GUJCET - 3 (PCM)

DATE: 31.03.2023

(ENGLISH MEDIUM)

Subject: Physics

Physics

Q1: In a photoelectric experiment the stopping potential for the incident light of wavelength $>999A$ is 2 volt. If the wavelength be changed to $=999A$, the stopping potential will be ____ ?

1) 2V
2) Zero
3) Less than 2 V
4) More than 2 V

Q2: A conductor has : $>7>$: $9\ ^{:F}V$ positive charge. The conductor has ____ ?

1) 9 electrons in excess
2) 27 electrons in excess
3) 9 electrons in short
4) 27 electrons in short

Q3: Ratio of intensities of two waves are given by4: 1. nen ratio of the amplitudes of the two waves is ____ ?

1) 2: 1
2) 1 : 2
3) 4: 1
4) 1 : 4.

Q4: In a series LCR circuit, if the applied voltage t and the current in the circuit I at any instant are given as :

t $Mt_9 \neq$ and $cMc_9 \neq 1$ 2then which of the following holds good : ____ ?

1) f $M\frac{\cdot}{V}$
2) f $N\frac{\cdot}{V}$
3) f $L\frac{\cdot}{V}$
4) none

Q5: A ray of light travelling inside a rectangular glass block of refractive index $<$is incident on the glass-air surface at an angle of incidence of $>A$. The refractive index of air is one. Under these conditions the ray will .... ?

1) emerge into the air without any deviation
2) be reflected back into the glass
3) be absorbed
4) emerge into the air with an angle of refraction equal to F9

Q6: Two parallel, long wires carry currents z and $z_<$ with $z\ N\ z_<7$When the current are in the same direction, the magnetic field at a point midway between the wire is $<9\ h$. If the direction of z is reversed, the field becomes $=9\ h$. The ratio $z\,8z_<$ is: ____ ?

1) 4
2) 3
3) 5
4) :

Q7: A cell of internal resistance 3 ohm and emf 10 volt is connected to a uniform wire of length 500 cm and resistance 3 ohm. The potential gradient in the wire is

1) =9· t 8→
2) :9· t 8→
3) <9· t 8→
4) > t 8→

Q8: **Assertion:** Neutrons penetrate matter more readily as compared to protons.
Reason: Neutrons are slightly more massive than protons.

1) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
2) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
3) Assertion is correct, reason is incorrect
4) Assertion is incorrect, reason is correct.

Q9: Beyond which frequency, the ionosphere bands any incident electromagnetic radiation but do not reflect it back towards the earth?

1) A9g b
2) >9g b
3) =9g b
4) <9g b

Q10: A p-n junction is fabricated from a semiconductor with band gap of 2.8 eV. Can it detect a wavelength of 6000nm?

1) yes
2) No
3) Both
4) None

Q11: The frequency of ac mains in India is .... ?

1) 30 $r8$ or R
2) 50 $r8$ or R
3) 60 $r8$ or R
4) 120 $r8$ or R

Q12: The earth's magnetic field always has a vertical component except at the ---- ?

1) magnetic equator
2) magnetic poles
3) geographic north pole
4) latitude >A

Q13: Choose only false statement from the following ____ ?

1) In conductors the valence and conduction band overlap
2) Substance with energy gap of the order of 10 eV are insulators
3) The resistivity of a semi conductor increase with increase in temperature
4) The conductivity of semiconductor increase with increase in temperature

Q14: A positively charged particle moving due East enters a region of uniform magnetic field directed vertically upwards. This particle will .... ?

1) move in a circular path with a decreased speed
2) move in a circular path with a uniform speed
3) get deflected in vertically upward direction
4) move in circular path with an increased speed

Q15: ω equal resistors are first connected in series and then connected in parallel. What is the ratio of the maximum to the minimum resistance

1) ω
2) $\frac{\div}{\omega^{<}}$
3) $\omega^{<}$
4) $\frac{\div}{\omega}$

Q16: **Assertion:** Space waves are used for line-of-sight communication.
Reason: Space wave travels in a straight line from transmitting anttena to receiving antenna.

1) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
2) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
3) Assertion is correct, reason is incorrect
4) Assertion is incorrect, reason is correct.

