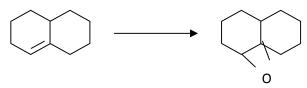
C			
Sr. No.	Question		
1.	A genome/ nucleoid consists of		
1.	(A) Histone and RNA	(B)	A single double stranded DNA
	(C) A single stranded DNA	(D)	Histone and non-histone
2.	A bivalent consists of	(D)	Thistone and non mistone
2.	(A) Two chromatids and one chromosome	(B)	Four chromotids and two centromeres
	(C) Two chromatids and two centromeres	(D)	Four chromatids and four centromeres
3.	The mechanism of ATP formation both in chloro	` /	
٥.	(A) Chemiosmotic theory	(B)	Munch's hypothesis
	(C) Relay pump theory	(D)	Cholodny-Wont's model
4.	Algae differs from Riccia and Marchantia in have		0-10-10-10-10-10-10-10-10-10-10-10-10-10
	(A) Multicellular body	(B)	Multicellular sex organs
	•	` ′	-
-	(C) Pyrenoids in the cell	(D)	Thalloid body
5.	Fern stele is a	(D)	D: 4 4 1
	(A) Protostele	(B)	Dictyostele
((C) Sphinostele	(D)	None of these
6.	The protonema is a stage in the life cycle of (A) Riccia	(D)	Evenorio
		(B)	Funaria
7.	(C) Bryophytes Urcein dye is obtained from the lichen	(D)	Cycas
7.	3	(D)	Cladonia
		(B)	
	(C) Ramalin	(D)	Lecanora
8.	Schizolysigenous cavity is present in		
	(A) Maize stem	(B)	Nymphaea root
	(C) Sunflower root	(D)	None of these
9.	An embryo may sometimes develop from cell of		•
	(A) Apospory	(B)	Partheogensis
	(C) Parthenocarpy	(D)	Apogamy
10.	Systematic deals with	(=\)	
	(A) Identification of organisms	(B)	Classification of organisms
	(C) Diversity of all organisms and existing	(D)	Identification, naming and
	relationships amongst themselves		classification of both plants and
1.1	Diants mood one of the fall arrives for ATD format	: .	animals
11.	Plants need one of the following for ATP formati		N. Co
	(A) N, P (C) K	(B) (D)	N, Ca N, Cu
12.	The overall goal of glycolysis, Krebs cycle and e		
12.	(A) Sugars	(B)	1 2
	(C) ATP in stepwise units	(D)	ATP in one large oxidation reaction
13.	A sudden change from anaerobic to aerobic proce		
13.	(A) Emerson effect	(B)	Hill reaction
	(C) Pasteur effect	(D)	Blackman's Law
14.	Root pressure occurs when there is:	(D)	Ditterment 5 Law
1	(A) More transpiration and more absorption	(B)	Less transpiration and more absorption
	(C) Less transpiration and less absorption	(D)	More transpiration and less absorption
15.	At which times there is no net gaseous exchange	` ′	
	(A) Day time	(B)	Night time
	(C) Dawn and Dusk	(D)	Midnight
		` /	

