Test # 1 (450 to 650 BOOST UP Course for NEET 2020)
NEETprep Contact Number: 9667591930 / 8527521718

1. A mixture of carbon monoxide and carbon dioxide is found to have a density of 1.7 g/lit at S.T.P. The mole fraction of carbon monoxide is

1. 0.37

2. 0.40

3. 0.30

4. 0.50

2. At constant temperature, if pressure increases by 1%, the percentage decrease of volume is

1. 1%

2. 100/101%

3. 1/101%

4. 1/100%

3. A flask containing air (open to atmosphere) is heated from 300 *K* to 500 *K*. the percentage of air escaped to the atmosphere is nearly

1. 16.6

2. 40

3. 66

4. 20

4. Identify the correct order of solubility in aqueous medium

1. CuS>ZnS>Na_2S

2. ZnS>Na_2S>CuS

3. Na_2S>CuS>ZnS

4. Na_2S>ZnS>CuS

5. 25.3 g of Sodium carbonate Na_2CO_3 is dissolved in enough water to make 250 mL of solution. If sodium carbonate dissociates completely, molar concentration of sodium ion, Na^+ and carbonate ion CO_3^{2-} are respectively (Molar mass of Na_2CO_3 = 106 g mol^{-1})

1. 0.955 M and 1.910 M

2. 1.910 M and 0.955 M

3. 1.90 M and 1.910 M

4. 0.477 M and 0.477 M

6. The correct order of decreasing second ionisation enthalpy of Ti (22), V (23), Cr (24) and Mn (25) is
1. Cr > Mn > V > Ti
2. V > Mn > Cr > Ti
3. Mn > Cr > Ti > V
4. Ti > V > Cr > Mn

7. The correct order of increasing thermal stability of K_2CO_3, $MgCO_3$, $CaCO_3$ and $BeCO_3$ is:
1. $BeCO_3 < MgCO_3 < K_2CO_3 < CaCO_3$
2. $BeCO_3 < MgCO_3 < CaCO_3 < K_2CO_3$
3. $MgCO_3 < BeCO_3 < CaCO_3 < K_2CO_3$
4. $K_2CO_3 < MgCO_3 < CaCO_3 < BeCO_3$

8. Concentrated aqueous sulphuric acid is 98% H_2SO_4 by mass and has a density of 1.80 g mL^{-1}. Volume of acid required to make one litre of 0.1 M H_2S0_4 solution is :

1. 11.10 mL

2. 16.65 mL

3. 22.20 mL

4. 5.55 mL

9. The electronegativity difference between N and F is greater than that between N and H yet the dipole moment of NH_3 (1.5 D) is larger than that of NF_3 (0.2 D). This is because:

1. in NH_3 as well as in NF_3 the atomic dipole and bond dipole are in the same direction
2. in NH_3 the atomic dipole and bond dipole are in the same direction whereas in NF_3 these are in opposite directions
3. in NH_3 as well as NF_3 the atomic dipole and bond dipole are in opposite directions
4. in NH_3 the atomic dipole and bond dipole are in the opposite directions whereas in NF_3 these are in the same directions

10. If IUPAC name of an element is "unununium" then correct statement regarding element is :

1. It is a inner transition element

2. It belongs to 8th period in periodic table

3. It is transition element

4. It is a non-transition element

11. The radius of which ion is closest to that of Li^+ ion?

1. Na^+ 2. Be^{2+}

3. Mg^{2+} 4. Al^{3+}

12. The correct order of IE_2 is:

1. Na>F>O>N 2. O>F>Ne>N
3. Ne>O>F>N 4. O>Ne>F>N

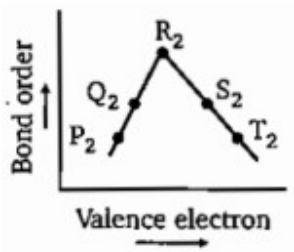
13. Which of the following compound is most acidic?

1. Cl_2O_7 2. P_4O_{10}

3. SO_3 4. B_2O_3

14. If *P* and *T* are second period p-block elements then which of the following graph show correct relation between valence electrons in P_2 to T_2 (corresponding molecules) and their bond order is :

1.



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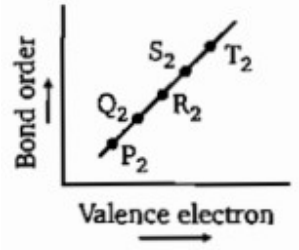

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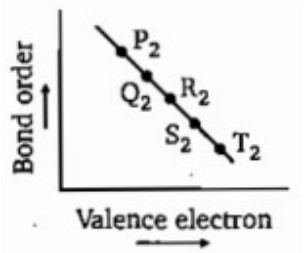

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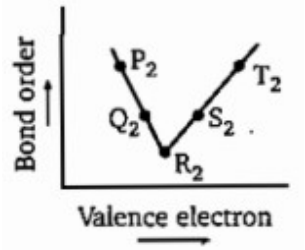


15. Consider the following changes:

$M(s) \rightarrow M(g)$ .....(i)

$M(s) \rightarrow M^{2+}(g) + 2e^-$ .....(ii)

$M(g) \rightarrow M^+(g) + e^-$ .....(iii)

$M^+(g) \rightarrow M^{2+}(g) + e^-$ .....(iv)

$M(g) \rightarrow M^{2+}(g) + 2e^-$ .....(v)

The second ionization energy of M could be calculated from the energy values associated with :

1. 1+3+4 2. 2-1+3

3. 1+5 4. 5-3

16. Which of the following statements is/are wrong?

1. van der Waals' radius of iodine is more than its covalent radius

2. All isoelectronic ions belong to same period of the periodic table

3. $I.E._1$ of N is higher than that of O while $I.E._2$ of O is higher than that of N

4. The electron affinity N is almost zero while that of P is 74.3 kJ mol^{-1}

17. First three ionisation energies (in kJ/mol) of three representative elements are given below:

Element	IE1	IE2	IE3
P	495.8	4562	6910
Q	737.7	1451	7733
R	577.5	1817	2745

Then incorrect option is :

1. Q: Alkaline earth metal
2. P: Alkali metals
3. R: s-block element
4. They belong to same period

18. The incorrect statement is:

1. The second ionisation energy of Se is greater than that of second ionisation energy of As

2. The first ionisation energy of C^{2+} ion is greater than that of first ionisation energy of N^{2+} ion

3. The third ionisation energy of F is greater than that of third ionisation energy of O

4. Halogens have highest I.E. in respective period

19. The process requiring the absorption of energy is :

1. $F \rightarrow F^-$

2. $H \rightarrow H^-$

3. $Cl \rightarrow Cl^-$

4. $O \rightarrow O^{2-}$

20. Which of the following orders is correct for the size?

(1) $Mg^{2+} < Na^+ < F - Al$

(2) $Al^{3+} < Mg^{2+} Li^+ < K^+$

(3) $Fe^{4+} < Fe^{3+} < Fe^{2+} < Fe$

(4) $Mg > Al > Si > P$

1. (1), (2) & (3)

2. (2), (3) & (4)

3. (1), (3) & (5)

4. (1), (2), (3) & (4)