Q17: The sum of the number of neutrons and proton in the radio isotope of hydrogen is ____ ?

1) 6 2) 5 3) 4 4) 3

Q18: In a plane electromagnetic wave propagating in space has an electric field of amplitude $F : 9=t\ 8\cdot$, then the amplitude of the magnetic field is ____ ?

1) $<7C : 9:<r$
2) $F79 : 9\ =r$
3) $=79 : 9\ >r$
4) $=79 : 9\ ^{A}r$

Q19: The charges : $5<5=$ move in uniform transverse magnetic field then:

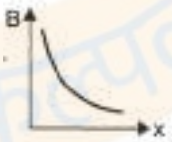
1) particle ' 1 ' positive and particle 3 negative
2) particle 1 negative and particle 3 positive
3) particle 1 negative and particle 2 neutral
4) particle 1 and 3 are positive and particle 2 neutral

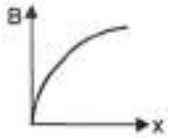
Q20: Calculate the rms value of electric field and magnetic field produced by the radiation coming from a 100 W bulb at a distance of 3 m. Assume that the efficiency of the bulb is 2.5% and it is a point source.

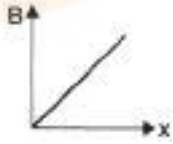
1) 2.9 V/m
2) 29 V/m
3) $29 : 9\ =k\ 8\pi$
4) 2.9×10^{-2} V/m

Q21: The variation of magnetic field F due to a long straight current-carrying wire with perpendicular distance from the wire is represented by the following curves. Select the correct curve.

1) 

2) 

3) 

4) 

Q22: The box of a pin hole camera, of length L, has a hole of radius a, It is assumed that when the hole is illuminated by a parallel beam of light of wavelength the spread of the spot (obtained on the opposite wall of the camera) is the sum of its geometrical spread and the spread due to diffraction. The spot would then have its minimum size (say b_{min}) when

1) 2 2) 4 3) 6 4) 8

Q23: Find the angle of minimum deviation for an equilateral prism made of a material of refractive index 1.732. What is the angle of incidence for this deviation ?

1) 60°, 30° 2) 30°, 60° 3) 90°, 60° 4) 60°, 60°

Q24: A parallel plate capacitor has an electric field of : $9^{A}t\ 8\cdot$ between the plates. If the charge on the capacitor plate is : $H5$ the force on each capacitor plate is[Orissa JEE 20021

1) $97Ah$
2) $979Ab$
3) $9799Ah$
4) None of these

Q25: Three equal charges each 4 are placed on the corners of an equilateral triangle of side p . Then the coulomb force experienced by one charge due to the rest of the two is ____ ?

1) $\frac{V^{<}}{p^{<}}$
2) $\frac{<V^{<}}{p^{<}}$
3) $\frac{=V^{<}}{p^{<}}$
4) zero

Q26: In refraction, light waves are bent on passing from one medium to second medium, because in the second medium.

1) Frequency is different
2) speed is different
3) Coefficient of elasticity is different
4) Amplitude is smaller

Q27: A long wire carrying a steady current is bent into a circular loop of one turn. The magnetic field at the centre of the loop is F . It is then bent into a circular coil of ω turns. The magnetic field at the centre of this coil of ω turns will be ____ ?

1) $<\mathrm{T}$
2) $<\omega^{<}F$
3) T
4) $\omega^{<}F$

Q28: In an $\mathrm{S\,V}$ generator, a coil with h turns, all of the same area A and total resistance f , rotates with frequency in a magnetic field B. The maximum value of emf generated in the coil is ____ ?

1) N.A.B.R.
2) N.A.B.
3) N.A.B.R.
4) N.A.B.

Q29: The frequency of incident light falling on a photosensitive metal plate is doubled, the kinetic energy of the emitted photoelectrons is ____ ?

1) double the earlier value
2) unchanged
3) more than doubled
4) less than doubled

Q30: Magnetic lines of force due to a bar magnet do not intersect because ---- ?

1) a point always has a single net magnetic field
2) the lines have similar charges and so repel each other
3) the lines always diverge from a single force
4) the lines need magnetic lenses to be made to interest

Q31: Electrons in the atom are held to the nucleus by .... ?

