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CANDIDATES MUST READ THE FOLLOWING INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER & FOLLOW THEM.

- 1. All questions under Part-A and Part-B are compulsory. Part-C is optional. The candidates may attempt either Optional Part-C (i) OR Optional Part-C (ii). All questions carry equal marks i.e. one mark each.
- 2. The candidate MUST return this question book-let and the OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means/misbehaviour will be registered against him/her, in addition to lodging of an FIR with the police. Further the answer-sheet of such candidate will not be evaluated.
- 3. The candidate MUST NOT do any rough work OR writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question book-let itself.
- 4. In case there is any discrepancy in any question(s) in the Question Book-let, the same may be brought to the notice of the Controller of Examinations in writing within two hours after the test is over. No such complaint(s) will be entertained thereafter.
- 5. Use only blue or black ball point pen of good quality in the OMR Answer-Sheet.
- 6. There will be no negative marking. Each correct answer will be awarded one mark. Cutting, erasing, overwriting and more than one answer in the OMR Answer-Sheet will be treated as wrong answer.
- 7. BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT & COMPLETE QUESTION BOOK-LETS. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER THE START OF EXAMINATION.



Part-A (Physics)

Question No.		Questions	
1.	Under the action of a force	F = Cx, the position of a body changes from 0 to	
	x. The work done is		
	(1) ½ Cx ²	$(2) \mathbf{C}\mathbf{x}^2$	
	(3) Cx	(4) ½ Cx	
2.			
	$\theta = \theta_0 + \theta_1 t + \theta_2 t^2$. Then the	e angular acceleration of the body is	
	(1) θ_1	(2) θ_2	
1	(3) $2\theta_1$	$(4) 2\theta_2$	
3.	A rocket of mass 1000 kg e	exhaust gases at a rate of 4kg/s with a velocity loped on the rocket is	
	(1) 12000 N	(2) 120 N	
	(3) 800 N	(4) 200 N	
4.		ydrogen atom from the transition $n = 3$ to $n = 1$ gth of doubly ionized lithium ion for the same	
	(1) $\frac{\lambda}{3}$	(2) 3λ	
	$(3) \frac{\lambda}{9}$	(4) 9λ	
5.	The dimensions of pressure gradient are		
2 3 4 3	(1) $ML^{-2}T^{-2}$	(2) $ML^{-2}T^{-1}$	
	(3) $ML^{-1}T^{-1}$	(4) $ML^{-1}T^{-2}$	

Question No.	Questions	
6.	A ball is dropped from the top of a tower of height h, it covers a distant h/2 in the last second of its motion. How long the ball remains in air? To $g = 10 \text{ms}^{-2}$	
	(1) $2 \pm \sqrt{2} \sec$ (2) $\sqrt{2} \sec$	
	(1) $2 \pm \sqrt{2} \sec$ (2) $\sqrt{2} \sec$ (3) $2 \sec$ (4) $2\frac{1}{2} \sec$	
7.	Two particles are projected simultaneously in the same vertical plane, from the same point, both with different speeds and at different angles we horizontal. The path followed by one, as seen by the other, is (1) a vertical line (2) a parabola (3) a hyperbola (4) a straight making a constant angle (≠ 90°) with the horizontal	
The state of the s	A bullet fired into a target loses half its velocity after penetrating 25 c. How much further will it penetrate before coming to rest? (1) $\sqrt{26}$ cm (2) 25 cm. (3) 8.3 cm. (4) 75 cm.	
	A small ball describes a horizontal circle on the smooth inner surface of onical funnel. If the height of the plane of the circle above the vertex b 0 cm; what is the speed of the particle?	
	1) 2 m/s (2) 4 m/s	
(3)	(4) 1 m/s	



Question No.	0	Questions	
10.	A body is projected vertically upwards from the surface of a planet of radius R with a velocity equal to half the escape velocity of the planet. The maximum height attained by the body is		
	(1) R/2	$(2) \frac{R}{3}$	
	(3) R/5	(2) $\frac{R}{3}$ (4) $\frac{R}{4}$	
11.	Atwhat temperature is the r.m.s. velocity of a hydrogen molecule equal to that of an oxygen molecule at 47°C?		
	(1) 80 K	(2) -73 K	
	(3) 3 K	(4) 20 K	
12.	A material has Poiss a longitudinal strain place?	on's ratio 0.5. If a uniform rot of this material suffers of 2×10^{-3} , what percentage increase in volume takes	
	(1) 2%	(2) 2.5%	
	(3) 5%	(4) 0%	
13.	A metallic sphere of temperature is 20°C,	ools from 50°C to 40°C in 300 sec. If the room	
	(1) 38°C	(2) 33.3°C	
	(3) 30°C	(4) 36°C	
14.	PV diagram of a diato molar heat capacity o	nic gas is a straight line passing through origin. The	
1	(1) 4 R	(2) 3 R	
	(3) $\frac{4}{3}$ R	(4) $\frac{5}{2}$ R	