21. The van der waals' constants for a gas are : a = 4 lit^2 atm mol^{-2}, b = 0.04 lit mol^{-1}. Its Boyle temperature is roughly

1. 100^{0}C

2. 1220 K

3. 1220^{0}C

4. 1600 K

22. SO_3(g) decomposes according to the equation

$2SO_3(g) \rightarrow 2SO_2(g) + O_2(g)$

A sealed container contains 0.5 mol of SO_3 gas at 100°C and 2 atm pressure. What would be the pressure in the container if the SO_3 gas is decomposed completely according to the above equation and the temperature were maintained at 100°C –

1. 0.5 atm

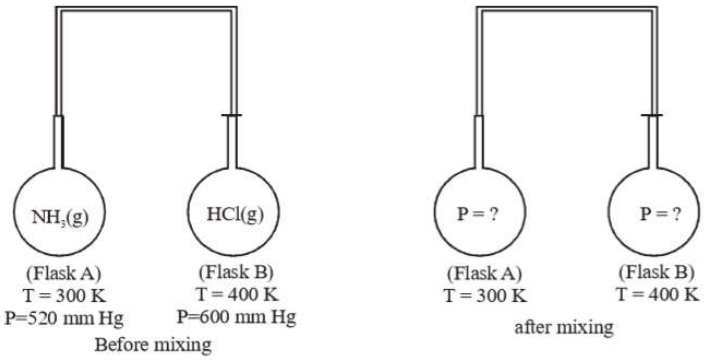
2. 1.0 atm

3. 2.0 atm

4. 3.0 atm

23. Two flasks A and B of equal volume containing NH_3 and HCl gases, are connected by a narrow tube of negligible volume. The two gases were prevented from mixing by stopper fitted in connecting tube. For further detail of experiment refer to the given figure. What will be final pressure in each flask when passage connecting two tubes are opened. Assume ideal gas behaviour of NH_3 and HCl gas and the reaction.

1. 40 mm Hg

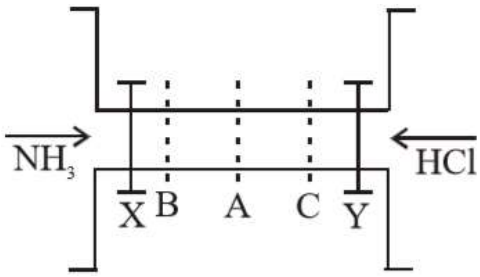


2. 60 mm Hg

3. 20 mm Hg

4. 10 mm Hg

24. The valves X and Y are opened simultaneously. The white fumes of NH_4Cl will first form at :



1. A

2. B

3. C

4. A, B and C simultaneously

25. Two flasks of equal volume connected by a narrow tube (of negligible volume) at 27ºC and contain 0.70 mole of H_2 at 0.5 atm. One of the flasks is then immersed into a hot bath, kept at 127ºC, while the other remains at 27ºC. Calculate the final pressure.

1. 5.714 atm

2. 0.5714 atm

3. 2.5214 atm

4. 5.5114 atm

26. Calculate number of electrons present in 9.5 g of PO_4^{3-}:

1. 66

2. 5 N_A

3. 0.1 N_A

4. 4.7 N_A

27. Equivalent weight of H_3PO_2 when it disproportionate into PH_3 and H_3PO_3 is:

1. M

2. M/2

3. M/4

4. 3M/4

28. Density of dry air containing only N_2 and O_2 is 1.15 g/L at 740 mm and 300 K. What is % composition of N_2 by weight in the air?

1. 78%

2. 75.5%

3. 70.02%

4. 72.75%

29. In preparation of iron from haematite (Fe_2O_3)by the reaction with carbon

$Fe_2O_3 + C \rightarrow Fe + CO_2$

How much 80% pure iron could be produced from 120 kg of 90% pure Fe_2O_3 ?

1. 94.5 kg

2. 60.48 kg

3. 116.66 kg

4. 120 kg

30. A mixture of NH_4NO_3 and $(NH_4)_2HPO_4$ contain 30.40% mass per cent of nitrogen. What is the mass ratio of the two components in the mixture?

1. 2 : 1

2. 1 : 2

3. 3 : 4

4. 4 : 1

31. 0.607 g of a silver salt of tribasic organic acid was quantitatively reduced to 0.37 g of pure Ag.What is the mol. wt. of the acid?

1. 207

2. 210

3. 531

4. 324

32. 2.0 g sample contain mixture of SiO_2 and Fe_2O_3, on very strong heating leave a residue weighing 1.96 g. The reaction responsible for loss of weight is Fe_2O_3 (s) → Fe_3O (s) + O_2(g) (unbalance equation)

What is the percentage by mass of SiO_2 in original sample?

1. 10%

2. 20%

3. 40%

4. 60%

33. 0.8 mole of a mixture of CO and CO_2 requires exactly 40 gram of NaOH in solution for complete conversion of all the CO_2 into Na_2CO_3. How many moles more of NaOH would it require for conversion into Na_2CO_3, if mixture (0.8 mole) is completely oxidised to CO_2?

1. 0.2

2. 0.6

3. 1

4. 1.5

34. 25.4 of I_2 and 14.2 g of Cl_2 are made to react completely to yield a mixture of ICl and ICl_3. Calculate mole of ICl and ICl_3 formed.

1. 0.5 ,02

2.0.1, 0.1

3. 0.1 ,0.3

4. 0.3,0.4

35. 60 mL of a mixture of nitrous oxide and nitric oxide was exploded with excess of hydrogen. If 38 mL of N_2 was formed, calculate the volume of each gas in the mixture. All measurements are made at constant P and T.

1.20 ml +30 ml

2. 44 ml + 16 ml

3. 10 ml+40 ml

4 .25 ml +25 ml

36. A precipitate of AgCl and AgBr mass 0.4066 g. On heating in a current of chlorine, the AgBr is converted to AgCl and the mixture loses 0.0725 in mass. Find the % of Cl in original mixture.

1.16.15

2.8.5

3.6.15

4.10

37. The haemoglobin from the red blood corpuscles of most mammals contains approximately 0.33% of iron by mass. The molar mass of haemoglobin as 67,200. The number of iron atoms in each molecule of haemoglobin is (atomic mass of iron=56):

1. 2

2. 3

3. 4

4. 5

38. Which mixture is lighter than humid air?

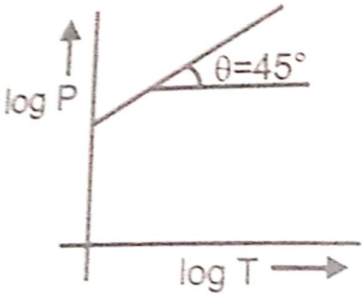
1. $N_2+O_2+SO_2$

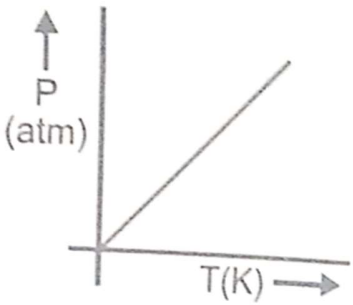
2. $N_2+O_2+CO_2$

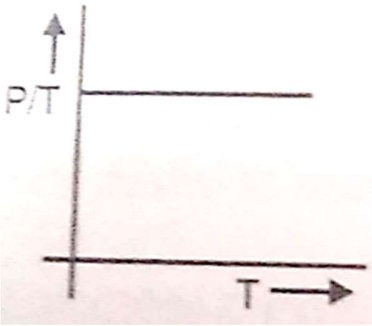
3. $N_2+O_2+C_2H_6$

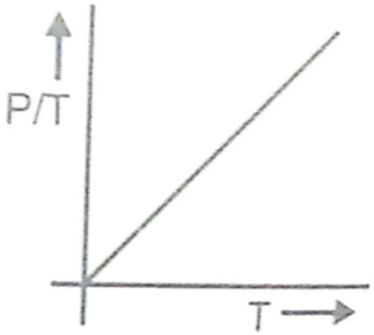
4. N_2+O_2+He

39. Which is not correct curve for gay-lusacc's law?

1. 

