of whale
 D) Wings of bird: Wings of flying lizards
- 186) The head of some phages are icosahedral, which means that the head possess:
 A) 6 sides
 B) 10 sides
 C) 15 sides
 D) 20 sides
- 187) In sickle cell, haemoglobin molecule, glutamic acid, is replaced by:
 A) Proline
 B) Glutamine
 C) Valine
 D) Glycine
- 188) Where do phospholipids arrange themselves in a cell?
 A) Inside the nucleus
 B) Inside the cytoplasm
 C) In the plasma membrane
 D) Inside the mitochondrial matrix

189) Which type of nerve impulse occurs in non-myelinated neuron fibers?

- A) Saltatory impulse
- B) Continuous impulse
- C) Rapid impulse
- D) Jumping impulse

190) In alcoholic fermentation _____ ATP molecules are produced from 1 glucose molecule:

- A) 2
- B) 18
- C) 32
- D) 36

191) Amino acids mainly differ from each other by the difference in their:

- A) R-group
- B) Amino group
- C) Carboxyl group
- D) Hydrogen of alpha carbon

192) All of the following are related to enzymes except:

- A) Speed up reaction
- B) Remain unchanged after reaction
- C) Increase the activation energy
- D) Possess the active site

193) The cytoplasm contain(s):

- A) Cell organelle only
- B) Insoluble waste only
- C) Storage products only
- D) Cell organelle, insoluble waste & storage products

194) Tay-sach's disease particularly results from the malfunctioning of:

- A) Cell membrane
- B) Nucleus
- C) Lysosomes
- D) Vacuole

195) Enzymes present in mammals work best at about:

- A) 20 °C
- B) 30 °C
- C) 40 °C
- D) 50 °C

196) An example of competitive inhibitor molecule is:

- A) Insecticides
- B) Sulphonamide
- C) Cyanide
- D) Metal ions

197) The ATP formed in the preparatory phase of glycolysis is (are):

- A) 1
- B) 2
- C) 4
- D) 0

198) Mitochondria is usually absent in:

- A) Muscle cells
- B) Cardiac cells
- C) Mature RBC's
- D) WBC's

199) _____ consists of units called dictyosomes.

- A) Ribosomes
- B) Lysosomes
- C) Glyoxisomes
- D) Golgi complex

200) The optimal pH of lipase (pancreas) is:

- A) 4.0 - 5.0
- B) 1.5 - 1.6
- C) 8.0
- D) 6.1 - 6.8

THE END



EDUCATIONAL TESTING & EVALUATION AGENCY (ETEA) - GOVERNMENT OF KHYBER PAKHTUNKHWA

Roll Number

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Roll Number: _____

Name: _____

Father Name: _____

Test For: MDCAT-2023

Test Center: _____

Test Date: _____

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Instructions

- 1. Before filling the sheet, please check that the sheet is printed on both sides.
- 2. You should not attempt with the response of previous attempts. If you do, you will be treated as an invalid attempt.
- 3. Use of any kind of writing instrument is not allowed. Only a black ballpoint pen should be used to fill in the circles on the paper. The answer will be marked in the form appearing on the left side of the sheet by a computer system. The answer sheet is provided for the use of the system only. The answer sheet is provided for the use of the system only. The answer sheet is provided for the use of the system only.
- 4. Do not write anything on the answer sheet. The answer sheet should be filled out by the candidate in the form of the answer sheet. The answer sheet is provided for the use of the system only.
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Serial No:

Certification Statement

I have read all the instructions carefully and declare that all the particulars stated by me on this Answer Sheet are correct to the best of my knowledge.

Correct way of filling:



Incorrect way of filling:



Signature



A
B
C
D

1	26	51	76	101	124	151	174
2	27	52	77	102	125	152	175
3	28	53	78	103	126	153	176
4	29	54	79	104	127	154	177
5	30	55	80	105	128	155	178
6	31	56	81	106	129	156	179
7	32	57	82	107	130	157	180
8	33	58	83	108	131	158	181
9	34	59	84	109	132	159	182
10	35	60	85	110	133	160	183
11	36	61	86	111	134	161	184
12	37	62	87	112	135	162	185
13	38	63	88	113	136	163	186
14	39	64	89	114	137	164	187
15	40	65	90	115	138	165	188
16	41	66	91	116	139	166	189
17	42	67	92	117	140	167	190
18	43	68	93	118	141	168	191
19	44	69	94	119	142	169	192
20	45	70	95	120	143	170	193
21	46	71	96	121	144	171	194
22	47	72	97	122	145	172	195
23	48	73	98	123	146	173	196
24	49	74	99	124	147	174	197
25	50	75	100	125	148	175	198
					149	176	199
					150	177	200





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ETEA Form No. [] [] [] [] - [] [] [] [] [] [] [] []

Instructions

- 1. Answer must be filled with a blue or black pen, as per direction given below.
- 2. Any attempt to tamper with the original set of marks that are recorded on the answer sheet will be treated as an attempt to cheat.
- 3. Use of any kind of unfair means, such as giving of answers, showing or being shown, or in any way causing the cancellation of the paper, the offender will be liable and there shall be no right to re-appear in the exam. No form paper shall be used for any kind of unfair means under the supervision of the invigilator. The invigilator is responsible for maintaining the security of the answer sheet of the candidate.
- 4. No extra time will be given. The paper should be handed over to the ETEA staff at the end of the exam.
- 5. It should be noted that the answer of the question given in the name of the invigilator of the agency, shall be treated as the candidate's answer.
- 6. Any candidate who is found guilty of the said above provisions will be liable to be disqualified.

Serial No:

Certification Statement

I have read all the instructions carefully. I hereby declare that all the particulars stated by me on this Answer Sheet are correct to the best of my knowledge.

6 3 5 2 1 5
 7 6 0 7 5 0
 8 7 1 3 0 0
 9 0 1 6 0 0
 4 4 6 4 6 6
 5 3 1 1 0 0
 6 4 1 0 1 0
 7 5 1 0 0 0
 8 6 4 0 4 0
 9 1 1 5 0 0

A
 B
 C
 D

Correct way of filling:
 Incorrect way of filling:

Signature

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4	29	54	79	104	129	154	179
5	30	55	80	105	130	155	180
6	31	56	81	106	131	156	181
7	32	57	82	107	132	157	182
8	33	58	83	108	133	158	183
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19	44	69	94	119	144	169	194
20	45	70	95	120	145	170	195
21	46	71	96	121	146	171	196
22	47	72	97	122	147	172	197
23	48	73	98	123	148	173	198
24	49	74	99	124	149	174	199
25	50	75	100	125	150	175	200