Question No.	Questions	
15.	An elastic string has a length l when tension in it is 5N. Its length is h	
	tension is 4N. On subjecting the string to a tension of 9N, its length wi	
	(1) l+h (2) l-h	
	(3) $5l-4h$ (4) $\frac{l+1}{h-1}$	<u>.</u>
16.	The period of oscillations of a mass 1	6 kg suspended from a spring is
	16. The period of oscillations of a mass 1.6 kg suspended fr 2 seconds. If along with it another mass m kg is also susper of oscillations increases by one second. The mass m is	
A CONTRACTOR OF THE CONTRACTOR	(1) 1 kg (2) 2 kg	
Charles Annual Control of the Contro	(3) 1.6 kg (4) 2.6	kg
17.	Two coherent sources must have the sa	me
THE PAYMENT OF THE PA		se difference only
OLOTY A-PRODUCT AND ALL AND AL		se difference and frequency
18.	When a source is going away from a st equal to that of sound in air, the frequen	ationary observer with a velocity
	(1) Same (2) Dou	
	(3) Half (4) One	third
19.	Ultrasonic waves are produced by	
MASSINGER, COLO. 3 Among	(1) Piezoelectric effect (2) Pett	iro's effect
		e of these
20.	Fundamental frequency of a sonometer v diameter of the wire are tripled, the new	vire is n. If the length, tension and fundamental frequency is
and the state of t	(1) $\frac{n}{\sqrt{3}}$ (2) $\frac{n}{3}$	
TO THE PARTY OF TH		



(3) $n\sqrt{3}$

Question No.		Questi	ions
21.	The magnitude of ele	ectric field sta	rength E such that an electron placed rce equal to its weight is given by
	(1) mge	(2)	mo
	$(3) \frac{e}{mg}$	(4)	$\frac{e^2g}{2m}$
22.	The electric potential 9 Fermi is	at the surfa	ce of an atomic nucleus (z=50) of radi
	(1) 80 Volt	(2)	8×10 ⁶
	(3) 9V	(4)	9×10 ⁵ V
			AND AND THE PROPERTY OF THE PR
23.	A charge Q is distributed at any point r wh	uted uniform here $r < R$ (R	aly in a sphere (solid). Then the electronic is radius of sphere) varies as
23.	A charge Q is distributed at any point r when the contract of the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at any point r when the charge Q is distributed at a char	uted uniform nere $r < R$ (R) (2)	is radius of sphere) varies as
23.	field at any point r wh	nere r < R (R	is radius of sphere) varies as r^{-1}
23.	field at any point r where $r^{\frac{1}{2}}$	(2)	is radius of sphere) varies as r^{-1} r^{-2}
	field at any point r wh (1) r ^{1/2} (3) r	here $r < R$ (R (2) (4) of an electric	is radius of sphere) varies as r^{-1} r^{-2}
	field at any point r wh (1) r ^½ (3) r At a point on the axis	here $r < R$ (R (2) (4) of an electric E is zero	is radius of sphere) varies as r^{-1} r^{-2} c dipole ;
	field at any point r wh (1) r ^{1/2} (3) r At a point on the axis (1) The electric field	of an electric E is zero	is radius of sphere) varies as r^{-1} r^{-2} c dipole ;
	field at any point r wh (1) r ^{1/2} (3) r At a point on the axis (1) The electric field (2) The electric poten	of an electric E is zero ntial V is zero s zero	is radius of sphere) varies as r^{-1} r^{-2} c dipole ;
	field at any point r who (1) r ^{1/2} (3) r At a point on the axis (1) The electric field (2) The electric potential (3) Neither E nor V in	of an electric E is zero ntial V is zero zero	is radius of sphere) varies as r^{-1} r^{-2} c dipole ;
24.	field at any point r when (1) r ^{1/2} (3) r At a point on the axis (1) The electric field (2) The electric potent (3) Neither E nor V in (4) Both E and V are	of an electric E is zero ntial V is zero zero	is radius of sphere) varies as r^{-1} r^{-2} c dipole ;