2. 

3. 

4. 

40. Four particles have speed 2, 3, 4 and 5 cm/s respectively. Their rms speed is:

1. 3.5 cm/s

2. 27/2 cm/s

3. $\sqrt{54}$ cm/s

4. $(\sqrt{54}/2)$ cm/s

41. The compressibility factor for nitrogen at 330 K and 800 atm is 1.90 and at 570 K and 200 atm is 1.10. A certain mass of N_2 occupies a volume of 1 dm^3 at 330 K and 800 atm. Calculate volume occupied by same quantity of N_2 gas at 570 K and 200 atm:

1. 1 L

2. 2 L

3. 3 L

4. 4 L

42. The van der Waals parameters for gases W, X, Y and Z are

Gas	a (atm L^2 mol^{-2})	b(L mol^{-1})
W	4.0	0.027
X	8.0	0.030

Y	6.0	0.032
Z	12.0	0.027

Which one of these gases has the highest critical temperature?

1. W
2. X
3. Y
4. Z

43. The temperature at which the second virial coefficient of real gas is zero is called:

1. Critical temperature
2. Triple point
3. Boiling point
4. Boyle's temperature

44. Inversion temperature (Ti=2a/Rb) is defined as the temperature above which if gas is expanded adiabatically it gets warm up but if temperature of gas is lower than T, then it will cool down. What will happen to a gas if it is adiabatically expanded at 600 K if its Boyle's temperature is 290 K?

1. Heating
2. Cooling
3. Constant
4. None

45. The van der Waal's equation of law of corresponding states for 1 mole of gas is:

1. $\left(P_r + \frac{3}{V_r^2}\right)(3V_r - 1) = 8T_r$
2. $\left(P_r - \frac{3}{V_r^2}\right)(3V_r - 1) = 8T_r$
3. $\left(P_r + \frac{3}{V_r^2}\right)(3V_r + 1) = 8\pi T_r$
4. $\left(P_r + \frac{3}{V_r^2}\right)(3V_r + 1) = 8$

46. Energy due to position of a particle is given by, $U = \frac{\alpha\sqrt{y}}{y+\beta}$, where α and β are constants, y is distance. The dimensions of (α × β) are

1. $[M^0LT^0]$
2. $[M^{1/2}L^{3/2}T^{-2}]$
3. $[M^0L^{-7/2}T^0]$
4. $[ML^{7/2}T^{-2}]$

47. A physical quantity x depends on qualities y and z as follows: x = Ay + B tanCz , where A, B and C are constants. Which of the following do not have the same dimensions?

1. x and B
2. C and z^{-1}
3. y and B/A
4. x and A

48. A dust particle oscillates in air with a time period which depends on atmospheric pressure P, density of air d and energy of the particle E, then time period is proportional to

1. $p^{5/6}d^{1/2}E^{1/3}$
2. $p^{1/2}d^3E^{1/3}$
3. $p^{1/3}d^{1/2}E^2$
4. $p^{-2}d^{-1/2}E^{-3}$

49. Which of the following group have different dimension?
1. Potential difference, EMF, voltage
2. Pressure, stress, Young's modulus
3. Heat, energy, work-done
4. Dipole moment, electric-flux, electric field

50. If a copper wire is stretched to make its radius decrease by 0.1%, then the percentage increase in resistance is approximately

1. 0.1 %

2. 0.2 %

3. 0.4%

4. 0.8%

51. Two resistances of 400 Ω and 800 Ω connected in series with a 6 volt battery of negligible internal resistance. A voltmeter of resistance 10,000Ω is used to measure the potential difference across 400 Ω. The error in the measurement of potential difference in volts approximately is

1. 0.01

2. 0.02

3. 0.08

4. 0.05

52. If there is a positive error of 50% in the measurement of velocity of a body, then the error in the measurement of kinetic energy is
1. 25 %

2. 50 %

3. 100 %

4. 125

53. The diameter of a wire is measured with a screw gauge having 50 divisions on circular scale and by one complete rotation of circular scale, main scale moves 0.5 mm. If reading of screw gauge is 0.250 cm. The minimum percentage error in the reading will be

1. 0.4

2. 0.8

3. 4

4. 5

54. The pitch of a screw gauge is 1 mm and there are 100 division on its circular scale. When nothing is put in between its jaws, the zero of the circular scale lies 4 divisions below the reference line. When a steel wire is placed between the jaws, two main scale divisions are clearly visible and 67 divisions on the circular scale are observed. The diameter of the wire is

1. 2.71 mm

2. 2.67 mm

3. 2.63 mm

4. 2.65 mm

55. What are the dimensions of electrical permittivity?

1. $ML^{-2}T^{-2}Q^{-2}$

2. $M^{-1}L^{2}T^{-3}Q^{-1}$

3. $M^{-1}L^{-3}T^{2}Q^{2}$

4. $M^{-1}L^{3}T^{-2}Q^{-2}$

56. We have error in the measurement of length, radius, mass and current of a wire are

2%, 3%, 2% and 1% then error in its density will be

1. 11%

2. 8%

3. 10%

4. 7%

57. The velocity of water waves may depend on their wavelength λ, the density of water ρ and the acceleration due to gravity g. The method of dimensions gives the relation between these quantities as

1. $v^2 \propto \lambda g^{-1} \rho^{-1}$

2. $v^2 \propto g\lambda$

3. $v^2 \propto \lambda g \rho$

4. $v^2 \propto g^{-1} \lambda^{-2}$

58. A particle located at x = 0 at time t = 0, starts moving along the positive x-direction with a velocity 'v' that varies as $v = \alpha\sqrt{x}$. The displacement of the particle varies with time as

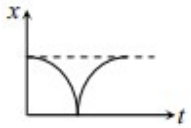
1. t^3

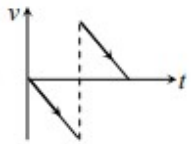
2. t^2

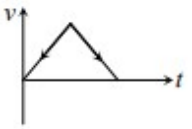
3. t

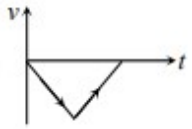
4. $t^{1/2}$

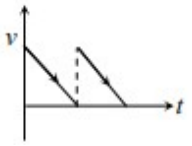
59. Position-time curve of a body moving along a straight line is shown in figure. The velocity-time curve for the motion of the particle will be



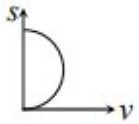
1. 