16.		PH ⁺ is reduced to NADPH in:	(D)	DOIL
	(A) (C)	PSI Non-cyclic photophosphorylation	(B) (D)	PSII Calvin cycle
17.	` ′	npetitive inhibitor of succinate dehydrogenase	` /	Carvin cycle
17.	(A)	Malate	(B)	Oxaloacetate
	(C)	ά- ketoglutarate	(D)	Malonate
18.		many stomata cover the leaf surface?	(-)	
	(A)	0.03-0.04%	(B)	10%
	(C)	1-2%	(D)	50%
19.		hormone which induces triple response is:	` /	
	(A)	ABA	(B)	C_2H_4
	(C)	IAA	(D)	GA_3
20.		H of a solution is 8.3 what is the [OH]?		7
	(A)	5×10^{-9}	(B)	1×10^{-7}
	(C)	$2x \cdot 10^{-6}$	(D)	5×10^{-6}
21.		lectrophoresis technique that uses isoelectric		•
	(A)	AGE	(B)	PFGE
22	(C)	2D-PAGE	(D)	SDS-PAGE
22.		rared spectroscopy, which frequency range is		
	(A)	400-1400 cm ⁻¹	(B)	1400-900 cm ⁻¹
22	(C)	900-600 cm ⁻¹	(D)	600-250 cm ⁻¹
23.		nation is an example of	(D)	A -4:6:-:-11
	(A)	Naturally acquired active immunity	(B)	· ·
24	(C)	Naturally acquired passive immunity	(D)	Artificially acquired passive immunity
24.		etic seed is produced by encapsulating somati Sodium chloride		
	(A) (C)	Calcium acetate	(B) (D)	Sodium alginate Sodium nitrate
25.	` ′	sue culture medium, the embryoids formed from	. ,	
23.	(A)	Cellular totipotency	лп рог (В)	Organogenesis
	(C)	Double fertilization	(D)	Test tube culture
26.		henomenon of the reversion of mature cells to	· /	
20.	callus) IIICI I	stematic state leading to formation of
	(A)	Redifferentiation	(B)	Dedifferentiation
	(C)	Either (A) or (B)	(D)	None of these
27.	` ′	nato, fruit is a:	(2)	Trong of mese
	(A)	Drupe	(B)	Berry
	(C)	Pepo	(D)	Achene
	(C)	Геро	(D)	renene
28.	The fi	inal phase of development is:		
	(A)	Juvenile	(B)	Maturity
	(C)	Seedling	(D)	Senescence
29.	The w	vater potential of pure water at atmospheric pr	essure	e is:
	(A)	-2.3 bar	(B)	+2.3 bar
	(C)	zero bar	(D)	one bar
30.	Synch	ronization of reproductive behavior of plants	with t	their environment is done by:
	(A)	Photoperiod and vernalization	(B)	Respiration and vernalization
	(C)	Transpiration and photoperiodism	(D)	Respiration and transpiration
31.	Natio	nal Science Day is celebrated on:		
	(A)	5 June	(B)	21 June
	(C)	28 February	(D)	16 October
		2 PG Med	Α	

32.	Whic	h among the following monsoon is mainly re	sponsı	ble for rains in India?
	(A)	South-East	(B)	North-West
	(C)	South-West	(D)	North-East
33.		h gas is generally used in cold stores?	()	
	(A)	Ethylene	(B)	Oxygen
	(C)	Methane	(D)	Acetelene
34.		ring of coconut, black pepper and ginger simu		
<i>J</i> 1.	(A)	Relay cropping	(B)	Intercropping
	(C)	Multiple cropping	(D)	Multistoried_cropping
35.		lses, limiting amino acids is:	(D)	wutustorrea_cropping
33.	_	Methionine	(D)	Valine
	(A)		(B)	
	(C)	Lysine	(D)	Cystein
36.		n a compressed gas is allowed to expand throu	ugh a p	porous plug at a temperature above its
	inver	sion temperature, then		
	(A)	A fall in temperature is observed	(B)	A rise in temperature is observed
	(C)	A rise after an initial fall in temperature is	(D)	No change in temperature is noticed
		observed		-
37.	Gas A	A can be liquefied at room temperature by app	olying	pressure but gas B cannot. This reflects
	(A)	Critical temperature of B is less than that	(B)	Critical temperature of B is greater
	()	of A	()	than that of A
	(C)	Critical temperature of both A and B are	(D)	No conclusion can be drawn on the
	(-)	greater than room temperature	()	critical temperature of A and B
38.	Claus	sius-Clapeyron's equation gives the variation	of	
	(A)	Boiling point of liquid with temperature	(B)	Vapour pressure of a liquid with
	(11)	Bonning point of riquid with temperature	(2)	temperature
	(C)	Coefficient of viscosity of a liquid with	(D)	Surface tension of a liquid with
	(0)	pressure	(2)	temperature
39.	At an	by temperature T, the entropy of a solid substa	ince (S	*
٥,٠	(A)	$C_P dT$	(B)	Cn.
		•	(D)	$\frac{GP}{T}$
	(C)	$\int_{0}^{TC_{p}dT} dT dT$	(D)	$\frac{C_{p}}{(C_{p}-C_{v})}/T$
				' I
10	The	valva of a avilibrium a anatont for an and athor		action.
40.		value of equilibrium constant for an endotherr		
	(A)	Increases with increase in temperature	(B)	Decreases with increase in temperature
	(C)	Is independent of temperature	(D)	Information not sufficient to draw any
4.1	3371	1 64 64		conclusion
41.	wnic	h of the following statement is not correct?		
	(A)	Fast reactions have low activation energy	(B)	Activation energy of a reaction
	,		` /	depends on the chemical nature of
				reactants and products
	(C)	A catalyst increases the rate of reaction by	(D)	With increase in temperature, the rate
	(-)	decreasing the activation energy of the	()	of reaction decreases in case of
		reaction		exothermic reactions
42.	Whic	h formula cannot be used to calculate the mo	lar mas	
.2.	(A)	$K_b \times W_b \times 10^3$	(B)	W_BRT
	(11)			$\frac{\overline{\pi V}}{\pi V}$
	(C)	$\Delta T_b \times W_A$	(D)	
	(C)	$\frac{\Delta T_b \times W_B \times 10^3}{K_b \times W_A}$	(D)	$rac{p_A^o imes W_B imes M_A}{(p_A^o - p) imes W_A}$
		$K_b \times W_A$		$(p_A^o - p) \times W_A$