1) coulomb's force
2) nuclear force
3) vander waal's force
4) gravitational force

Q32: In a p-n junction diode acting as a half-wave rectifier, which of the following statements is not true?

1) The average output voltage over a cycle is non-zero
2) The drift current depends on biasing
3) The depletion zone decreases in forward biasing
4) The diffusion current increases due to forward biasing

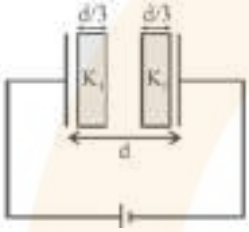
Q33: In a discharge tube ionization of enclosed gas is produced due to collisions between –

1) negative electrons and neutral atoms/molecules.
2) photons and neutral atoms/molecules.
3) neutral gas atoms/molecules.
4) positive ions and neutral atoms/molecules.

Q34: A torque of : $9\ ^{A}h\cdot$ is required to hold a magnet at $F9$ with the horizontal component b of the earth's magnetic field. The torque to hold it at $=9$ will be ____ ?

1) $A\ :9\ ^{B}h\cdot$
2) data is insufficient
3) $\div\ :9\ ^{A}h\cdot$
4) $A\ =\ :9\ ^{B}h\cdot$

Q35:



Two dielectric slab of dielectric constant K_1 and K_2 and of same thickness is inserted in parallel plats capacitor and $K_1 = 2K_2$. Potential difference across slabs are V_1 and V_2 respectively then :-

1) $V_1 = V_2$
2) $V_1 = 2V_2$
3) $2V_1 = V_2$
4) $4V_1 = V_2$

Q36: The magnetism of magnet is due to .... ?

1) The spin motion of electron
2) Earth
3) Pressure of big magnet inside the earth
4) cosmic rays

Q37: The de-broglie wavelength of an electron and the wavelength of a photon are the same. The ratio between the energy of the photon and the momentum of the electron is

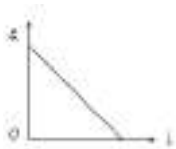
1) h
2) c
3) $\frac{\div}{y}$
4) $\frac{\div}{r}$

Q38: For previous objective, which of the following graphs is correct

1)


2)


3)


4)


Q39: In Davison-Germer experiment, an electron beam is incident on a crystal. The reflected beam consists of .... ?

1) photons
2) protons
3) -rays
4) electrons

Q40: Consider an electron of mass · and charge e moving around a nucleus of charge ⊲t in circular orbit of radius . The initial frequency of light emitted by the electron is given as .... ?

1) $\left)\frac{:}{>\ \phi\pi}\right.^{:8<}\frac{t}{<\ <}$
2) $\left)\frac{<}{>\ \phi\pi}\right.^{:8<}\frac{t}{<\ =8<}$
3) $\left)\frac{<}{>\ t\phi\pi}\right.^{:8<}\frac{t}{<}$
4) $\frac{:}{>\ \phi\pi}\ \frac{t}{<\ =8<}$

Subject: Chemistry

Chemistry

Q41: How many atoms of calcium will be deposited from a solution of V–V⊕ by a current of 25 milliamperes flowing for 60 seconds

1) >7BE : 9:E
2) >7BE : 9:A
3) >7BE : 9:<
4) >7BE : 9F

Q42: The major product of the following reaction is

1) a hemiacetal
2) an acetal
3) an ether
4) an ester

Q43: Aryl halide is less reactive than alkyl halide towards nucleophilic substitution because ---- ?

1) Less stable carbonium ion
2) Due to large r $r\mu$bond energy
3) Inductive effect
4) Resonance stabilization and < - hybridisation of H attached to halide

Q44: Which species is not a pseudohalide ?

1) CNO^-
2) $RCOO^-$
3) OCN^-
4) NNN^-

Q45: Which of the following type of forces are present in nylon-6, 6?

1) Van der walls" forces of attraction
2) Hydrogen bonding
3) Three dimensional network of bonds
4) Metallic bonding

Q46: Statement I: A mixture of phenol and benzoic acid can be separated by extracting its etheral solution with aq. $b\ pRHc_{=}$ solution.Statement II: Phenol is a weaker base than carbonic acid.