Question No.	Questions
26.	Four bulbs marked 40 W, 250 V are connected in series with 250 V mains, the total power consumed is (1) 10 W (2) 40 W (3) 320 W (4) 160 W
27.	The resistance of an ideal voltmeter is
	(1) zero (2) infinite (3) $>1k\Omega$ (4) $>1\Omega$
28.	A dip needle in a plane perpendicular to magnetic meridian will be (1) Vertical (2) Horizontal (3) at an angle 45° to the horizontal (4) at an angle of dip to the horizontal
29.	A power line lies along the east west direction and carries a current of 10 ampere. The force per metre due to earth's magnetic field of 10 ⁻⁴ T is (1) 10 ⁻⁵ N (2) 10 ⁻⁴ N (3) 10 ⁻³ N (4) 10 ⁻² N
30.	The maximum energy of a deutron coming out of a cyclotron accelerator is 20 MeV. The maximum energy of protons that can be obtained is (1) 10 MeV (2) 20 MeV (3) 30 MeV (4) 40 MeV



Question No.	Questions
31.	The electromagnetic damping experienced by a metal mass moving in a magnetic field is due to (1) Alternating current (2) Eddy current (3) Magnetic field (4) Alternating potential produced in metallic mass
32.	The value of current at resonance in a series LCR circuit is affected by the value of (1) R only (2) C only (3) L only (4) L, C and R
33.	In which of the following regions of electromagnetic spectrum will the vibrational motion of molecules give rise to absorption? (1) Ultraviolet (2) Microwave (3) Infrared (4) Radio waves
34.	If the refracting angle of a prism is 60° and the minimum deviation 30°, the angle of incidence will be (1) 30° (2) 45° (3) 60° (4) 90°
35.	The impurity concentration in a normal diode is equal to (1) 1 in 10 ⁹ Parts (2) 1 in 10 ⁶ parts (3) 1 in 10 ³ parts (4) 1 in 10 ² parts

Part-B (Chemistry)

The second second second	Part-B (Chemistry)		
Question No.	Questions		
36.	The total numbers of protons in 10.0 g of CaCO ₃ is		
	(1) 1.5057×10^{24} (2) 2.0478×10^{24}		
	(3) 3.0115×10^{24} (4) 4.0956×10^{24}		
37.	Which of the following sets of quantum numbers are correct?		
	(1) $n = 1, \ell = 1, m = +2$		
To the same of the	(2) $n = 2$, $\ell = 2$, $m = +1$		
	(3) $n = 3, \ell = 2, m = -2$		
NACIONAL PROPERTY OF THE PROPE	(4) $n = 3, \ell = 4, m = -2$		
38.	Among halogens the correct order of electron gain enthalpy is:		
A Live	(1) $F > Cl > Br > I$ (2) $F < Cl < Br < I$		
	(3) $F < Cl < Br > I$ (4) $F < Cl > Br > I$		
39.	The hybrid states of central atom in diborane, diamond and graphite are		
	respectively:		
	(1) sp^2 , sp^3 , sp^2 (2) sp^3 , sp^3 , sp^2		
	(3) sp^3 , sp^3 , sp^3 (4) sp , sp^2 , sp^3		
40.	Which pair of the gaseous diffuse through a small jet with same rate of		
THE PROPERTY VALUE OF THE PROPERTY OF THE PROP	diffusion at same P and T?		
	(1) NO, CO (2) NO, CO ₂		
Delin and a home property	(3) NH ₃ , PH ₃ (4) NO, C ₂ H ₆		