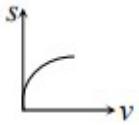
2. 

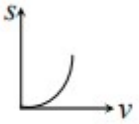
3. 

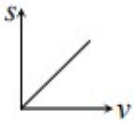
4. 

60. An object is moving with a uniform acceleration which is parallel to its instantaneous direction of motion. The displacement(s) – velocity (v) graph of this object is

1. 

2. 

3. 

4. 

61. A body is thrown up in a lift with an upward velocity u relative to the lift from its floor and the time of flight is found to be t. The acceleration of the lift will be

1. $\frac{u-gt}{2}$

2. $\frac{u+gt}{2}$

3. $\frac{2u-gt}{2}$

4. $\frac{u}{t}-g$

62. In a car race, car A takes t0 time less to finish than car B and passes the finishing point with a velocity v_0 more than car B. The cars start from rest and travel with constant accelerations a_1 and a_2. Then the ratio v_0/t_0 is equal to

1. $\frac{a_1^2}{a_2}$

2. $\frac{a_1+a_2}{2}$

3. $\sqrt{a_1a_2}$

4. $\frac{a_2^2}{a_1}$

63. Acceleration of a particle moving along a straight line is a function of velocity as $a=2\sqrt{v}$. At t = 2s, its velocity v = 16 ms^{-1}. Its velocity at t = 3s will be

1. 20 ms^{-1}

2. 25 ms^{-1}

3. 30 ms^{-1}

4. 22.5 ms^{-1}

64. A particle moving with uniform retardation along a straight line covers distances a and b in successive intervals p and q seconds. The acceleration of the particle is

1. $\frac{2(aq-bp)}{q(p+q)}$

2. $\frac{2(bp-aq)}{q(p+q)}$

3. $\frac{2(aq+bp)}{q(p+q)}$

4. $\frac{2(aq-bp)}{q(p+q)}$

65. A bus is beginning to move with an acceleration of 1 m/s^2. A boy who is 48 m behind the bus starts running with constant speed of 10 m/s. The earliest time when the boy can catch the bus is

1. 8 sec

2. 10 sec

3. 12 sec

4. 14 sec

66. A particle has an initial velocity 11 m/s due east and a constant acceleration of 2 m/s^2 due west. The distance covered by the particle in sixth second is

1. zero

2. 0.5 m

3. 1 m

4. 2 m

67. A point moves in a straight line so that its displacement x metre at time t sec is given by $x^2=1+t^2$. Its acceleration in m/s^2 at time t sec is

1. $\frac{1}{x^2}$

2. $\frac{1}{x}-\frac{1}{x^2}$

3. $\frac{1}{x}-\frac{t^2}{x^3}$

4. $\frac{-t}{x^2}$

68. A body starts from rest with uniform acceleration and remains in motion for n seconds. If its final velocity after n second is v, then its displacement in the last two seconds will be

1. $\frac{2v(n+1)}{n}$

2. $\frac{v(n+1)}{n}$

3. $\frac{v(n-1)}{n}$

4. $\frac{2v(n-1)}{n}$

69. Two particles A and B are separated from each other by a distance l. At time t = 0, particle A starts moving with uniform acceleration a along a line perpendicular to the initial line joining A and B. At the same moment, particle B starts moving with acceleration of constant magnitude b (> a) such that particle B always points towards the instantaneous position of A. The distance travelled by B till the moment B converges with A will be

1. $\frac{b^2l}{b^2-a^2}$

2. $\frac{a^2l}{b^2-a^2}$

3. $\frac{(b^2+a^2)l}{b^2-a^2}$

4. $\frac{(b^2-a^2)l}{b^2+a^2}$

70. An aeroplane is rising vertically with acceleration f. Two stones are dropped from it at an interval of time t. The distance between them at time t' after the second stone is dropped will be

1. $\frac{1}{2}(g+f)tt'$

2. $\frac{1}{2}(g+f)(t+2t')t$

3. $\frac{1}{2}(g+f)(t-t')^2$

4. $\frac{1}{2}(g+f)(t+t')^2$

71. The moment of the force, $\vec{F}=4\hat{\imath}+5\hat{\jmath}-6\hat{k}$ at (2, 0, -3), about point (2, -2, -2), is given by

1. $-8\hat{\imath}-4\hat{\jmath}-7\hat{k}$

2. $-4\hat{\imath}-\hat{\jmath}-8\hat{k}$

3. $-7\hat{\imath}-4\hat{\jmath}-8\hat{k}$

4. $-7\hat{\imath}-8\hat{\jmath}-4\hat{k}$

72. A particle moves so that its position vector is given by $\vec{r}=cos\omega tx+sin\omega ty$. Where ω is a constant. Which of the following is true?

1. Velocity and acceleration both are perpendicular to $\vec{r}$

2. Velocity and acceleration both are parallel to $\vec{r}$

3. Velocity is perpendicular to $\vec{r}$ and acceleration is directed towards the origin

4. Velocity is perpendicular to $\vec{r}$ and acceleration is directed away from the origin.

73. The position vector of a particle $\vec{R}$ as a function of time is given by :

$\vec{R} = 4\sin(2\pi t)\hat{\imath} + 4\cos(2\pi t)\hat{\jmath}$. Where R is in meter, t is in seconds and $\hat{\imath}$ and $\hat{\jmath}$ denote unit vectors along x- and y-directions, respectively ?

Which one of the following statements is wrong for the motion of particle ?

1. Magnitude of acceleration vector is v^2/R, where v is the velocity of particle

2. Magnitude of the velocity of particle is 8 meter/second

3. Path of the particle is a circle of radius 4 meter.

4. Acceleration vector is along $\vec{R}$

74. If vector $\vec{A} = cos\omega t\hat{\imath} + sin\omega t\,\hat{\jmath}$ and $\vec{B} = cos\frac{\omega t}{2}\hat{\imath} + sin\frac{\omega t}{2}\,\hat{\jmath}$ re functions of time, then the value of t at which they are orthogonal to each other is :

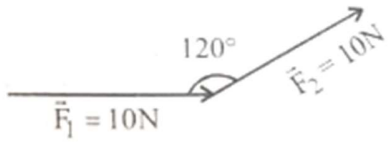
1. $t = \frac{\pi}{2\omega}$

2. $t = \frac{\pi}{\omega}$

3. $t = 0$

4. $t = \frac{\pi}{4\omega}$

75. Two forces are acting as shown in figure. The resultant of the two forces is



1. $5\sqrt{3}$ N

2. $10\sqrt{3}$ N

3. $5\sqrt{5}$N

4. None of these

76. A ship A is moving Westwards with a speed of 10 km h^{-1} and a ship B 100 km South of A, is moving Northwards with a speed of 10 km h^{-1}. The time after which the distance between them becomes shortest is :

1. 5 h

2. $5\sqrt{2}$ h

3. $10\sqrt{2}$ h

4. 0 h

77. A boat is moving with velocity 2i + 3j with respect to ground. The water in the river is moving with a velocity -2j -3j with respect to ground. The relative velocity of the boat with respect to water is

1. 4 j

2. -4 + 6j

3. 4 i + 6j

4. 6 j

78. The equation of a projectile is y = $\sqrt{3}x - \frac{gx^2}{2}$

The angle projection is given by

1. $tan\theta = \frac{1}{\sqrt{3}}$
2. $tan\theta = \sqrt{3}$
3. $\frac{\pi}{2}$
4. Zero

79. A particle is projected with a velocity v such that its range on the horizontal plane is twice the greatest height attained by it. The range of the projectile is (where g is acceleration due to gravity)

1. $\frac{4v^2}{5g}$
2. $\frac{4g}{5v^2}$
3. $\frac{v^2}{g}$
4. $\frac{4v^2}{\sqrt{5}g}$

80. A projectile can have the same range R for two angles of projection. It t_1 and t_2 be the times of flight in the two cases, then what is the product of two times of flight?