1) Both Statement I and Statement II are correct and Statement II is the correct explanation of Statement I
2) Both Statement I and Statement II are correct but Statement II is not the correct explanation of Statement I
3) Statement I is correct but Statement II is incorrect
4) Statement II is correct but Statement I is incorrect

Q47: Aspirin is an acetylation product of {VTo[l g r :FFE}

1) o-hydroxybenzoic acid
2) o-dihydroxybenzene
3) π -hydroxybenzoic acid
4) -dihydroxybenzene

Q48: Sulphur molecule is converted into sulphur ion, when it

1) Gains two electrons
2) Loses two electrons
3) Gains two protons
4) Shares two electrons

Q49: The catalyst used in Rosenmund reaction is ____ ?

1) z 8b ∞
2) l ○8T→⊕i >
3) Raney Ni
4) Na in Ethanol

Q50: Which one of the following compounds is not coloured

1) h →≷V V⊕
2) h →≷V○V⊕
3) V >Nt 1Hb 2B
4) V =Nt 1Hb 2B

Q51: Which one is liquid at room temperature?

1) Vb =V⊕
2) V<b AV⊕
3) Vb =i
4) V<b AT

Q52: The random or zig-zag motion of the colloidal particles in the dispersion medium is referred to as .... ?

1) Electro-osmosis
2) Electrophoresis
3) Brownian movement
4) Tyndall effect

Q53: Which one of the following will undergo meta-sustitution on monochlorination?

1) Ethoxybenzene
2) Chlorobenzene
3) Ethyl benzoate
4) Phenol

Q54: When a freshly precipitated substance is converted into a colloidal solution with the help of a third substance, the process i known as .... ?

1) Coagulation
2) Peptization
3) Electrodispersion
4) Dialysis

Q55: Which of the following intermediate species is/are formed in the reaction of CH_2= CH – COOH (Acrylic acid) with HBr to give 3-bromo propanoic acid?

1) I and II
2) III and IV
3) II, III and IV
4) I, II, III and IV

Q56: Phenyl isocyanides are prepared from which of the following reactions {VTo[l g r : FFF}

1) Rosenmund's reaction
2) Carbylamine reaction
3) Reimer-Tiemann reaction
4) Wurtz reaction

Q57: Which of the following silver compounds finds maximum use in photography

1) CxHμ
2) S ∝T
3) CxS
4) Cxb c =

Q58: Green chemistry means such reactions which ____ ?

1) produce colour during reactions
2) reduce the use and production of hazardous chemicals
3) are related to the depletion of ozone layer
4) study the reactions in plants

Q59: The metallic oxide which impart purple colour to pottery is ____ ?

1) Copper oxide
2) Chromium oxide
3) Lead oxide
4) Manganese oxide

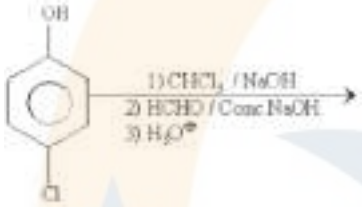
Q60: Dimethyl glyoxime reagent is used as co-ordinating reagent in the quantitative estimation of ____ ?

1) Copper
2) Palladium
3) Silver
4) Nickel

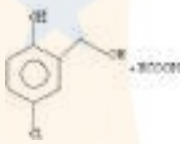
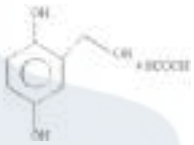
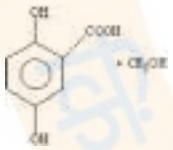
Q61: In the body centred tetragonal cystal system formed by square sheets, the co-ordination number is equal to - ____ ?

1) 6
2) 8
3) 12
4) none of these

Q62:



. The correct product is .... ?

1) 
2) 
3) 
4) 

Q63: In the catalytic oxidation of ammonia an oxide is formed which is used in the preparation of $\mathrm{bhi}_{=}$. This oxide is ____ ?

1) $b_{<}c_{\mathrm{A}}$
2) $b_{<}c_{>}$
3) $b\ c_{<}$
4) hi

Q64: Only stable organic fuctional group in which carbon is divalent is ____ ?