Question No.	Questions	
41.	A gas occupies 2 litres at STP. It is provided 300 J heat so that its volume	
	becomes 2.5 litres at 1 atm. Calculate change in its internal energy	
	(1) 300 J (2) 249.35 J	
116,00	(3) 498.70 J (4) 600 J	
42.	What should be the solubility product of $A\ell_2$ (SO ₄) ₃	
	(1) $27 \mathrm{S}^4$ (2) $72 \mathrm{S}^5$	
	(3) $108 \mathrm{S}^4$ (4) $108 \mathrm{S}^5$	
43.	Which of the following arrangements represent increasing oxidation number	
	of the central atom?	
	(1) ClO_3^- , CrO_4^{2-} , MnO_4^- , CrO_2^-	
	(2) CrO ₂ ⁻ , ClO ₃ ⁻ , MnO ₄ ⁻ , CrO ₄ ²⁻	
	(3) CrO_4^{2-} , MnO_4^- , CrO_2^- , ClO_3^-	
	(4) CrO_2^- , ClO_3^- , CrO_4^{2-} , MnO_4^-	
44.	In solid ice, oxygen atom is surrounded:	
	(1) tetrahedrally by 4 hydrogen atoms	
	(2) octahedrally by 2 oxygen and 4 hydrogen atoms	
	(3) tetrahedrally by 2 hydrogen and 2 oxygen atoms	
	(4) octahedrally by 6 hydrogen atoms	

Code-A

Question No.	Questions	
45.	The paramagnetic species is:	
	(1) KO_2 (2) SiO_2	
	(3) TiO_2 (4) BaO_2	
46.	A solid compound 'X' on heating gives CO_2 gas and a residue. The residue mixed with water forms 'Y'. On passing an excess of CO_2 through 'Y' in water, a clear solution 'Z' is obtained. On boiling 'Z' compound 'X' is reformed.	
	The compound 'X' is (1) Ca (HCO ₂) ₂ (2) Ca CO ₃	
	(1) $Ca (HCO_3)_2$ (2) $Ca CO_3$ (3) $Na_2 CO_3$ (4) $K_2 CO_3$	
47.	The wrong statement about fullerene is	
	(1) It has 5-membered Carbon ring	
	(2) It has 6-membered Carbon ring	
	(3) It has sp ² hybridization	
	(4) It has 5-membered rings more than 6-membered rings	
48.	The chemical composition of cryolite mineral is	
	$(1) A\ell_2O_3$	
	(2) $A\ell_2 O_3.12 H_2 O$	
	(3) KA ℓ Si ₃ O ₈	
	(4) $Na_3 A\ell F_6$	



Question No.	Questions
49.	$ m CH_3-CHC\ell-CH_2-CH_3$ has a chiral centre, which one of the following
	represents its R configuration?
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
	$C\ell$
	$\mathrm{CH_3}$ $\mathrm{C_2H_5}$
	(3) $H - C - C\ell$ (4) $H_3C - C - C\ell$
	$\mathrm{C_2H_5}$
50.	Wurtz reaction is best used for making:
	(1) Unbranched alkanes (2) Symmetrical alkanes
	(3) Unsymmetrical alkanes (4) n-alkanes with odd number of carbons
51.	Which of the following gases is not a green house gas?
	(1) CO (2) O ₃
The state of the s	(3) CH ₄ (4) H ₂ O vapour
52.	The edge length of face centred unit cubic cell is 508 pm. The radius of the
	atom will be
	(1) 179.6 pm (2) 288 pm
	(3) 618 pm (4) 398 pm

Question No.	Questions	
53.	The freezing point of 1 molal NaCl solution assuming NaCl to be 100% dissociated in water is: $(Kf = 1.86 \text{ K Molality}^{-1})$	
	(1) $-1.86 ^{\circ}\text{C}$ (2) $-3.72 ^{\circ}\text{C}$	
	(3) $+1.86$ °C (4) $+3.72$ °C	
54.	While charging the lead storage battery	
	(1) Pb SO ₄ anode is reduced to Pb	
	(2) Pb SO ₄ cathode is reduced to Pb	
	(3) Pb SO ₄ cathode is oxidized to PbO ₂	
	(4) Pb SO ₄ anode is oxidized to PbO ₂	
55.	Which of the following is a unit of zero order reaction?	
	(1) $\text{mol } L^{-1} S^{-1}$ (2) $L \text{mol}^{-1} S^{-1}$	
	(3) $L^{-1} \text{ mol}^{-1} S^{-1}$ (4) $L \text{ mol}. S$	
56.	The colloidal solution of gelatin is known as	
***************************************	(1) Solvent loving (2) Reversible	
	(3) Hydrophilic (4) All of the above	
57.	Flux used in the metallurgy of iron is	
	(1) SiO_2 (2) $CaCO_3$	
1.014	(3) Felspar (4) Flit	
58.	Which of the following acids forms three series of Salts?	
	(1) $H_3 PO_2$ (2) $H_3 BO_3$	
	(3) $H_3 PO_4$ (4) $H_3 PO_3$	