43.	The EMF of the cell, Zn Zn ²⁺ Ag ⁺ Ag is independ		
	(A) The volume of Zn^{2+} and Ag^{+} solutions	(B)	The molarity of Zn^{2+} ions in the
		<i>(</i> -)	solution
	(C) The molarity of Ag ⁺ ions in the solution	(D)	Temperature
44.	What happens when electric current is passed throu	igh aq	ueous of sodium chloride
	(A) O² is evolved at cathode	` /	O ² is evolved at anode
4.5	(C) pH of the solution gradually decreases		pH of the solution gradually increases
45.	The dimensions of rate constant for a first order rea	action	involve
	(A) Time and concentration	(B)	Time only
	(C) Concentration only	(D)	Neither time nor concentration
46.	The $t_{1/2}$ of a first order reaction is found to be 2 min	iutes. '	The percentage of the reactant left after
	360 seconds is		
	(A) 12.5	(B)	25
	(C) 15	(D)	7.5
47.	The net energy change in a reversible, cyclic proce		
	(A) 3/2 RT	(B)	Zero
4.0	(C) Always >0	(D)	Always <0
48.	The magnetic quantum number for the last electron		· · · · · · · · · · · · · · · · · · ·
	(A) 3	(B)	2
40	(C) 1	(D)	0
49.	The octahedral molecular shape is associated with		hybridisation.
	(A) sp^3d	(B)	$sp_3^3d^2$
	(C) sp^3d^3	(D)	sp^3
50.	Which of the following is the strongest acid	(D)	D
	(A) Acetic acid	(B)	Propionic acid
	(C) Butanoic acid	(D)	Chloroacetic acid
51.	An example of natural semi conductor is	(D)	•••
	(A) boron	(B)	silicon
50	(C) aluminium	(D)	Phosphorous
52.	The ionic strength of a solution containing 0.02 M		-
	(A) 0.03	(B)	0.06
52	(C) 0.09	(D)	0.1
53.	Balmer series consists of lines in the spectral range (A) 100-180 nm		220, 240,
		(B)	230-340 nm
54.	(C) 400-700 nm Aluminium chloride is a/an	(D)	900-1100 nm
J 4 .		(D)	Lewis base
	(A) Lewis acid(C) Bronsted-Lowry acid	(B) (D)	Arrhenius acid
55.	The pH of 10 ⁻⁸ N HCl is approximately	(D)	Affilemus aciu
33.	(A) 8	(B)	7.02
	(A) 6 (C) 7	(D)	6.96
56.	Covalent character of the bond is maximum in the	` /	
50.	(A) LiCl	(B)	NaCl
	(C) KCl	(D)	CaCl ₂
57.	This species generally act as Bronsted acid and bas		CaC ₁₂
51.	(A) HSO ₄	(B)	Na^2CO_3
	(A) 1130 ₄ (C) NH ₃	(D)	OH ⁻
58.	This serves as a differentiating solvent for HCl, H ₂ :	. ,	
20.	(A) Liquid NH ₃		H_2O
	(C) Liquid CH ₃ COOH		C6H6