1) $HH\mu_{<}$
2) $HR_{<}$
3) $HF_{<}$
4) R–NC

Q65: Methylphenyl ether can be obtained by reacting

1) phenolate ions and methyl iodide
2) methoxide ions and bromobenzene
3) methanol and phenol
4) bromo benzene and methyl bromide

Q66: The E.A.N. of iron in $\{\bullet 1\mathrm{Vh}\,2_{\mathrm{B}}\}^{=}$ is ____ ?

1) 32
2) 35
3) 38
4) 41

Q67: Which of the following statements is not applicable to chemisorption

1) It is slow
2) It is irreversible
3) It is highly specific
4) It is independent of temperature

Q68: Chemical formula of rust is

1)] •i
2) $Nt_{=}c_{>}$
3) $Nt_{<}c_{=}\quad R_{<}c$
4) FeO. $R_{<}c$

Q69: Ethyl alcohol is industrially prepared from ethylene by .... ?

1) Permanganate oxidation
2) Catalytic reduction
3) Absorbing in $R_{<}g\,c$ a followed by hydrolysis
4) Fermentation

Q70: In the electrolytic cell, flow of electrons is from

1) cathode to anode in solution
2) cathode to anode through external supply
3) cathode to anode through internal supply
4) anode to cathode through internal supply

Q71: Acetone reacts with iodine $1c_{<}2$ to form iodoform in the presence of

1) Sodium iodide
2) Sodium hypoiodide
3) Iodine
4) None of the above

Q72: n-Butyl alcohol on dehydration forms β -butylene as the chief product. This happens because of the rearrangement- ____ ?

1) CH3–CH2–CH2–$HR_{<}$ to CH3–HR–CH2– CH3
2) CH3–CH2–CH2–$HR_{<}$ to (CH3)2CH–$HR_{<}$
3) CH3–HR–CH2–CH3 to (CH3)3H
4) $(CH_3)_3\quad H$ to $CH_3 - CH_2 - CH_2 - HR_{<}$

Q73: Match the Column I and Column II.

	Column I		Column II
(A)	Impurity defect	(p)	h –V⊕ with anionic sites F-centres
(B)	Metal excess defect	(q)	] •i with] $•^{-4}$
(C)	Metal deficiency defect	(r)	h –V⊕ with o $^{<4}$ and some cationic sites vacant

1) (A)(r); (B)→(p); (C)→(q)
2) (A)→(p); (B)→(q); (C)→(r)
3) (A)→(r); (B)→(q); (C)→(p)
4) (A)→(q); (B)→(p); (C)→(r)

Q74: Which of the following has lowest boiling point

1) -nitrophenol
2) π -nitrophenol
3) ϕ -nitrophenol
4) phenol

Q75: Among the following substances the lowest vapour pressure is exerted by .... ?

1) Water
2) Mercury
3) Kerosene
4) Rectified spirit

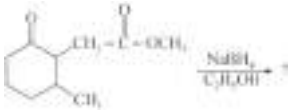
Q76: When phenyl magnesium bromide reacts with t-butanol, the product would be .... ?

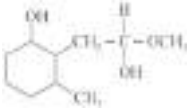
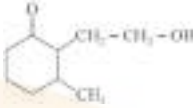
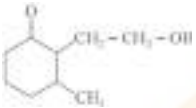
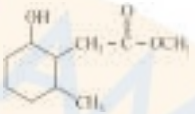
1) Benzene
2) Phenol
3) t-butyl benzene
4) t-butyl phenyl ether

Q77: In the titration between oxalic acid and acidified potassium permanganate, the manganous salt formed catalyses the reaction. The manganous salt is ____ ?

1) A promoter
2) A positive catalyst
3) An autocatalyst
4) None of these

Q78: The product formed in the following chemical reaction is :



1) 
2) 
3) 
4) 

Q79: Sulpha drugs are used for

1) Precipitating bacteria
2) Removing bacteria
3) Decreasing the size of bacteria
4) Stopping the growth of bacteria

Q80: If the bond length of Vi bond in carbon monoxide is : 7: <EA , then what is the value of Vi bond length in] •1Vi 2_{A} ?

1) : 7: A
2) : 7: <E
3) : 7C<
4) : 7: :

Subject: Maths

Maths

Q81: A signal which can be green or red with probability >8Aand : 8Arespectively, is received by station C and then trasmitted to station F. The probability of each station receiving the signal correctly is =8>. If the signal received at station T is given, then the probability that the original signal is green, is ____ ?