1. $t_1 t_2 \propto R^2$

2. $t_1 t_2 \propto R$

3. $t_1 t_2 \propto \frac{1}{R}$

4. $t_1 t_2 \propto \frac{1}{R^2}$

81. Two particles start simultaneously from the same point and move along two straight lines, one with uniform velocity v and other with a acceleration a. If α is the angle between the lines of motion of two particles then the least value relative velocity will be at a time given by

1. $\frac{v}{a}\sin\alpha$

2. $\frac{v}{a}\cos\alpha$

3. $\frac{v}{a}\tan\alpha$

4. $\frac{v}{a}cot\,\alpha$

82. A particle is projected over a triangle from one end of a horizontal base and grazing the vertex falls on the other end of the base.
If α and β be the base angles and θ the angle of projection, then the correct relation between α, β and θ is

1. sinθ = cosα + tanβ

2. tanθ = tanα + tanβ

3. cosθ = cosα + cosβ

4. sinα = sinθ + sinβ

83. AB is an inclined plane of inclination 30° with horizontal. Point O (point of projection) is 20 m above point A. A particle is projected horizontally and it collides with the plane AB, perpendicularly.

Speed of the particle must be (g = 10 m/s^2)

1. 13 m/s

2. $8\sqrt{3}$ m/s

3. $4\sqrt{5}$ m/s

4. $2\sqrt{5}$ m/s

84. A cricket ball thrown across a field is at height h_1 and h_2 from point of projection at times t_1 and t_2 respectively after the throw. The ball is caught by a fielder at the same

height as that of projection. The time of flight of the ball in this journey is

1. $\frac{h_1t_2^2 - h_2t_1^2}{h_1t_2 - h_2t_1}$

2. $\frac{h_1t_2^2 + h_2t_1^2}{h_1t_2 + h_2t_1}$

3. $\frac{h_1t_2}{h_2t_1 - h_1t_2}$

4. None

85. If the equation for the displacement of a particle moving on a circular path is given by (θ) = $2t^3 + 0.5$, where θ is in radian and t in second, then the angular velocity of the particle after 2 s from its start is :

1. 8 rad/s

2. 12 rad/s

3. 24 rad/s

4. 36 rad/s

86. The values of a, for which points A, B, C with position vectors $2\hat{\imath} - \hat{\jmath} + \hat{k}, \hat{\imath} - 3\hat{\jmath} - 5\hat{k}$ and $a\hat{\imath} - 3\hat{\jmath} + \hat{k}$ respectively are the vertices of a right angled triangle with angle, C $= \frac{\pi}{2}$ are

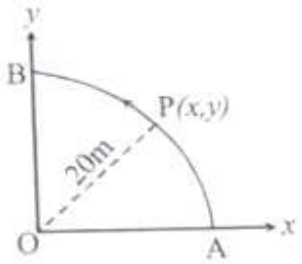
1. 2 and 1

2. -2 and -1

3. -2 and 1

4. 2 and -1

87. A point P moves in counter-clockwise direction on a circular path as shown in the figure. The movement of 'P' is such that it sweeps out a length s = $t^3 + 5$, where s is in meters and t is in seconds. The radius of the path is 20 m. The acceleration of 'P' when t = 2 s is nearly.



1. 13 m/s^2

2. 12 m/s^2

3. 7.2 m/s^2

4. 14 m/s^2

88. A particle is projected from a tower as shown in figure, then the distance from the foot of the tower where it will strike the ground will be

1. 4000/3m

2. 2000/3m

3. 1000/3m

4. 2500/3m

89. A projectile is fired with a velocity v at the right angle to the slope which is inclined at an angle θ with the horizontal. The range of the projectile along the inclined plane is :

1. $\frac{2v^2 \tan\theta}{g}$

2. $\frac{v^2 \sec\theta}{g}$

3. $\frac{2v^2 \tan\theta \sec\theta}{g}$

4. $\frac{v^2 \sin\theta}{g}$

90. If rain falls vertically with a velocity V_r wrt wind and wind blows with a velocity V_w from east to west, then a person standing on the roadside should hold the umbrella in the direction

1. $\tan\theta = \frac{V_w}{V_r}$

2. $\tan\theta = \frac{V_r}{V_w}$

3. $\tan\theta = \frac{V_w}{\sqrt{Vr^2 + Vw^2}}$

4. $\tan\theta = \frac{V_r}{\sqrt{Vr^2 + Vw^2}}$

91. The property of water that enables it to stabilize temperature in bodies of organisms and thus makes it indispensible for life is:
1. High specific heat
2. High latent heat of fusion
3. High latent heat of vaporization
4. High cohesion and adhesion

92. The element that makes up the highest percent weight of the human body is:

1. Carbon

2. Hydrogen

3. Oxygen

4. Nitrogen

93. The number of high energy bonds in a molecule of ATP is:

1. 1

2. 2

3. 3

4. 4

94. The molecule that is never branched and is straight is:
1. Amylose

2. Amylopectin

3. Glycogen

4. Cellulose

95. An amino acid that is negative charged amongst the following will be:
1. Glutamic acid

2. Lysine

3. Arginine

4. Histidine

96. The correct ascending order of percent composition of various components of a typical cell would be:
1. Protein – Carbohydrate – Lipids – Nucleic acids
2. Protein – Nucleic acids – Carbohydrate – Lipids
3. Carbohydrates – Protein – Nucleic acids– Lipids
4. Carbohydrates – Protein – Lipids – Nucleic acids

97. Type of bonds that stabilize a tertiary structure of a protein include all the following except:
1. van der Waal's interactions
2. Hydrophobic interactions
3. Disulfide linkage
4. Covalent bonds

98. Protein molecules that assist in the proper folding of other proteins are known as:
1. Ubiquitins

2. Chaperonins

3. Prions

4. Calmodulins

99. A ribosome inhibiting secondary metabolite protein found in the castor plant is:
1. Ricin

2. Abrin

3. Concanvalin A

4. Vinblastin

100. When an enzyme-substrate reaction tends toward zero order, the only way to make a reaction speed up is to:
1. Add more substrate
2. Add more enzyme
3. Increase the temperature
4. Increase the pressure in the medium

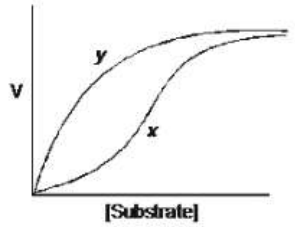
101. The Glucose transpoter protein present in the baso-lateral surface of the intestinal epithelial cells is:
1. GLUT 1

2. GLUT 2

3. GLUT 3

4. GLUT 4

102. The plot represents the relationship between substrate concentration and velocity for a single enzyme in the absence (curve x) and presence (curve y) of a compound that binds allosterically to the enzyme. The allosteric compound is:



1. a competitive inhibitor.
2. a noncompetitive inhibitor.
3. an irreversible inhibitor.
4. an activator.