- 59. Silicon carbide widely used as an abrasive called carborundum belongs to the class of carbides known as (A) Ionic carbides Interstitial carbides (B) (C) Covalent carbides (D) Silicates Which of the following statement concerning probability density (Ψ^2) and radial 60. distribution function $(4\pi r^2 \Psi^2)$ for s-orbital of H-like species is correct? Ψ^2 is maximum at nucleus but Ψ^2 is minimum at nucleus but $4\pi r^2 \Psi^2$ (B) $4\pi r^2 \Psi^2$ is minimum at nucleus is maximum at nucleus Both Ψ^2 and $4\pi r^2 \Psi^2$ are minimum Both Ψ^2 and $4\pi r^2 \Psi^2$ are maximum at (D) (C) at nucleus 61. Which conformer among the following is most unstable (a,e) 1,2 – dimethyl cyclohexane (a,e) 1,3 – dimethyl cyclohexane (B) (a,a) 1,4 - dimethylcyclohexane (a,a) 1,3 - dimethylcyclohexane (C) (D) 62. Which of the following compounds readily undergoes S_N1 reactions owing to the stability of its cartonium ion (A) (C) (D)
- 63. Which reagent effects the following conversion?



(A) m- chloroperbenzoic acid (B) Acetic anhydride

NaOH/Br₂ (C)

(C)

one

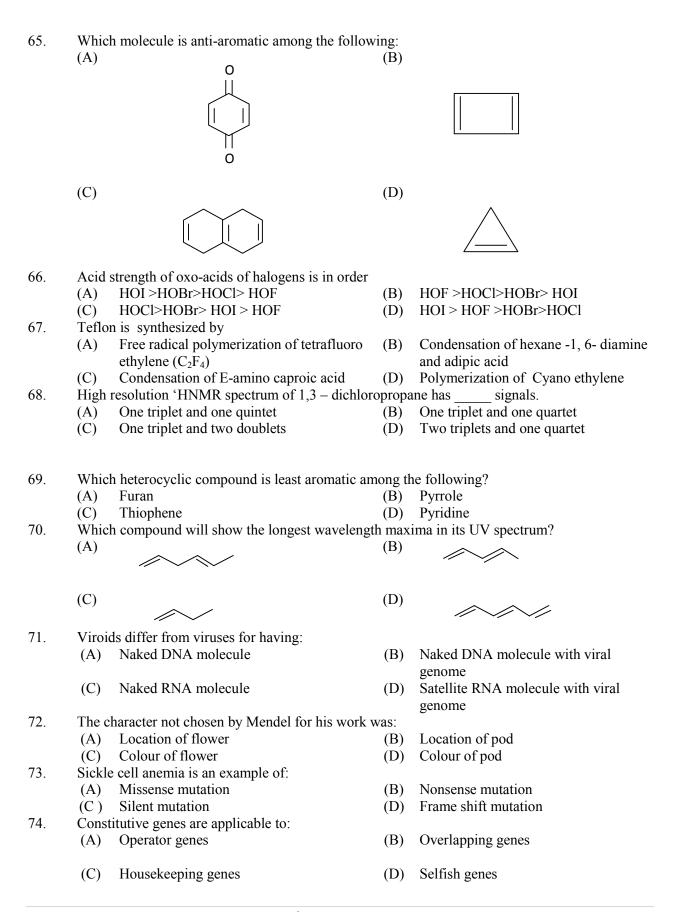
- (D) Acetic acid
- 64. Consider the following photochemical reactions:

$$H_2 + Cl_2 \xrightarrow{hv} 2 HCl$$

$$\begin{array}{c} 4000\text{\AA} \\ \text{and} \\ H_2 + Br_2 \xrightarrow{hv} 2 HBr \end{array}$$

These reactions are the examples of which of the following?