1) $\frac{=}{\mathrm{A}}$
2) $\frac{\mathrm{B}}{\mathrm{C}}$
3) $\frac{<9}{\Leftarrow}$
4) $\frac{\mathrm{F}}{<9}$

Q82: A plane passes through a fixed point (a, b, c). The locus of the foot of the perpendicular to it from the origin is the sphere

1) $^{<}4\ ^{<}4\ ^{<}\ \rightarrow\ q\ -\mathrm{M}9$
2) $^{<}4\ ^{<}4\ ^{<}\ <p\ <q\ <r\ \mathrm{M}9$
3) $^{<}4\ ^{<}4\ ^{<}\ \succ\!\rightarrow\ \succ\!\prec\ \succ-\mathrm{M}9$
4) None of these

Q83: Solution set of $\rightarrow\ ^{:}<4\ \rightarrow\ ^{:}=\mathrm{M}\frac{-}{>}$ is .....

1) $95:$
2) $\frac{:}{\mathrm{B}}5:$
3) $\frac{:}{\mathrm{B}}5\ :$
4) $\frac{:}{\mathrm{B}}$

Q84: $\not\Subset_{8<}^{\rightarrow=}\mathrm{M}$

1)
2) $=$
3) Does not exist
4) 0

Q85: The value of $-\ ^{:})-\ \frac{\mathrm{A}}{=}[4\ \neq\ ^{:})-\ \frac{\mathrm{A}}{=}[$ is ____ ?

1) $\frac{-}{<}$
2) $\frac{\mathrm{A}}{=}$
3) $\frac{:9}{=}$
4) 9

Q86: If $\mathrm{M}\ \bullet\!-\!1 \rightarrow\ :\ 25$ then $\frac{s}{s}$ is ____ ?

1) $\frac{}{\overline{:4\ <}}$
2) $\frac{}{\overline{:4\ <}}$
3) $\frac{}{\overline{:\ <}}$
4) None of these

Q87: In the function $v1\ \ 2\mathrm{M}\frac{\leq\ \neq\ :}{<4\ \rightarrow\ :}5\ 1\ \ \ 92$ is continuous at each point of its domain, then the value of $v192$ is ____ ?

1) 2
2) $:8=$
3) $<8=$
4) $:8=$

Q88: If x + 4 |y| = 6 y, then y as a function of x is ____ ?

1) continuous at x = 0
2) derivable at x = 0
3) $\frac{s}{s} = \frac{\vdots}{<}$ for all x
4) none of these

Q89: A bag contains 4 white and 3 red balls. Two draws of one ball each are made without replacement. Then the probability that both the balls are red is ____ ?

1) $\frac{\vdots}{\mathrm{C}}$
2) $\frac{\leq}{\mathrm{C}}$
3) $\frac{=}{\mathrm{C}}$
4) $\frac{\geq}{\mathrm{C}}$

Q90: Which of the following statements is correct?

1) Every L.P.P. admits an optimal solution.
2) AL.P.P. admits a unique optimal solution.
3) If a L.P.P. admits two optimal solutions, it has an infinite number of optimal solutions.
4) The set of all feasible solutions of a L.P.P. is not a convex set.

Q91: $\frac{t}{1:4\ \ 2<}s\ \ \mathrm{M}$

1) $\frac{t}{:4}\ 4\ r$
2) $\frac{t}{:4}\ 4\ r$
3) $\frac{t}{:4}\ 4\ r$
4) $\frac{t}{:4}\ 4\ r$

Q92: Integrating factor of equation $1\ {}^{<}4\ :2\frac{s}{s}\ 4\ <\ \ \mathrm{M}\ \ {}^{<}\ \ :$ is ____ ?

1) ${}^{<}4\ :$
2) $\frac{<}{{}^{<}4:}$
3) $\frac{<\ :}{{}^{<}4:}$
4) None of these

Q93: $\quad 4$

If $\qquad\qquad \mathrm{M}\varepsilon$, then the value of k is ____ ?

