

SRMJEEE 2017

Q1 : _____ system of units was accepted by the scientist of the general conference on weights and measures.

- A FPS
- B CGS
- C MKS
- D SI

Correct Ans : **D**

Q2 : The SI unit of gravitational constant is _____

- A Nm kg
- B $\text{Nm}^2 \text{kg}^{-2}$
- C $\text{Nm}^2 \text{kg}$
- D $\text{N}^{-1} \text{m}^{-2} \text{kg}$

Correct Ans : **B**

Q3 : A Circular disc is rotating with angular velocity ω . A man standing at the edge walks towards the centre of the disc then the angular velocity ω .

- A Decreases
- B Increases
- C No change
- D Halved

Correct Ans : **B**

Q4 : For ordinary terrestrial experiments, the observer in an inertial frame in the following cases is

- A giant revolving in giant wheel
- B a driver in sports car moving with constant speed of 200 km / h on a straight road
- C the pilot of an aeroplane which is taking off
- D a cyclist negotiating a sharp curve

Correct Ans : **B**

Q5 : The two factors on which the momentum of a body depends are _____ and _____ .

- A Velocity, time
- B Mass, weight
- C Mass, distance
- D Mass, velocity

Correct Ans : **D**

Q6 : Two forces of magnitude 5 N and 10 N act on a wooden block of mass 2 kg. If 5 N force acts towards right and 10 N force acts towards left, which one of following statements is correct?

- A Resultant force is 15 N towards left.
- B Resultant force is 15 N towards right.

- C Resultant force is 5 N towards right.
 D Resultant force is 5N towards left.

Correct Ans : **D**

Q7 : What is the dimension of stress?

- A MLT^{-2}
 B $ML^{-1}T^{-2}$
 C MLT^{-1}
 D $M^{-1}LT^{-1}$

Correct Ans : **B**

Q8 : If the temperature of a liquid is raised, then its surface tension is _____

- A decreased
 B increased
 C does not change
 D equal to viscosity

Correct Ans : **A**

Q9 : Equal masses of two substances of densities ρ_1 and ρ_2 are mixed together. The density of the mixture would be

A $\frac{1}{2}(\rho_1 + \rho_2)$

B $\sqrt{\rho_1\rho_2}$

C $\frac{\rho_1\rho_2}{\sqrt{(\rho_1\rho_2)}}$

D $\frac{2\rho_1\rho_2}{(\rho_1 + \rho_2)}$

Correct Ans : **D**

Q10 : For aluminium the bulk modulus of elasticity is 7.5×10^{10} N/m² and density is 2.7×10^3 kg/m³. The velocity of longitudinal waves in aluminium is

A 2.63 m/s

B 5.27×10^3 m/s

C 10.5×10^3 m/s

D 7.5 $\times 10^3$ m/s

Correct Ans : B

Q11 Which of the following does not show polarization?
:

- A Transverse wave in gas
- B Longitudinal in gas
- C Longitudinal in solids
- D Transverse wave in liquids

Correct Ans : B

Q12 The end correction for the vibrations of air column in a tube of circular cross-section will be
: more if the tube is,

- A reduced in length
- B increased in length
- C made thinner
- D indexed

Correct Ans : D

Q13 A given mass of a gas is at pressure P and absolute temperature T. The isothermal bulk
: modulus of the gas is

- A P
- B $\frac{2}{3} P$
- C $\frac{3}{2} P$
- D 2P

Correct Ans : A

Q14 A spherical black body of radius 12cm radiates 450W power at 500K. If the radius is one half
: and the temperature doubled, the power radiated in watt will be

- A 225
- B 450
- C 900
- D 1800

Correct Ans : D

Q15 The expression for the efficiency of a carnot's engine is
:

- A $1 - (T_1/T_2)$
- B $1 - T$
- C $(T_2/T_1) - 1$
- D $1 - (T_2/T_1)$

Correct Ans : **D**

Q16 Which of the following is adiabatic gas equation?

:

- A $PV = \text{Const}$
- B $PV^\gamma = \text{Const}$
- C $PV^{\gamma-1} = \text{Const}$
- D $P \propto 1/V$

Correct Ans : **B**

Q17 _____ is defined as the angle of incidence in the denser medium for which the corresponding angle of refraction in the rarer medium is 90°

- A critical angle
- B shearing angle
- C polarising angle
- D dip angle

Correct Ans : **A**

Q18 The velocity of light in vacuum is _____

:

- A $\sqrt{\mu_0 \epsilon_0}$
- B $\frac{1}{\sqrt{\mu_0 \epsilon_0}}$
- C $\mu_0 \epsilon_0$
- D $\frac{1}{\mu_0 \epsilon_0}$

Correct Ans : **B**

Q19 The line joining the pole of the mirrors and its centre of curvature is called _____

:

- A Principal focus
- B Principal axis
- C Radius of curvature
- D Optic axis

Correct Ans : **D**

Q20 Light of wavelength 5500 \AA from narrow slit is incident on a double slit. The overall separation of 5 fringes on a screen 200 cm away is 1 cm. Calculate slit separation.