103. The metal ion that acts as a cofactor for both alcohol dehydrogenase and carbonic anhydrase is:
1. Magnesium

2. Iron

3. Zinc

4. Nickel

104. The living state can be best described as a:
1. non equilibrium steady state
2. non equilibrium non steady state
3. equilibrium non steady state
4. equilibrium steady state

105. The blood concentration of glucose in a normal healthy individual is:
1. 3.5 – 4.0 mM
2. 4.0 – 4.5 mM
3. 4.5 – 5.0 mM
4. 5.0 – 5.5 mM

106. All the following assumptions apply to Michaelis-Menten kinetic analyses of enzyme action EXCEPT

1. the total enzyme concentration studied at each
substrate concentration is fixed in analysis of enzyme kinetics.

2. formation of enzyme-substrate complex does
not appreciably decrease the concentration of substrate.

3. Km decreases with competitive inhibition.

4. maximal velocity is reached when the enzyme substrate complex is equal to the total concentration of enzyme present.

107. The conversion of glucose into lactic acid in
our muscles takes place in:
1. 9 metabolic steps
2. 10 metabolic steps
3. 11 metabolic steps
4. 12 metabolic steps

108. The living state is synonymous with:
1. Cellular organization
2. Metabolism
3. Consciousness
4. Reproduction

109. In case of incomplete dominance, the F1 progeny of a monohybrid cross resemble:
1. Either of the parents
2. The male parent
3. Neither of the parents
4. Both parents

110. What is applicable to both Klinefelter's syndrome and Turner's syndrome?
I. They result from non-disjunction of sex chromosomes during gamete formation
II. They can be identified by a karyotype
III. They have 44 autosomes

1. I and II only

2. I and III only

3. II and III only

4. I, II and III

111. An exchange of segments between nonhomologous chromosomes is called as:
1. Crossing over
2. Inversion
3. Reciprocal translocation
4. Transposing

112. Suppose two genes A and B are located on the same chromosome but are 60 map units apart. What fraction of the progeny from the cross AB/ab x ab/ab would be Ab/ab?
1. 60%

2. 50%

3. 30%

4. 25%

113. If a father and son are both affected by redgreen colour blindness, then what can be said definitely?
I. The son has received the trait from the father.
II. The mother of the affected son has to be affected by red-green colour blindness.
III. Any sister of the affected son can never be affected by red-green colour blindness,

1. I and II only

2. I and III only

3. II and III only

4. None

114. If individuals of genotype AaBbCc are intercrossed, how many different phenotypes can appear in their offspring?
1. 3

2. 6

3. 8

4. 9

115. Genes A and B are farther apart than are genes A and C, and all three are linked. What cannot be concluded?

1. B might be between A and C.

2. C might be between A and B.

3. A might be between B and C.

4. More crossovers will occur between A and B than between A and C.

116. A man of which of the following blood groups could not be the father of a group O child?

1. A

2. B

3. O

4. AB

117. Two garden pea dihybrids with round seed shape and yellow seed color [R_rY_y] are intercrossed. Assuming independent assortment, the gene for seed shape is inherited by the progeny in a phenotypic ratio of:

1. 3 : 1

2. 1 : 1

3. 9 : 3 : 3 : 1

4. 1 : 1 : 1 : 1

118. The gene for the enzyme Phenylalanine hydroxylase is located on chromosome:

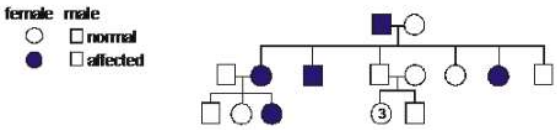
1. 7

2. 11

3. 12

4. X

119. A human geneticist determined the pedigree shown in the diagram with filled symbols showing the affected individuals. How is this pattern of inheritance described?



1. autosomal dominant

2. autosomal recessive

3. sex-linked recessive

4. sex-linked dominant

120. Consider the following statements regarding Y chromosome in humans:
I. Y chromosome is sex-determining chromosome in humans
II. Y chromosome contains a gene, SRY, which triggers embryonic development as a male
III. 50 % of sons of a male inherit his Y chromosome

Of the given statements, the correct statements are:

1. I and II only

2. I and III only

3. II and III only

4. I, II and III

121. Mating between black rats of identical genotype produced offspring as follows: 14 cream colored, 47 black and 19 albino. This ratio can be explained if the pheneomenon exhibited here is:

1. Recessive epistasis

2. Polygenic inheritance

3. Multiple allelism

4. Incomplete penetrance

122. Identify the incorrect statement regarding test cross?

1. It is used to determine the genotype of an individual exhibiting a dominant phenotype.

2. The testcross parent is always homozygous recessive for all of the genes under consideration.

3. The purpose of the testcross is to discover how many different kinds of gametes are being produced by the individual whose genotype is in question.

4. A homozygous dominant individual will produce two types of progeny and a heterozygous individual will produce only one type of progeny

123. Sickle cell disease is an example of:
1. Sex linked recessive disorder
2. Pleiotropy
3. Polygenic trait
4. Sex influenced trai

124. Unattached earlobes is dominant to attached earlobes. Two parents, both with unattached earlobes, had a child with attached earlobes. What are the chances that their next child will have attached earlobes?
1. 0 %

2. 25 %

3. 50 %

4. 100 %

125. What decides the frequency of an allele in a population?
1. Dominance
2. Its location on a particular chromosome
3. Its degree of expression
4. Natural selection

126. What is the number of linkage groups in humans?
1. 22

2. 23

3. 24

4. 46

127. Assuming complete dominance – recessiveness and independent assortment, the ratio of progeny with the genotypes AaBb, AABb, Aabb and aaBb from a cross AaBb X AABb would respectively be:

1. 4 : 4 : 2 : 0

2. 4 : 2 : 4 : 2

3. 4 : 4 : 2 : 2

4. 4 : 4: 2 : 1

128. A certain gene has 5 alleles. What will be the number of possible genotypic combinations?
1. 5

2. 15

3. 32

4. 2

129. How many unique gametes could be produced through independent assortment by an individual with the genotype AaBbCCDdEE?

1. 4

2. 8

3. 16

4. 32

130. Three babies were mixed up in a hospital. After consideration of the data below, which of the following represent the correct baby and parent combinations?

Couple# Blood Groups	I A and A	II A and B	III B and O
Baby # Blood Groups	1 B	2 O	3 AB

1. I-3, II-1, III-2

2. I-1, II-3, III-2

3. I-2, II-3, III-1

4. I-2, II-1, III-3

131. Chromosomes and genes share all of the following characteristics except that

1. they are both present in pairs in all diploid cells.