$\qquad\qquad\quad 4$

1) 2
2) 4
3) 6
4) 8

Q94: $_{9}{}^{8<}\frac{\overline{\ \ -\ \ }}{\overline{\ \ \neq\ 4\ \ -\ \ }}s\ \ \mathrm{M}$

1) 0
2) $\frac{-}{<}$
3) $\frac{-}{>}$
4) None of these

Q95: Minimise $\mathrm{Ho}\ \mathrm{M}<\ 4\ =$, subject to constraints $<\ 4\ >\ \ :<5\ \ 4\ \ \ =5\ \ \ 9$ and $\ \ 9$.

1) 9 2) 0 3) 12 4) 6

Q96: If three unit vectors a, b, c are such that $1\quad 2\mathrm{M}-5$ then the vector a makes with b and c respectively the angles

1) $>9^{\phi}5\,\mathrm{E}9^{\phi}$
2) $>\mathrm{A}^{\phi}5\ >\mathrm{A}^{\phi}$
3) $=9^{\phi}5\ \mathrm{B}9^{\phi}$
4) $\mathrm{F}9^{\phi}5\ \mathrm{B}9^{\phi}$

Q97: The area bounded in the first quadrant between the ellipse $\frac{<}{:\mathrm{B}}+\frac{<}{\mathrm{F}}=1$ and the line 3x+ 4y = 12, is ____ ?

1) 6($\pi-1$)
2) 3($\pi-2$)
3) 3($\pi-1$)
4) None of these

Q98: A number is chosen from first 100 natural numbers. The probability that the number is even or divisible by 5, is ____ ?

1) $\frac{=}{>}$
2) $\frac{\leq}{=}$
3) $\frac{\geq}{\mathrm{A}}$
4) $\frac{=}{\mathrm{A}}$

Q99: Function f(x) = $\frac{:}{\oplus\infty}$ is discontinuous at ____ ?

1) one point
2) two points
3) three points
4) infinite number of points

Q100: Which one of the following limit does not tends to unity?

1) $\mathrm{f}\neq\neq\ {}_{9}\frac{\neq 1\rightarrow\ 2}{\frac{\neq}{:4}\quad\frac{}{:}}$
2) $\mathrm{f}\neq\neq\ {}_{8<}\frac{\neq 1-\quad 2}{\frac{}{-}\quad\frac{}{<}}$
3) $\mathrm{f}\neq\neq\ {}_{9}\frac{}{}$
4) $\mathrm{f}\neq\neq\ {}_{9}\frac{}{\frac{}{<}}$

Q101: A body moves according to the formula $\mathrm{M}:4\ <$, where v is the velocity at time t. The acceleration after 3 sec will be (v in cm/sec)

1) $<>r\pi\ 8\ \bullet-^{<}$
2) $:<r\pi\ 8\ \bullet-^{<}$
3) $\mathrm{B}r\pi\ 8\ \bullet-^{<}$
4) None of these

Q102: The probability that a non leap year will have 52 Fridays is ____ ?

1) 1/7 2) 2/7 3) 5/7 4) 6/7

Q103: If $v\ 1\ 2\mathrm{M}\neq 1\oplus\infty\ 2$ and $\mathrm{M}v\,)\frac{\leq 4=}{=<}[$, then $\frac{s}{s}\ \mathrm{M}$

1) $\frac{\mathrm{F}-\ 1\oplus\infty\ 2}{1=\ <\ 2^{<}}$
2) $\frac{\mathrm{F}-\ )\oplus\infty^{\frac{<4=}{=<}}}{1=\ <\ 2^{<}}$
3) $\frac{\mathrm{F}\neq)\oplus\infty^{\frac{<4=}{=<<}}}{1=\ <\ 2^{<}}$
4) None of these

Q104: If a, b, c are mutually perpendicular vectors of equal magnitudes, then the angle between the vectors a and $4\quad 4$ is ____ ?

1) $\frac{-}{=}$
2) $\frac{}{\mathrm{B}}$
3) $-\quad:\frac{:}{=}$
4) $\frac{-}{<}$

Q105: $\oplus\not=\ \frac{\neq\quad\neq}{}\ \mathrm{M}$

1) 0
2) 1
3) $\neq$
4) $\frac{}{-}$

Q106: The value of $-\ 1 \rightarrow\ ^{\vdots}1 \rightarrow <22$ is ____ ?