- A 0.055 cm

- B 0.055 m
- C 0.55 cm
- D 0.55 m

Correct Ans : **A**

Q21 The core used in a transformer is laminated in order to :

- A increase magnetic field
- B increase residual magnetism
- C decrease the eddy currents in the core
- D increase the eddy currents in the core

Correct Ans : **C**

Q22 In a superconductor, critical magnetic field :

- A increases if temperature decreases
- B does not depend on temperature
- C increases if temperature increases
- D remains constant

Correct Ans : **A**

Q23 A wire is cut into 4 pieces, which are put together side by side to obtain one conductor. If the original resistance of the wire was R, the resistance of the bundle will be:

- A R/4
- B R/8
- C R/16
- D R/32

Correct Ans : **C**

Q24 Magnetic lines of force _____ :

- A can not intersect at all
- B intersect within the magnet
- C intersect only at south and north poles
- D intersect at neutral point only

Correct Ans : **A**

Q25 In ruby laser, some of aluminium ions are (Al^{3+}) replaced by :

- A Copper ions (Cu^{3+})
- B Chromium ions (Cr^{3+})
- C Calcium ions (Ca^{3+})

D None

Correct Ans : **B**

Q26 Special theory of relativity treats problem involving
:

A Inertial frame of reference

B Non- inertial frame of reference

C Non- accelerated frame of reference

D Accelerated frame of reference

Correct Ans : **A**

Q27 The time interval between two event in a reference frame which is in motion is
:

A Maximum

B Minimum

C No interval

D None

Correct Ans : **A**

Q28 According to theory of relative mass of an object is
:

A Depends on particles

B Speed of light

C Volume of object

D Area of object

Correct Ans : **B**

Q29 The nucleus which is an isotope of C_{17} and also an isobar of Ar_{18} has mass number A and
: atomic number Z given by _____

A $A = 35, Z = 18$

B $A = 37, Z = 17$

C $A = 39, Z = 17$

D $A = 37, Z = 19$

Correct Ans : **C**

Q30 Which source is associated with line emission spectrum?
:

A electric fire

B red traffic light

C neon street lite

D sun

Correct Ans : **B**

Q31 Plutonium decays with half time 24000 yr. If plutonium is stored after 72000 yr, the fraction of it that remains _____

- A 1/2
- B 1/9
- C 1/12
- D 1/8

Correct Ans : **D**

Q32 If a 46 gm golf ball has velocity 36 m/s and an electron with velocity 10^7 m/s. Which of these two show wave character?

- A Electron
- B Golf ball
- C Both electron and golf ball
- D Both do not show wave character

Correct Ans : **A**

Q33 What is the net charge if a certain semiconductor losses 4 valence electrons?

- A +4
- B -4
- C +8
- D -8

Correct Ans : **A**

Q34 If the feedback fraction of an amplifier is 0.01, then voltage gain with negative feedback is approximately _____

- A 500
- B 100
- C 1000
- D 5000

Correct Ans : **B**

Q35 Electromagnetic waves transport

- A Wavelength
- B Charge
- C Frequency
- D Energy

Correct Ans : **D**

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Q36 The pyknometric density of sodium chloride crystal is $2.165 \times 10^3 \text{ kg m}^{-3}$ while its X-ray density is $2.178 \times 10^3 \text{ kg m}^{-3}$. The fraction of the unoccupied sites in sodium chloride crystal is

- A 5.96
- B 5.96×10^{-1}
- C 5.96×10^{-2}
- D 5.96×10^{-3}

Correct Ans : **D**

Q37 The sharp melting point of a crystalline solid is due to

:

- A Regular arrangement of constituent particles observed over a short distance in the crystal lattice
- B Regular arrangement of constituent particles observed over a long distance in the crystal lattice
- C Same arrangement of constituent particles in different directions
- D Different arrangement of constituent particles in different directions

Correct Ans : **B**

Q38 The de Broglie wavelengths of electron waves in two orbits is 3:5. The ratio of kinetic energy of electrons will be

- A 3:5
- B 5:3
- C 25:9
- D 9:25

Correct Ans : **C**

Q39 Which of the following is atypical element?

:

- A Li
- B Na
- C F
- D N

Correct Ans : **C**

Q40 Which one of the following sets of elements has the strongest tendency to form negative ions in gaseous state?