Questio No.	Questions			
59.	Oxygen molecules shows:			
	(1) Diamagnetism (2) Paramagnetism			
	(3) Ferromagnetism (4) Ferrimagnetism			
60.	Identify the molecular formula of tear gas:			
	(1) $COCl_2$ (2) CCl_3NO_2			
	(3) CCl ₃ CHO (4) None of above			
61.	XeF ₆ on complete hydrolysis gives:			
	(1) Xe (2) XeO ₂			
	(3) XeO_3 (4) XeO_4			
62.	When one mol CrCl ₃ .6 H ₂ O is treated with excess of AgNO ₃ , 3 mol			
	AgCl are obtained. The formula of the complex is:			
	(1) $[CrCl_3 (H_2O)_3]$. 3 H_2O (2) $[Cr (H_2O)_6] Cl_3$			
	(3) $[CrCl_2 (H_2O)_4] Cl. 2 H_2O$ (4) $[CrCl (H_2O)_5] Cl_2 H_2O$			
63.	Electronic configuration of a transition element X in + 3 oxidation state i			
	[Ar] 3 d ⁵ , what is its atomic number?			
	(1) 25 (2) 26 (3) 27 (4) 24			
64.	Ethylidene chloride is a / an			
	(1) vic-dihalide (2) gem-dihalide			
	(3) allylic halide (4) vinylic halide			

Question No.					
65.	Phenol is less acidic than				
*	(1) ethanol (2) o-nitrophenol				
and an analysis of the state of	(3) o-methyl phenol (4) o-methoxyphenol				
66.	Cannizaro's reaction is not given by:				
And the second s	(1) \leftarrow CHO (2) \leftarrow CHO				
	(3) HCHO (4) CH ₃ CHO				
67.	Picric acid is				
	(1) Trinitroaniline (2) Trinitrotoluene				
	(3) Volatile liquid (4) 2, 4, 6 – trinitrophenol				
68.	Which of the following acid is a Vitamin?				
Andrew Pro-Confession and Andrew Pro-Confess	(1) Aspartic acid (2) Ascorbic acid				
	(3) Adipic acid (4) Saccharic acid				
69.	The commercial name of polyacrylonitrile is				
	(1) Dacron (2) Orlon				
	(3) PVC (4) Bakelite				
70.	Equanil is:				
The second secon	(1) artificial sweetener (2) tranquilizer				
AND THE PROPERTY OF THE PROPER	(3) anti histamine (4) antifertility drug				



Part-C Option (i) (Mathematics)

	Part-C Option (i) (Mathematics)
Question No.	Questions
71.	If $X = \{1, 2, 3,\}, Y = \{3, 4\}, Z = \{4, 5, 6\} \text{ then } X \cup (Y \cap Z) \text{ is}$ (1) $\{4, 5\}$ (2) $\{1, 2, 5, 6\}$ (3) $\{1, 2, 3, 4\}$ (4) $\{1, 3, 6\}$
72.	Let $A = \{(a, b) : a^2 + b^2 = 1, a, b \in R\}$. Then A is (1) symmetric (2) antisymmetric (3) reflexive (4) transitive
73.	If $f(x) = 2 x^n + K$, $f(2) = 26$ and $f(4) = 138$, then $f(3) =$ (1) 86 (2) 32 (3) 56 (4) 64
74.	If $\sin \theta + \cos \theta = \sqrt{2} \cos \theta$, then $\cos \theta - \sin \theta =$ $(1) -\sqrt{2} \cos \theta$ $(2) \sqrt{2} \left(\cos \theta + \sin \theta\right)$ $(3) -\sqrt{2} \sin \theta$ $(4) \sqrt{2} \sin \theta$
75.	If $\frac{\sin (x+y)}{\sin (x-y)} = \frac{a+b}{a-b}$, then $\frac{\tan x}{\tan y} =$
	$(1) \frac{b}{a} \qquad \qquad (2) \frac{a}{b}$
	$(3) \frac{a-b}{a+b} \qquad (4) ab$