1) $\frac{\vdots}{\bar{\mathrm{A}}}$
2) $\frac{\vdots}{\bar{\mathrm{A}}}$
3) $-\ <$
4) $-\ <$

Q107: Differential coefficient of $\bullet -\ ^{\vdots}$ is ____ ?

1) $\frac{\vdots}{\vdots\ <}$
2) $\frac{\vdots}{\vdots\ <}$
3) $\frac{\vdots}{<\ \vdots}$
4) $\frac{\vdots}{<\ \vdots}$

Q108: A box containing 4 white pens and 2 black pens. Another box containing 3 white pens and 5 black pens. If one pen is selected from each box, then the probability that both the pens are white is equal to ____ ?

1) $\frac{\vdots}{<}$
2) $\frac{\vdots}{=}$
3) $\frac{\vdots}{>}$
4) $\frac{\vdots}{\mathrm{A}}$

Q109: The roots of the determinant equation (in x) $\begin{matrix} p & p & \\ \pi & \pi & \pi\ \mathrm{M}9 \\ q & & q \end{matrix}$

1) $\mathrm{M}p5q$
2) $\mathrm{M}\ \ p5\ \ q$
3) $\mathrm{M}\ \ p5q$
4) $\mathrm{M}p5\ \ q$

Q110: The principal value of $\neq\ ^{\vdots}\{\ \neq) \frac{\leq}{=} [\int$ is ____ ?

1) $\frac{\leq}{=}$
2) $\frac{\leq}{=}$
3) $\frac{\geq}{=}$
4) None of these

Q111: If a and b are mutually perpendicular vectors, then $1\ \ 4\ \ 2^{<}\mathrm{M}$

1) 4
2)
3) $p^{<}\ \ q^{<}$
4) $1\ \ \ \ 2^{<}$

Q112: A coin is tossed and a dice is rolled. The probability that the coin shows the head and the dice shows 6 is ____ ?

1) $\frac{\vdots}{\mathrm{E}}$
2) $\frac{\vdots}{\vdots <}$
3) $\frac{\vdots}{<}$
4) 1

Q113: The rank of the matrix $\begin{matrix} : & < & \mathrm{A} \\ < & > p & > \\ : & < p4 & : \end{matrix}$ is ____ ?

1) 1 if $p\ \mathrm{MB}$
2) 2 if $p\ \mathrm{M}:$
3) 3 if $p\ \mathrm{M}<$
4) 1 if $p\ \mathrm{M}>$

Q114: Which of the following functions has its inverse ____ ?

1) f :R $\rightarrow$ R, f(x) = a^x
2) f :R $\rightarrow$ R, f(x) = |x| + |x − 1|
3) f :$R_0 \rightarrow R^+$, f(x) = |x|
4) f :[π , 2 π] $\rightarrow$ [−1,1], f(x) = cos x

Q115: If $v1\ \ 2\ \mathrm{M}\frac{\quad}{:4}$ for $f5$then $v\ \ 192\mathrm{M}$

1) 0
2) 1
3) 2
4) 3

Q116: $\frac{s}{s}\{\rightarrow\ :1-\quad 24\ -\quad :1\rightarrow\quad 2\}$M

1) 0 2) 1 3) − 1 4) − 2

Q117: $_9\ -\quad s\quad$ M

1)
2) 0
3) 2
4) 1

Q118: Let $v1\ \ 2$M $\neq\ 5\ \sqrt{}\ \ 9$ $:\ -\ 5\ \sqrt{}\ \ 9$ and $x1\ \ 2$Mt . Then $1x\phi v2\ 192$ is ____ ?

1) 1
2) −1
3) 0
4) None of these

Q119: From which of the following the distance of the point $1{:}\ 5 < 5 = 2$ is $:9$

1) Origin 2) x-axis 3) y-axis 4) z-axis

Q120: Which one of the following is not bounded on the intervals as indicated

1) $v)$ M< on $195\ 2$
2) $\infty)$ [M − on $1\quad 5\quad 2$
3) | 1 2 M • on $195\quad 2$
4) $\mu 1\ \ 2$M→−→ < on $1\quad 5\quad 2$