- A Na, Mg, Al
- B Ca, V, Cr
- C N, O, F
- D Ga, In, Tl

Correct Ans : **C**

Q41 The correct order of second ionization potential of carbon, nitrogen, oxygen and fluorine is :

- A** $C > N > O > F$
- B** $O > N > F > C$
- C** $O > F > N > C$
- D** $F > O > N > C$

Correct Ans : **C**

Q42 A neutral atom (Atomic number > 1) consists of :

- A** Only protons
- B** Neutrons + protons
- C** Neutrons + electrons
- D** Neutrons + proton + electrons

Correct Ans : **D**

Q43 The total number of electrons that can be accommodated in the fourth principal energy level is _____

- A** 2
- B** 8
- C** 18
- D** 32

Correct Ans : **D**

Q44 0.0025 has _____ significant figure :

- A** 1
- B** 2
- C** 3
- D** 4

Correct Ans : **B**

Q45 The values of four quantum numbers of valence electron of an element are $n = 4, l = 0, m = 0$: and $s = +1/2$. The element is :

- A** Na
- B** K
- C** Ti
- D** Sc

Correct Ans : **B**

Q46 The molecular formula of dithionic acid is :

- A $\text{H}_2\text{S}_2\text{O}_4$
- B $\text{H}_2\text{S}_2\text{O}_6$
- C $\text{H}_2\text{S}_2\text{O}_5$
- D $\text{H}_2\text{S}_2\text{O}_7$

Correct Ans : **B**

Q47 Which of the following species has the maximum bond order?

:

- A O_2
- B O_2^-
- C O_2^{2-}
- D O_2^+

Correct Ans : **D**

Q48 The least metallic of the S block element is

:

- A Be
- B Li
- C Mg
- D Na

Correct Ans : **A**

Q49 The relationship between equilibrium constant K and free energy change of the process is given

by

- A $\Delta G = -RT \log K$
- B $\Delta G^\circ = RT \log 1/K$
- C $\Delta G^\circ = 2RT \log K$
- D $\Delta G^\circ = 2.303 RT \log K^{-1}$

Correct Ans : **D**

Q50 Which of the following salt will have same value of Vant Hoff's factor, 'i' as that of $\text{K}_4[\text{Fe}(\text{CN})_6]$?

:

- A $\text{Al}_2(\text{SO}_4)_3$
- B NaCl
- C $\text{Al}(\text{NO}_3)_3$
- D Na_2SO_4

Correct Ans : **A**

Q51 Identify the correct statement regarding a spontaneous process

:

- A For a spontaneous process in an isolated system, the change in entropy is positive
- B Endothermic processes are never spontaneous

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- C Exothermic processes are always spontaneous
- D Lowering of energy in the reaction process is the only criterion for spontaneity

Correct Ans : **A**

Q52 Osmotic pressure is a colligative property because it

:

- A Depends on the number of solution particles and not on its nature
- B Depends on the identify of the solute and not on its number
- C Depends both nature and number of solute particles
- D Is independent of nature and number of solute particles

Correct Ans : **A**

Q53 According to Henry's law, the volume of a gas dissolved in a solvent at a given temperature is

:

- A dependent of pressure
- B independent of concentration
- C dependent of concentration
- D independent of pressure

Correct Ans : **D**

Q54 The correct order of increasing basicity of the given conjugate bases ($R = CH_3$) is

:

- A $RCOO^- < HC\equiv C^- < R^- < NH_2^-$
- B $R^- < HC\equiv C^- < RCOO^- < NH_2^-$
- C $RCOO^- < NH_2^- < HC\equiv C^- < R^-$
- D $RCOO^- < HC\equiv C^- < NH_2^- < R^-$

Correct Ans : **D**

Q55 Phenolphthalein can be used to determine p^H over the range of

:

- A 0-2
- B 2-4
- C 4-6
- D 8-10

Correct Ans : **D**

Q56 When sodium acetate is added to acetic acid, the degree of ionisation of acetic acid

:

- A increases
- B decreases
- C does not change
- D becomes zero

Correct Ans : **B**

Q57 The rays from the radioactive element which gets deflected to the positive pole under strong electric field are called

- A** alpha rays
- B** beta rays
- C** gamma rays
- D** delta rays

Correct Ans : **B**

Q58 Which of the following relation between average life period (t) and the disintegration constant (λ) of the radio element is correct

- A** $t = 1/\lambda$
- B** $t = \lambda$
- C** $t = -\lambda$
- D** $t\lambda = 0$

Correct Ans : **A**

Q59 In paper chromatography, the stationary and mobile phases are

- A** both liquids
- B** solid and liquid respectively
- C** liquid and solid respectively
- D** both solids

Correct Ans : **A**

Q60 Process in which solid is directly converted to vapors state is called

- A** Filtration
- B** Distillation
- C** Solvation
- D** Sublimation

Correct Ans : **D**

Q61 If a bond breaks in such a way that both electrons remain with one fragment, the mechanism is called

- A** Heterolytic
- B** Homolytic
- C** Electrocyclic
- D** Pericyclic

Correct Ans : **A**

Q62 The isocyanates obtained in the reaction of Hoffman, Curtius, Lossen and Schimdt. Hydrolysed
: to give

- A Amides
- B Amines
- C Acids
- D Cyanides

Correct Ans : **B**

Q63 Olefin means

:

- A ethene
- B unsaturated
- C oil forming
- D having tripple bond

Correct Ans : **C**

Q64 Select the substance which has only one

: Pi (π) bond in its molecule.