Question No.	Questions
76.	If $ z ^2 + 1 = z^2 - 1 $, then z lies on (1) circle (2) ellipse. (3) parabola (4) none of these
77.	The inequalities $3x-y \ge 3$, $4x-y \ge 4$ have (1) solution for all x (2) solution for all y
	(3) solution for positive x and y(4) no solution for positive x and y
78.	Three dice are rolled. The number of possible outcomes in which at least one die shows 3 is (1) 36 (2) 42 (3) 81 (4) 91
79.	If ${}^{n}P_{r} = 120 {}^{n}C_{r}$, then the value of r is (1) 3 (2) 4 (3) 5 (4) 6
80.	In the expansion of $\left(x^3 - \frac{1}{x^2}\right)^{15}$, the constant term is

(1) $^{15}C_9$

(3) 0

(2) $^{-15}$ C₉

(4) $\frac{3}{2}$

Question No.	Questions					
81.	If $\frac{1}{b+c}$, $\frac{1}{c+a}$, $\frac{1}{a+b}$ are in A.P., then					
	(1) a^2 , b^2 , c^2 are in A.P.					
	(2) a, b, c are in A.P.					
	(3) $\frac{1}{a}$, $\frac{1}{b}$, $\frac{1}{c}$ are in A.P.					
	(4) a, b, c are in G.P.					
82.	The nearest point on the line	$3 \times 4 = 25$ from the origin is				
	(1) $(3, -4)$	(2) $(4, -3)$				
	(1) (3, -4) (3) (3, 4)	(4) (4, 3)				
83.	The area of the circle centred at (1, 2) and passing through					
	point (4, 6) is					
	(1) 16 π	(2) 25 π				
31.8 73.	(3) 36 π	(4) 49 π				
84.	The ratio in which xy-plane divides the join of (1, 2, 3) and (4, 2, 1) is					
	(1) 2:1 internally	(2) 1:2 externally				
	(3) 1:3 internally	(4) 3:1 externally				
85.	$\lim_{x \to -\infty} \left(2 x + \sqrt{4 x^2 - x} \right) =$					
	(1) 2	(2) 4				
	(3) $\frac{1}{2}$	(4) $\frac{1}{4}$				

Question No.	Questions				
86.	If $y = \sqrt{\sin x + \sqrt{\sin x + \sqrt{\sin x + \cdots + \infty}}}$ then $\frac{dy}{dx} =$ $(1) \frac{2y-1}{\cos x}$ $(2) \frac{\cos x}{2x-1}$				
	(3) $\frac{\cos x}{2 y - 1}$ (4) $\frac{2 x - 1}{\cos x}$				
87.	If the numbers between 1 to 65 and divisible by 4 are written in revorder then which of the following numbers will be at 10th place? (1) 24 (2) 28				
88.	(3) 32 (4) 36 Each observation of a raw data whose variance is σ^2 is multiplied by then the variance of the new data is				
	(1) σ^2 (2) $K \sigma^2$ (3) $K^2 \sigma^2$ (4) $K + \sigma^2$				
89.	Three identical dice are rolled. The probability that the same number of appear on each of them is				
	(1) $\frac{1}{36}$ (2) $\frac{1}{18}$				
	(3) $\frac{1}{12}$ (4) $\frac{1}{6}$				
	A speaks truth in 70% cases and B speaks truth in 80% cases. To probability that they say the same thing while describing single event is (1) 0.58 (2) 0.62				

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(3) 0.64

(18)

(4) 0.76

Questio No.	n	Questions			
91.	$\cos^{-1}\frac{1}{2} + 3\sin^{-1}\frac{1}{2} =$				
	$(1) \frac{\pi}{6}$	$(2) \frac{4\pi}{3}$			
W.	$(3) \frac{3\pi}{4}$	$(4) \frac{5\pi}{6}$			
92.	If w is one of the cube ro	ots of unity, then			
	(1) w^2	(2) w			
	(3) 0	(4) 1			
93.	If $A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ x & y & -1 \end{bmatrix}$, then	$A^2 =$			
	(1) I ₃ (3) -A	(2) A (4) I ₂			
94.	If $f(x) = \begin{cases} mx+1, & x \le 7\\ \sin x + n, & x > 7 \end{cases}$	$\frac{1}{2}$			
	and f (x) is continuous at $x = \frac{\pi}{2}$, then				
	$(1) \mathbf{m} = \frac{\mathbf{n}\pi}{2} + 1$	$(2) \mathbf{m} = \mathbf{n} = \frac{\pi}{2}$			
	$(3) n = m \frac{\pi}{2}$	(4) $m = 1, n = 0$			