2. they both undergo segregation during meiosis.

3. their copy numbers in the cell decrease after meiosis, and increase during fertilization.

4. they both pair up with their homologues during prophase of mitosis

132. The improvement of microscopy techniques in the late 1800s set the stage for the emergence of modern genetics because

1. it revealed new and unanticipated features of Mendel's pea plant varieties.

2. it allowed biologists to study meiosis and mitosis, revealing the parallels between the behaviors of genes and chromosomes.

3. it allowed scientists to see the DNA present within chromosomes.

4. it led to the discovery of mitochondria

133. When Thomas Hunt Morgan crossed his red-eyed F1 generation flies to each other, the F2 generation included both red- and white-eyed flies. Remarkably, all the white-eyed flies were male. What was the explanation for this result?

1. The involved gene was on the X chromosome.

2. The involved gene was on the Y chromosome.

3. The involved gene was on an autosome.

4. Other male-specific factors influence eye color in flies

134. Males are more often affected by sex-linked traits than females because

1. males are hemizygous for the X chromosome.

2. male hormones such as testosterone often exacerbate the effects of mutations on the X chromosome.

3. female hormones such as estrogen often compensate for the effects of mutations on the X.

4. X chromosomes in males generally have more mutations than X chromosomes in females

135. It was important that Mendel examined not just the F1 generation in his breeding experiments, but the F2 generation as well, because:

1. He obtained very few F1 progeny, making statistical analysis difficult.

2. Parental traits that were not observed in the F1 reappeared in the F2, suggesting that the traits did not truly disappear in the F1.

3. Analysis of the F1 progeny would have allowed him to discover the law of segregation, but not the law of independent assortment.

4. The dominant phenotypes were visible in the F2 generation, but not in the F1.

136. Two true-breeding stocks of pea plants are crossed. One parent has red, axial flowers and the other has white, terminal flowers; all F1 individuals have red, axial flowers. If 1,000 F2 offspring resulted from the cross, approximately how many of them would you expect to have red, terminal flowers? (Assume independent assortment).

1. 65

2. 190

3. 250

4. 565

137. An abnormal human of the karyotype 49, XXXYY will form how many Barr bodies?

1. 1

2. 2

3. 3

4. 4

138. When the two genes in a dihybrid cross are situated on the same chromosome:

1. The proportion of parental gene combinations was much higher than the non-parental type.

2. The proportion of parental gene combinations was much lesser than the non-parental type.

3. The proportion of parental gene combinations was equal to the non-parental type.

4. Only recombinants are formed.

139. Match each item in COLUMN I with one in COLUMN II and select your answer from the codes given:

	COLUMN I		COLUMN II
	SCIENTIST		CONTRIBUTION
A.	Francis Crick	a.	Breaking the genetic gode
B.	Nirenberg	b.	Established Coenorhabditis elegan

			s as a model genetics study organism
C.	Benzer	c.	Central dogma of molecular biology
D.	Brenner	d.	Bacteriophage genetics

Codes:

	A	B	C	D
1.	c	a	d	b
2.	c	a	b	d
3.	a	b	c	d
4.	a	c	d	b

140. The mechanism of sex determination in grasshoppers is:
1. XX – XY; male heterogamety
2. XX – XY; female heterogamety
3. XX – XO; male heterogamety
4. XX – XO; female heterogamety

141. Male pattern baldness is a _____ trait.
1. Sex-linked

2. Sex-limited

3. Sex-influenced

4. Y-linked

142. Griffith co-injected the heat killed S and live R strains of Pneumococcus bacterium into the mice and much to his surprise the mice developed pneumonia and died. He concluded that:
I. Live R were transformed into Live S strain as he was able to isolate Live S strain from the blood of the infected mice.
II. Bacterial transformation is a stable and heritable change as the culture of bacteria isolated from dead mice were unable to infect other mice.

1. Both I and II are correct
2. Only I is correct
3. Only II is correct
4. Both I and II are incorrect

143. The radius of the double helix of B-DNA [Watson and Crick model] is approximately:
1. 1.0 nm

2. 2.0 nm

3. 0.34 nm

4. 3.4 nm

144. An RNA primer is essential for DNA synthesis carried out by DNA polymerase III. This is because, to synthesize DNA, DNA polymerase III requires:

1. A free 3′ – PO4 group
2. A free 5′ – PO4 group
3. A free 3′ – OH group
4. A free 5′ – OH group

145. On examining a sample of human DNA, it was found that it contains approximately 24 % thymine. Which of the following would be true based on this finding?

1. The amount of adenine in a similar sample of DNA from any human being will be approximately 24 %.

2. The amount of adenine in a similar sample of DNA from any living being will be approximately 24 %.

3. The amount of adenine in a similar sample of DNA from any eukaryotic cell will be approximately 24 %.

4. The amount of adenine in a similar sample of DNA from any mammal will be approximately 24 %.

146. Which of the following possible modes of replication was eliminated by Meselson and Stahl based on the finding after one generation of replication of the bacterium?

1. Dispersive

2. Semi-conservative

3. Conservative

4. Both 1 and 3

147. What would be the effect of a mutation in the operator region of the lac operon that leads to inability of the repressor to bind to the operator?
1. The lac ZYA genes would be inducible by lactose
2. The lac ZYA genes will be repressed by lactose
3. The lac ZYA genes will not be expressed
4. The lac ZYA genes will be expressed constitutively

148. It is possible to insert the DNA from one virus (virus A) into the protein coat of a different virus (virus B). If such a composite virus infected a cell, the resultant viruses produced in the host cell would have DNA like virus ____ and protein like _____.

1. A;B

2. A;A

3. B;B

4. B;A

149. The mRNA codon GUG codes for:
1. Valine
2. Glutamic acid
3. Tryptophan
4. Formylated methionine

150. What defines the template and coding strand of DNA for transcription?
1. Presence of the structural gene in a transcription unit
2. The core RNA polymerase enzyme
3. Presence of the promoter in a transcription unit
4. Presence of 3′ – 5′ TAC codon on the DNA template

151. What radioactive isotope was used in Meselson and Stahl experiment to prove the semiconservative mode of DNA replication?
1. ^{35}S

2. ^{32}P

3. ^{15}N

4. None

152. In eukaryotes RNA polymerase III transcribes:
1. hnRNA, snRNAs and 5.8S RNA
2. tRNA, 5.8S RNA and snRNAs
3. tRNA, 5SrRNA and snRNAs
4. rRNAs – 28S, 18S and 5S

153. Identify the incorrect statement:
1. The DNA of the bacteriophage ϕ X 174 has 5386 nucleotides

2. Bacteriophage lambda DNA has 48502 base pairs

3. The DNA of Escherechia coli has 4.6×10^3 base pairs

4. Haploid content of human DNA is 3.3×10^9 base pairs

154. In a DNA strand, two nucleotides are linked through a _____ linkage to form a dinucleotide.
1. 3′ – 5′ phoshodiester bond

2. 5′ – 3′ phosphodiester bond
3. 1′ N-glycosidic bond
4. Two or three hydrogen bonds

155. A mammalian cell typically has 1.2 meters (when completely outstretched) of double stranded genomic DNA. The total time to duplicate the DNA is 5 hours. How many origins of replication are there if the rate of duplication is 16μmeters/min?
1. 250
2. 15000
3. 100
4. 500

156. The bacterial promotor sequence usually found at the -10 position (ten base pairs upstream of the transcription start site) is:

1. TTGACA

2. TAGACA

3. TATAAT

4. TATTAT

157. Under conditions where methionine must be
the first amino acid, what protein would be coded for by the following mRNA?