- A Acetylene
- B Acrolein
- C Propene
- D 2-Butenoic acid

Correct Ans : **C**

Q65 Which of the following reagents can convert acetone to acetic acid?

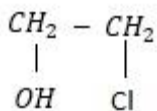
:

- A AgNO_3 ; NH_4OH
- B LiAlH_4
- C Conc. HCl
- D I_2 , NaOH ; dilute HCl

Correct Ans : **D**

Q66

:



on boiling with NaOH gives

- A Ethanal
- B Ethanol
- C Glycol
- D 2 - propanone

Correct Ans : **C**

Q67 Gabriel's phthalimide reaction is used for the synthesis of

:

- A** aromatic 1° amines
- B** aliphatic 1° amines
- C** aromatic 2° amines
- D** aliphatic 2° amines

Correct Ans : **B**

Q68 $\text{RMgX} + \text{CN Cl} \rightarrow \text{X}$. X is

:

- A** NCO
- B** NC
- C** CN
- D** Cl^-

Correct Ans : **C**

Q69 Butadiene and styrene undergoes joint polymerization to form

:

- A** SBR rubber
- B** Neoprene
- C** Thiokol
- D** Hypalon

Correct Ans : **A**

Q70 What are the structural units of proteins?

:

- A** Amylopectin
- B** Equal portion of sugar and amino acids
- C** Amino acids
- D** Glucose

Correct Ans : **C**

Q71 In a town of 1000 families it was found that 40% families buy India Today, 20% families buy 'Frontline' and 10% families buy the week. 5% buy India today and frontline, 3% buy Frontline and the Week and 4% buy the Week and India Today. If 2% families buy all the 3 magazines, the number of families which buy Frontline only is

- A** 330
- B** 140
- C** 300
- D** 200

Correct Ans : **B**

Q72 If $\tan(A + B) = m$ and $\tan(A - B) = n$ then value of $\tan 2A$ is :

- A** $\frac{m+n}{1-mn}$
B $\frac{m+n}{1+mn}$
C $\frac{mn}{1-mn}$
D $\frac{mn}{1+mn}$

Correct Ans : **A**

Q73

:

$$f(x) = \frac{\log_2(x+3)}{x^2+3x+2}$$

The domain of definition of

is

- A** $R - [0, -2]$
B $(-2, \infty)$
C $R - \{-1, -2, -3\}$
D $(-3, \infty) - (-1, -2)$

Correct Ans : **D**

Q74

:

If A and B are two sets such that $n(A \cup B) = 36$, $n(A \cap B) = 16$ and $n(A - B) = 15$, then $n(B)$ is equal to

- A** 21
B 31
C 20
D 52

Correct Ans : **A**

Q75 If every pair from among the

:

equations $x^2 + px + qr = 0$, $x^2 + qx + rp = 0$ and $x^2 + rx + pq = 0$ has a common root then the product of three common roots is

- A** pqr
B $2pqr$
C $p^2 q^2 r^2$
D \sqrt{pqr}

Correct Ans : **A**

Q76 If z and ω are non-zero complex numbers such

:

$$|z\omega| = 1 \text{ and } \arg(z) - \arg(\omega) = \frac{\pi}{2}, \text{ then } \bar{z}\omega$$

that

is equal to

A 1

B -1

C i

D $-i$

Correct Ans : **D**

Q77

:

$$\left[\frac{\frac{\sqrt{3}}{2} + \left(\frac{1}{2}\right)i}{\frac{\sqrt{3}}{2} - \left(\frac{1}{2}\right)i} \right]^{120} = p + iq$$

If , then

A $p = \cos 20^\circ, q = \sin 20^\circ$

B $p = -\cos 20^\circ, q = -\sin 20^\circ$

C $p = \cos 20^\circ, q = -\sin 20^\circ$

D $p = 1, q = 0$

Correct Ans : **D**

Q78

:

If $A = \begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix}$ and $n \in \mathbb{N}$ then A^n is equal to

A $2^n A$

B $2^{n-1} A$

C nA

D none of these

Correct Ans : **B**

Q79

:

If a, b, c are sides of a triangle and $\begin{vmatrix} a^2 & b^2 & c^2 \\ (a+1)^2 & (b+1)^2 & (c+1)^2 \\ (a-1)^2 & (b-1)^2 & (c-1)^2 \end{vmatrix} = 0$ then ΔABC is

A equilateral

B right angled isosceles

C isosceles

D right angled

Correct Ans : **C**

Q80 Which of the following is not elementary transformation?