Question No.	Questions				
95.	The maximum value of xy subject to $x + y = 12$ is				
	(1) 16 (2) 18 (3) 24 (4) 36				
96.	The value of $\int_1^6 e^{\sqrt{x}} dx$ is				
	(1) $4 e^3$ (2) $6 e^3$				
	(1) $4 e^3$ (2) $6 e^3$ (3) $2 e^3$ (4) $3 e^3$				
97.	The area of the figure bounded by $y = \sin x$, $y = \cos x$ in the fire				
	quadrant is .				
	(1) $2(\sqrt{2}+1)$ (2) $2(\sqrt{2}-1)$ (3) $2(\sqrt{3}-1)$ (4) $\sqrt{2}-1$				
	(3) $2(\sqrt{3}-1)$ (4) $\sqrt{2}-1$				
98.	The solution of the differential equation $y \frac{dy}{dx} = x - 1$ satisfying $y(1) = 1$				
	(1) $y^2 = x^2 - 2x + 2$ (2) $y^2 = x^2 - 2x + 1$ (3) $y = x^2 - 2x + 2$ (4) $y^2 = x^2 + 2x + 2$				
	(3) $y = x^2 - 2x + 2$ (4) $y^2 = x^2 + 2x + 2$				
99.	If \vec{a} and \vec{b} are two unit vectors inclined at an angle θ such that $\vec{a} + \vec{b}$ is unit vector, then θ is equal to				
	(1) $\frac{\pi}{3}$ (2) $\frac{3\pi}{2}$ (3) $\frac{2\pi}{3}$ (4) $\frac{\pi}{4}$				

(2) 2

(1) 0

(3) 1

3

(4)

directions of the coordinate areas, then $\sin^2\alpha + \sin^2\beta + \sin^2\gamma =$

If α, β, γ are the angles which a directed line makes with the positive

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uestion No.	estions	Questions	limite Vo.
101.	Hydroponics is: strese represents : si sopresents : Hardy-Weinberg law in a population represents		
	(1) Soil less culture (2)	(2) Water less culture	
	(4) Hongy fundit (4)	(4) Nutrient less culture	
102.	bluce reduct eds. blide O quers Bt crop grown by the farmers in	A mother of blood group O has a : si sibnI c	
	(1) Maize A or A (2)	(2) Wheat	
	(3) Cotton	(4) Tomato	
103.	Age of tree can be estimated by	Interspecific hybrids proved very	(A)
	(1) Height and girth (2)	(2) Biomass and effect. (1)	
	(4) Genetic man kroztii (6)	(4) Number of Annual ring	gs
104.	In DNA, adenine normally pair	Systematics deals with: htiw	100 (100 (100 (100 (100 (100 (100 (100
	(1) Guanine	ens (2) Cytosine dises (1)	
	(3) Thymine	ame (4) a Uracil itsoftituebl (2)	
agina 105.	organisms and existing relation The genotypic ratio of monohyb	lis to ytterwib bas back of T. (8) orid cross is : soviesment gnome	A Commission of the Commission
	(1) 3:1	(2) 9:3:3:1 None of the above (4)	
kaji og ang ko saga ti 100 itawa	(3) 1:1	(4) 1:2:1	
106.	Gene therapy is: 11 (S)	61 (1)	
	(1) Method to determine blood	d group (8)	
REAL ROAD TO LETTER THE PROPERTY OF THE PROPER	(2) Method to replace a defect	ive gene with a healthy gene	
	(3) Method to determine evolu-	(1) Covalent Bond noits	But a second second
	(4) All of the above (9)	(3) Hydregen Bond	

Question No.					
107.	Hardy-Weinberg law in a population represents				
	(1) Allele frequency	(2)	Heterozygote frequency		
	(3) Genotype frequency	(4)	Homozygote frequency		
108.	A mother of blood group O has a group O child, the father could be of blood type.				
	(1) A or B or O	(2)	A or B		
	(3) O only	(4)	A B only		
109.	Interspecific hybrids proved very	y useful f	or:		
	(1) Gene function	(2)	Gene mapping		
	(3) Gene structure	(4)	Genetic manipulation		
110.	Systematics deals with:				
	(1) Classification of organisms				
	(2) Identification of organisms				
	(3) The kind and diversity of al	ll organis	ms and existing relationships		
	among themselves				
	(4) None of the above				
111.	Down syndrome is usually the result of an extra chromosome:				
	(1) 15	(2)	17		
	(3) 19	(4)	21		
112.	The two strands of DNA are joined by:				
	(1) Covalent Bond	(2)	Ionic Bond		
	(3) Hydrogen Bond	(4)	Phosphodiester Bond		