5'-CCUCAUAUGCGCCAUUAUAAGUGACACACA-3'
1. pro his met arg his tyr lys cys his thr
2. met arg his tyr lys cys his thr
3. met arg his tyr lys
4. met pro his met arg his tyr lys cys his thr

158. Replication in prokaryotes differs from replication in eukaryotes for which of the following reasons?

1. Prokaryotic chromosomes have histones, whereas eukaryotic chromosomes do not.

2. Prokaryotic chromosomes have a single origin of replication, whereas eukaryotic chromosomes have many.

3. The rate of elongation during DNA replication is slower in prokaryotes than in eukaryotes.

4. Prokaryotes produce Okazaki fragments during DNA replication, but eukaryotes do not.

159. A molecule of tRNA with anticodon AAA will transport the amino acid:
1. Lysine

2. Methionine

3. Arginine

4. Phenylalanine

160. A nonsense mutation typically involves

1. Confusion of which amino acids go where in the polypeptide chain.

2. Expansions of the ends of chromosomes due to repeated nucleotides.

3. Inappropriate termination of translation early in the “reading frame”.

4. A mistake that causes a portion of a chromosome to “flip” in orientation.

161. Regarding gene expression, which of these accurately distinguish prokaryotes from eukaryotes?

1. Nucleotides in the promoter are different in prokaryotes and eukaryotes.

2. Genes are more widely-spaced apart in eukaryotes than prokaryotes.

3. Prokaryotic ribosomes look different than eukaryotic ones.

4. Prokaryotic ribosomes translate mRNA transcripts that are still being synthesized by RNA polymerase.

162. The region of a gene which "tells" RNA polymerase where the genetic message is located is called the:

1. Start codon.

2. Promoter.

3. Transcription factor.

4. Initiator.

163. Which is responsible for the production of a peptide bond between adjacent amino acids during translation?

1. Peptidyl transferase activity of the large subunit.

2. Proteins in the large and small subunit of the ribosome.

3. Ribozyme activity of tRNA.

4. The charging effect of aminoacyl tRNA synthetase.

164. Which of the following is likely if there is a mutation in the lacY gene of the lac operon in E.coli?

1. The lac genes would be expressed efficiently only in the absence of lactose.

2. The lac genes would be expressed efficiently until the lactose supply in the cell is exhausted.

3. The lac genes would be expressed continuously.

4. Expression of the lac genes would cease immediately.

165. Consider the following two statements:
I. During transcription, the template strand is read in a 3'-to-5' direction.
II. During transcription, an RNA is transcribed in the 5'-to-3' direction.
The correct statements is/are:

1. I only

2. II. Only

3. I and II

4. None

166. Identify the correct statements from the given statements and choose the correct option:
I. Both prokaryotic and eukaryotic mRNAs have a 5' cap.
II. Only prokaryotic mRNAs are polyadenylated at the 3' end.
III. In prokaryotes, transcription is coupled to translation.
IV. In eukaryotes, RNA splicing occurs after the mRNA is transported into the cytoplasm.
V. RNA splicing requires the formation of a spliceosome.
VI. Both prokaryotic and eukaryotic mRNAs are synthesized by RNA polymerase.

1. III, V and VI only
2. II, III, V and VI only
3. I, III, V and VI only
4. I, III, IV, V and VI only

167. A molecule that can act as a genetic material must fulfill all the following criteria except:

1. It should be able to generate its replica.

2. It should chemically and structurally be stable.

3. It should be able to express itself in the form of Medelian characters.

4. It should provide scope for rapid changes required for evolution.

168. Histones are rich in:
1. Basic amino acids lysine and arginine
2. Acidic amino acids lysine and arginine
3. Basic amino acids glutamate and aspartate
4. Acidic amino acids glutamate and aspartate

169. The difference between ATP and the nucleoside triphosphates used during DNA synthesis is that

1. The nucleoside triphosphates have the sugar deoxyribose; ATP has the sugar ribose.

2. The nucleoside triphosphates have two phosphate groups; ATP has three phosphate groups.

3. ATP contains three high-energy bonds; the nucleoside triphosphates have two.

4. ATP is found only in human cells; the nucleoside triphosphates are found in all animal and plant cells.

170. In E. coli, there is a mutation in a gene called dna B that alters the helicase that normally acts at the origin. Which of the following would you expect as a result of this mutation?

1. No proofreading will occur.

2. No replication fork will be formed.

3. The DNA will supercoil.

4. Replication will occur via RNA polymerase alone.

171. If pre-mRNA is hybridized with mature mRNA, regions loop out and can be viewed with an electron microscope. What do the looped out regions represent?

1. Excised exons.

2. Introns to be excised later.

3. Exons in the pre-mRNA.

4. Exons that are in the process of being fused together.

172. The first genetic code of life was most likely based on:
1. RNA
2. Single stranded DNA
3. Double stranded DNA
4. Proteins

173. The lac repressor protein binds to the operator region...
1. in the absence of lactose
2. in the presence of lactose
3. in the presence of cAMP
4. in the presence of glucose

174. tRNA molecules are linked to their respective amino acids by enzymes called:
1. Phenylalanine hydroxylases
2. Beta-galactosidases
3. Ornithine decarboxylases
4. Aminoacyl-tRNA synthetases

175. Which of the following pairs of codons encode the same amino acid?
1. AUG and AUC

2. UAA and UAC

3. GUA and GUG

4. UAG and UAC

176. Which of the following most accurately restates Mendel's law of segregation?

1. Genes are inherited in discrete units from one generation to the next.

2. Genes can exist in different forms, known as alleles.

3. Homologous chromosomes separate during gamete formation.

4. Genes on different chromosomes are inherited independently.

177. What key characteristic of T2 bacteriophage allowed Hershey and Chase to use it in their studies of the genetic material?

1. Its genes encode proteins that assemble to produce the viral coat.

2. It injects its genetic material into a bacterial cell.

3. It can undergo either the lytic or lysogenic life cycle.

4. It enters the bacterial cell to cause infection.

178. Which of the following is a description of chromatin?

1. All the genetic sequences contained by members of a particular species.

2. The DNA-protein complex which comprises eukaryotic chromosomes.

3. Repetitive sequences contained within the genome of an organism.

4. The protein coding sequences and their regulatory elements.

179. What is a key difference between DNA pol III and DNA ligase?

1. Only DNA pol III synthesizes phosphoester bonds.
2. Only DNA ligase synthesizes phosphoester bonds.
3. DNA pol III can synthesize DNA from 3'-5'.
4. DNA ligase can use energy from ATP rather than nucleotides.

180. A recessive pair in garden pea plant will be
1. Round pea shape
2. Yellow seed colour
3. Yellow pods
4. Axial flowers