:

- A** $R_i \leftrightarrow R_j$
B $R_i \rightarrow 2R_i + R_j$
C $C_i \rightarrow C_j + C_i$
D $R_i \rightarrow R_i + C_j$

Correct Ans : **D**

Q81

∴ If $\Delta = \begin{vmatrix} 1 & 2 & 3 \\ 2 & 5 & 7 \\ 3 & 9 & 13 \end{vmatrix}$ and $\Delta' = \begin{vmatrix} 7 & 20 & 29 \\ 2 & 5 & 7 \\ 3 & 9 & 13 \end{vmatrix}$ then

- A** $\Delta' = 3\Delta$
B $\Delta' = \frac{3}{\Delta}$
C $\Delta' = \Delta$
D $\Delta' = 2\Delta$

Correct Ans : **C**

Q82 How many different signals can be given by using any number of flags from six flags of different colors?

- A** 1236
B 516
C 720
D 1956

Correct Ans : **D**

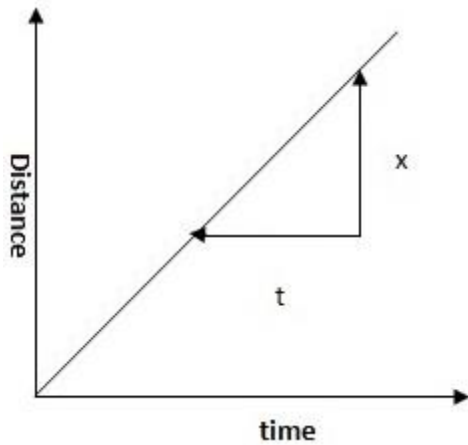
Q83 If $\forall n \in \mathbb{N}$,

∴ Let $p(n) = 1 + 3 + 5 + \dots + (2^n - 1) = 3 + n^2$ then which of the following is true?

- A** $p(1)$ is true
B $p(k)$ is true $\Rightarrow p(k + 1)$ is true
C $p(k)$ is true, $p(k + 1)$ is not true
D $p(k)$ is not true $\Rightarrow p(k + 1)$ is true

Correct Ans : **B**

Q84 The following graph gives the functional relationship between distance and time of a moving car : in m/sec. The speed of the car is



- A x/t m/s
- B t/x m/s
- C dx/dt m/s
- D dt/dx m/s

Correct Ans : **A**

Q85

: $\lim_{x \rightarrow \infty} \left(\operatorname{cosec} x - \frac{1}{x} \right) =$

- A 0
- B 1
- C 3
- D 5

Correct Ans : **A**

Q86

: The set of points, where $f(x) = \frac{x}{1 + |x|}$ is differentiable, is:

- A $(-\infty, -1) \cup (-1, \infty)$
- B $(-\infty, \infty)$
- C $(0, \infty)$
- D $(-\infty, 0) \cup (0, \infty)$

Correct Ans : **B**

Q87 The angle of intersection of the curves $y=x^3$ and $6y=7-x^2$ at $(1,1)$ is :

- A $\frac{\pi}{4}$

B $\frac{\pi}{3}$

C $\frac{\pi}{2}$

D $\frac{\pi}{6}$

Correct Ans : **C**

Q88

:

If $[x]$ is the greatest integer function then $\int_{-2}^2 [x]^3 dx = \underline{\hspace{2cm}}$

A 0

B -8

C -1

D -4

Correct Ans : **C**

Q89

:

Let $f(2a - x) = -f(x)$. then $\int_0^{2a} f(x) dx =$

A $f(x)$

B 0

C $\int_0^a f(x) dx$

D $f(2a - x)$

Correct Ans : **B**

Q90 The area bounded by $y = x - 1$ and $y = 3 - x$ is

:

A 2

B 3

C 4

D 1

Correct Ans : **C**

Q91 The P.I of $(D^2 + 4) y = \sin h 2x$ is

:

A $y = 1/8 \sin h 2x$

B $y = 1/4 \sin h 2x$

C $y = -1/8 \sin h 2x$

D $y = -1/4 \sin h 2x$

Correct Ans : **A**

Q92 A focal chord of the parabola $y^2 = 8x$ is inclined to x-axis at an angle $\tan^{-1} 3$. Then its length is equal to:

A $80/3$

B $80/9$

C $40/3$

D $40/9$

Correct Ans : **B**

Q93 The length of the intercept made by the circle $x^2 + y^2 - 12x + 14y + 11 = 0$ on x-axis is :