Question No.		Question	s
113.	Which is the most primitive group of algae?		
	(1) Green algae (3) Red algae	(2) (4)	
114.	During cell cycle DNA synthesis		
	(1) Prophase	(2)	S phase
	(3) G1 phase	(4)	G2 phase
115.	Photosynthetic pigments are local (1) Thylakoid membrane (2) Inner membrane (3) Outer membrane (4) Thylakoid lumen	eated in th	ne:
116.	Patients suffering from AIDS has (1) T-cell deficiency (2) Enlargement of spleen (3) Neutrophil excess (4) W. B. C. excess	ve followi	ng immune abnormalities :
117.	Which of the following is essenti (1) Lymph	al for bloc	od clotting? Blood platelets
	(3) R. B. C.	(4)	W. B. C.
118.	The saliva helps in the digestion	of:	
	(1) Starch	(2)	Proteins
	(3) Fibres	(4)	Fats

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Question No.	anoise Questions	(A)
119.	Goitre is caused by Seegle to query evilliming teom ent et doidW	
C CONTRACTOR AND	(1) Green algae (2) Blue ghitae of (1)	A Special Conference of the Co
	(2) Deficiency of Iron (4) sagla best (6)	AMOUNT SECURITION
don't a beauting visit of these	(3) Deficiency of Iodined sakes asked synthesis takes period (6)	Property over 1
er Octobras Walter	(4) Deficiency of Vitamins sandqord (1)	e de contratte de la contratte
120.	(3) G1 phase (4) G2 phase (5) G1 phase (6) (8)	
And the control of th	(1) Histocyte : end ni betecel era atnemaig citedatuvectori? (2) Sertoli cells	5.
And in case of the	(3) Leydig cells energement biokalvdT (1) (4) Primary spermatocyte	are during a series
121.	The protective covering of brain is: one of the protective covering of brain is: one of the protective covering of brain is:	
A CONTROL OF THE CONT	(1) Pleura (2) Meninges, Assign (4)	
	(3) Pericardium Paiwellot evad 2012 Peritonium	
122.	Fertilization of ova in human takes place in general deficiency. (1)	957
A CONTRACTOR OF THE CONTRACTOR	(1) Uterus (2) Vagina magnala (2)	eganin en la en entre en en
A CALIFORNIA CON DESCRIPTION OF THE PROPERTY O	(3) Fallopian tube (4) Ovary indepartment (8)	
123.	Carbon monoxide poisoning is due to the formation of:	
	(1) Methane Carbonic acid which of the following is essential for blood clothing (2) Carbonic acid	
Company Transport August Valence	(3) Carboxy haemoglobin (2) dggry.I (1) (3) Carboxy haemoglobin (4) Oxy-haemoglobin	or There is the constitution
THE STATE OF THE S	(a) 12 B. C. (a) W. B. C.	
124.	Abnormal secondary growth is found in: it no noise all a sign of the sign of	
e sales and a sale	(1) Cucurbita (2) Proteins (1)	A COLUMN TO A COLU
Note that the state of the stat	(3) Triticum (4) Sugarcane sand (8)	etr sacromoras



Question No.	Questions									
125.	Which is the causative organism of Typhoid?									
	(1) Salmonella typhi									
	(2) Mycobacterium typhi									
	(3) Plasmodium falciparum									
	(4) All of the above									
126.	Vinegar is obtained from mollasses with the help of:									
	(1) Aspergillus	(2) Rhizopus								
	(3) Acetobacter	(4) Penicillium								
127.	The amount of ATP required for the synthesis of one glucose molecule in									
12	C_4 pathway is:									
	(1) 18 ATP	(2) 20 ATP								
	(3) 28 ATP	(4) 30 ATP								
128.	What are the natural reservoir	r of phosphorus?								
120.	(1) Rock	(2) Animal bones								
+	(3) Sea water	(4) Plants								
100	I I I I I I	e located in:								
129.		(2) Himachal Pradesh								
	(1) Haryana (3) Jammu & Kashmir	(4) Andamans								
		ro digoaga?								
130		(2) Bronchitis								
	(1) Measles									
	(3) Glaucoma	(4) Diabetes								

SET CODE						
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