A 6

B 10

C 8

D 4

Correct Ans : **B**

Q94

: The equation of the normal to the ellipse $\frac{x^2}{10} + \frac{y^2}{5} = 1$ at $(\sqrt{8}, 1)$ is

A $10x + 5y = 1$

B $y = \sqrt{2}(x + 1)$

C $x = \sqrt{2}(y + 1)$

D $y = \sqrt{8}(x + 1)$

Correct Ans : **C**

Q95 Equation of the parabola whose vertex and focus lie on the axis of x at distances a and a_1 from the origin respectively is

A $y^2 = 4(a_1 - a)x$

B $y^2 = 4(a_1 - a)(x - a)$

C $y^2 = 4(a_1 - a)(x - a_1)$

D $y^2 = 4(a - a_1)x$

Correct Ans : **B**

Q96 If $x = -2 + 3 \cos \theta$; $y = 1 + 3 \sin \theta$ then the locus of the point (x,y) is a circle with :

A centre at (-2,1) and radius = 3

B centre at (2,1) and radius = 3

C centre at (2,-1) and radius = 9

D centre at (-2,1) and radius = 9

Correct Ans : **A**

Q97 If one of the lines $ax^2+2hxy+by^2=0$ bisects the angle between positive directions of the axes : then a,h,b satisfy the relation

A $a+b=-2h$

B $(a-b)^2=4h^2$

C $a+b=2|h|$

D $(a-b)=2|h|$

Correct Ans : **A**

Q98 : A unit vector coplanar with $\vec{i} + \vec{j} + 2\vec{k}$ and $\vec{i} + 2\vec{j} + \vec{k}$ and perpendicular to $\vec{i} + \vec{j} + \vec{k}$ is

A $-\vec{j} + \vec{k}$

B $\frac{1}{\sqrt{2}}(-\vec{j} + \vec{k})$

C $\frac{1}{3}(-\vec{j} + \vec{k})$

D $\frac{1}{\sqrt{3}}(-\vec{j} + \vec{k})$

Correct Ans : **B**

Q99 : If angle between $\vec{i} - 2\vec{j} + 3\vec{k}$ and $2\vec{i} + \vec{j} + 3\vec{k}$ is θ then $\sin \theta$ equals

A $\frac{5}{\sqrt{7}}$

B $\frac{5}{21}$

C $\frac{5}{2\sqrt{7}}$

D $\frac{5}{\sqrt{14}}$

Correct Ans : **C**

Q100 If $P(A) = 1/3$, $P(B) = 3/4$ and $P(A \cup B) = 11/12$, then $P(A/B)$ is :

A $1/9$

B $1/4$

C $2/9$

D 5/9

Correct Ans : C

Q101 The geometric mean $3, 3^2, \dots, 3^n$ is :

A $3^{n/2}$

B $3^{(n+1)/2}$

C $3^{n(n+1)/2}$

D 3^n

Correct Ans : B

Q102 what is the product of three Geometric mean between 4 and $1/4$? :

A 0

B 1

C 2

D -1

Correct Ans : B

Q103 If the three successive coefficients in the binomial expansion of $(1+x)^n$ are 28, 56 and 70 : respectively then n equals

A 4

B 6

C 8

D 10

Correct Ans : C

Q104 If the sum of first n positive integer is $1/5$ times the sum of their squares, then n equals :

A 5

B 6

C 7

D 8

Correct Ans : C

Q105 The middle term in the expansion of $(x + 1/x)^{2n}$ is $1.3.5 \dots (2n-1)/2n!$:

A $1.3.5 \dots (2n-1)(2n)/n!$

B $1.3.5 \dots (2n-1)/n!.2^n$

C $2n!/n!.2^n$

D none of the above

Correct Ans : B

Q106 Excess CO₂ suppress cell growth and productivity by?

:

- A** inhibiting respiration
- B** changing osmolarity of medium
- C** increasing bacterial contamination
- D** altering pH of the medium

Correct Ans : **A**

Q107 The size of the chromosome is measured during

:

- A** Interphase
- B** Prophase
- C** Metaphase
- D** Anaphase

Correct Ans : **C**

Q108 In gene cloning which of the following are used as vehicles for carrying foreign DNA fragment

:

- A** Host cell
- B** Restriction enzymes
- C** Adaptor
- D** Vector

Correct Ans : **D**

Q109 The total number of cells in a culture is counted using the trypan blue exclusion assay and is found to be 2.7×10^6 cells/ml. The culture is diluted 1:27 and then 100 μ l seeded per well into a 96 well plate. What is the final cell density per well?

- A** 1×10^5
- B** 2.7×10^4
- C** 2.7×10^5
- D** 1×10^4

Correct Ans : **D**

Q110 Family tree can be constructed by

:

- A** Cloning
- B** Karyotyping
- C** DNA sequencing
- D** Pedigree analysis

Correct Ans : **D**

Q111 The plant having milky latex is
:

- A *Phyllanthus emblica*
- B *Ricinus communis*
- C *Jatropha curcas*
- D *Euphorbia tirucalli*.

Correct Ans : **D**

Q112 Among the following which is tree?
:

- A *Phyllanthus amarus*
- B *Ricinus communis*
- C *Phyllanthus emblica*
- D *Euphorbia antiquorum*

Correct Ans : **C**

Q113 Which among the following members is not economically important as a food?
:

- A *Solanum tuberosum*
- B *Solanum melongena*
- C *Lycopersicon esculentum*
- D *Solanum trilobatum*

Correct Ans : **D**

Q114 Pick the incorrect statement with respect to xylem parenchyma
:

- A The cell wall is thin and made up of cellulose
- B The cells store food reserves
- C The cells assist in conduction of water
- D The cells are dead at maturity

Correct Ans : **D**

Q115 Choose the best option that gives the correct match for the terms given in the columns.

Annular	1	Spring
Scalariform	2	Ring
Spiral	3	Uniform
Pitted	4	Ladder

- A 4 - 3 - 2 - 1
- B 2 - 4 - 1 - 3
- C 2 - 3 - 4 - 1
- D 3 - 4 - 1 - 2

Correct Ans : **B**

Q116 The simple type of plant body in which a single cell performs all the vital functions of life is referred to as _____

- A** Unicellular
- B** Monocellular
- C** Acellular
- D** Noncellular

Correct Ans : **A**

Q117 During the formation of periderm, a few layers of meristematic tissue are formed in the cortex. This is called _____.

- A** Periderm
- B** Phellem
- C** Phellogen
- D** Phelloderm

Correct Ans : **C**

Q118 Plant cell wall is made up of _____

- A** Cellulose, hemicelluloses and Pectin
- B** Cellulose and Pectin
- C** Cellulose, hemicelluloses and chitin
- D** Cellulose only

Correct Ans : **A**

Q119 Which of the following pairs of plant parts are both Diploid _____

- A** Nucleus and antipodals
- B** Antipodal cells and megaspore mother cells
- C** Synergids and tapetum
- D** Tapetum and sporogenous cells

Correct Ans : **D**

Q120 If mutation changes codon in such a way that there is no effect on functioning and overall structure of protein. This type of mutation is termed as _____

- A** Silent
- B** Mis sense
- C** Transition
- D** Frame shift

Correct Ans : **A**

Q121 In tetrad analysis, second-division segregation result from
:

- A** single crossover between linked genes
- B** double crossover between linked genes
- C** single crossover between a gene and a centromere
- D** independent assortment of unlinked genes

Correct Ans : **C**

Q122 In man, which of the following genotypes and phenotypes may be the correct result of
: aneuploidy in sex chromosomes?

- A** 22 pairs + Y females
- B** 22 pairs + XX females
- C** 22 pairs + XXY males
- D** 22 pairs + XXXY females

Correct Ans : **C**

Q123 The "Golden rice", aimed at curing
:

- A** Vitamin b deficiency
- B** Vitamin a deficiency
- C** Vitamin k deficiency
- D** Zinc deficiency

Correct Ans : **B**

Q124 Which of the following enzymes cut the DNA molecule at specific nucleotide sequence
:

- A** Restriction endonuclease
- B** DNA ligase
- C** RNA polymerase
- D** Exonuclease

Correct Ans : **A**

Q125 Photorespiration is also known as -----pathway
:

- A** C₂
- B** C₃
- C** C₄
- D** Carbon reduction

Correct Ans : **A**

Q126 Growth can be measured by:
:

- A Auxanometer
- B Horizontal microscope
- C Crescograph
- D All of these

Correct Ans : **D**

Q127 Photorespiration involves
:

- A Glycolate cycle
- B Kreb's cycle
- C Calvin cycle
- D CAM cycle

Correct Ans : **A**

Q128 Which of the following helps in ascent of sap?
:

- A Root pressure
- B Transpiration
- C Both a and b
- D Only b

Correct Ans : **D**

Q129 Seed dormancy allows the plants to
:

- A Overcome unfavourable climate conditions
- B Develop healthy seeds
- C Reduce viability
- D Prevent deterioration of seeds

Correct Ans : **A**

Q130 The plant Drosera is a
:

- A saprophytic
- B insectivorous
- C parasitic
- D Endophytes

Correct Ans : **B**

Q131 One of the following is a source of rubber
:

- A Hevea brasiliensis
- B Tectona grandis

- C Cedrus deodara
- D Michelia champaca

Correct Ans : **A**

Q132 Isolation and patenting useful genes of other countries without their permission or : understanding is called

- A Biopatenting
- B Biopiracy
- C Bioterrorism
- D Biowar

Correct Ans : **B**

Q133 A nitrogen fixing blue green alga is :

- A Ulothrix
- B Spirogyra
- C Anabaena
- D Rhizobium

Correct Ans : **C**

Q134 In paddy fields biological nitrogen fixation is chiefly brought by :

- A Mycorrhiza
- B Green algae
- C Cyanobacteria
- D Rhizobium

Correct Ans : **C**

Q135 Bacillus thuringiensis (Bt) strains have been used from designing novel :

- A bio - metallurgical technique
- B bio - mineralization processes
- C bio - insecticidal plants
- D bio - fertilizers

Correct Ans : **C**

Q136 B lymphocytes are integral part of :

- A Cell-mediated immunity
- B Humoral immunity
- C Innate immunity
- D Non-specific immunity

Correct Ans : **B**

Q137 Action potential is generated because of
:

- A** K ions influx
- B** K ions efflux
- C** Na ions influx
- D** Na ion efflux

Correct Ans : **C**

Q138 Hypothyroidism in adults leads to
:

- A** Cretinism
- B** Acromegaly
- C** Grave's disease
- D** Myxoedema

Correct Ans : **D**

Q139 The auditory ossicle that is attached to the tympanic membrane of external ear is
:

- A** Auditory meatus
- B** Malleus
- C** Incus
- D** Stapes

Correct Ans : **B**

Q140 Milk protein casein is broken down into paracasein by
:

- A** Chymotrypsin
- B** Renin
- C** Chymosin
- D** Trypsin

Correct Ans : **C**

Q141 Epsilon cells of islet of langerhans in pancreas secrete
:

- A** Glucagon
- B** Insulin
- C** Ghrelin
- D** somatostatin

Correct Ans : **C**

Q142 Auto-immune disorder for cholinergic receptors is
:

- A** Rheumatic Heart Disease
- B** Multiple Sclerosis
- C** Rheumatoid Arthritis
- D** Myasthenia gravis

Correct Ans : **D**

Q143 Microbes that inhibit the growth of other microorganisms termed as
:

- A** Synergism
- B** Mutualism
- C** Parasitism
- D** Antagonism

Correct Ans : **D**

Q144 A microbial disease that spreads over a very large geographic area is called:
:

- A** A pandemic
- B** An outbreak
- C** An epidemic
- D** A chronic disease

Correct Ans : **A**

Q145 Mac-Conkey medium is an example of
:

- A** Transport medium
- B** Enrichment medium
- C** Differential medium
- D** Simple medium

Correct Ans : **C**

Q146 Teichoic acids are typically found in
:

- A** Outer membranes of gram positive bacteria
- B** Cell walls of gram positive bacteria
- C** Cell walls of gram negative bacteria
- D** Outer membranes of gram negative bacteria

Correct Ans : **B**

Q147 Which of the following does not protect body surfaces:
:

- A Skin
- B Mucus
- C Gut microflora
- D Salivary amylase

Correct Ans : **D**

Q148 The affinity of an antibody can be determined by measuring :

- A Its concentration
- B The valency of antigen binding
- C The amount of antibody bound at various antigen concentrations
- D Its ability to neutralize bacterial toxins

Correct Ans : **C**

Q149 The one thing that is common to all fossil fuels is that they :

- A were originally formed in marine environment
- B represent the remains of one living organisms
- C have undergone the same set of geological processes during their formation
- D contain carbon

Correct Ans : **D**

Q150 Steam reforming is currently the least expensive method of producing :

- A Coal
- B Biogas
- C Hydrogen
- D Natural gas

Correct Ans : **C**

Q151 Which of the following acts as a natural sun block? :

- A CFC
- B ozone
- C ammonia
- D oxygen

Correct Ans : **B**

Q152 75 to 90 mm of mercury is an adult's normal :

- A Systolic pressure
- B Diastolic pressure

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- C** Peristaltic pressure
- D** Water pressure

Correct Ans : **B**

Q153 Which of these techniques is used for 'virtual endoscopy'?

:

- A** CT scan
- B** ECG
- C** MRI
- D** Ultrasonography

Correct Ans : **A**

Q154 What is meant by the term fitness according to Darwinism?

:

- A** Ability to survive and reproduce
- B** Healthy appearance
- C** Physical strength
- D** Aggressiveness

Correct Ans : **A**

Q155 Weismann cut off tails of mice generation after generation but tails neither disappeared nor shortened showing that

- A** Tail is an essential organ
- B** Darwinism was wrong
- C** Lamarckism was wrong
- D** Mutation theory was wrong

Correct Ans : **C**