- (A) Reactions of high and low quantum yields, respectively
 - Reactions of quantum yields equal to
- (B) Reactions of low and high quantum yields, respectively
- (D) Reactions of equal quantum yields but not equal to one



75.	Multiple alleles are present:		
	(A) At different loci on same chromosome	(B)	At same locus of the chromosome
	(C) On non-sister chromatids	(D)	On different chromosomes
76.	Which one of the following is the basic structu	ural and fur	actional unit of ecology?
	(A) Ecotone	(B)	Ecosystem
	(C) Ecosphere	(D)	Ecotype
77.	A type of behaviour in which animals learn to	ignore stin	
	(A) Habituation	(B)	Imprinting
	(C) Motivation	(D)	Sensitization
78.	The ultimate source of organic evolution is:	` ′	
	(A) Use and disuse of organs	(B)	Natural selection
	(C) Mutation	(D)	Isolation
79.	PCR and Restricted Fragment Length Polymon	rphism are	the methods of:
	(A) DNA Sequencing	(B)	Study of enzymes
	(C) Genetic fingerprinting	(D)	Genomic transformation
80.	Which of the following is symbiotic nitrogen f	fixer?	
	(A) Azoll	(B)	Azotobacter
	(C) Glomus	(D)	Frankia
81.	Archenteron begins forming in:	` ′	
	(A) Early gastrula	(B)	Late gastrula
	(C) Early morula	(D)	Blastula
82.	Microbe used for biocontrol of pest butterfly c	caterpillars	is:
	(A) Trichoderma sp.	(B)	Saccharomyces cerevisiae
	(C) Bacillus thuringiensis	(D)	Streptococcus sp.
83.	The adults are radially symmetrical but larvae		
	(A) Mollusca	(B)	Echinodermata
	(C) Hemichordata	(D)	Cephalochordata
84.	A nerve has K ⁺ concentration:	, ,	•
	(A) More on the outside	(B)	Less on the outside
	(C) More on the inside	(D)	Equal on both sides of membrane
85.	Amino acids proline, glycine, valine and threo	onine are co	
	the genetic code is:		•
	(A) Overlapping	(B)	Degnerate
	(C) Ambiguous	(D)	Universal
86.	The frequency of 'O' blood group in children	of parents l	pelonging to blood group 'AB' is:
	(A) 0 per cent	(B)	25 per cent
	(C) 50 per cent	(D)	75 per cent
87.	If a population becomes stagnant after expone	ntial growt	h, its growth curve is:
	(A) Z-shaped	(B)	S-shaped
	(C) J-shaped	(D)	O-shaped
88.	The era which includes maximum periods is:		-
	(A) Cenozoic	(B)	Proterozoic
	(C) Mesozoic	(D)	Palaeozoic
89.	The commonly used vector (s) for human geno	ome sequer	ncing are:
	(A) T-DNA	(B)	BAC and YAC
	(C) Expression vectors	(D)	T&A cloning vectors
90.	In earthworms, the fertilization takes place in:		-
	(A) Oviduct	(B)	Spermatheca
		(D)	Cocoon
	(C) Clitellum	()	

91.	Whenever expression of a trait is limited to one sex, it is known as:					
	(A)	Sex linked trait	(B)	Sex influenced trait		
	(C)	Sex limited trait	(D)	None of these		
92.	Hiruc	din can be extracted from transgenic plant:				
	(A)	Brassica napus	(B)	Bacillus napus		
	(C)	Bt brinjal	(D)	Bt Brassica napus		
93.	Whic	th of the following is not a bacterial disease	:	_		
	(A)	Leprosy	(B)	Infantile paralysis		
	(C)	Diphtheria	(D)	Cholera		
94.	Comp	olete linkage has been reported in:				
	(A)	Human male	(B)	Human female		
	(C)	Male Drosophila	(D)	Female Drosophila		
95.	Enzy	me used in formation of cDNA from mRNA	A is:			
	(A)	RNA polymerase	(B)	DNA polymerase		
	(C)	Reverse transcriptase	(D)	Gyrase		
96.	Exan	pple of a digenetic parasite is:				
	(A)	Entamoeba	(B)	Enterobium		
	(C)	Planaria	(D)	Schistosoma		
97.	If the total amount of adenine and thymine in a double stranded DNA is 45%, the amount of					
	Guan	ine in this DNA will be:				
	(A)	22.5%	(B)	27.5%		
	(C)	45%	(D)	55%		
98.	Mode	ern classification is based on:				
	(A)	Physiology	(B)	Fossils		
	(C)	Phylogeny	(D)	Morphology		
99.	Cons	idering fermentation at industrial level, mic	ro-organ	nism Bacillus is used to form:		
	(A)	Ethanol	(B)	Formic acid		
	(C)	Acrylic acid	(D)	Glycerol		
100.	Produ	action of transgenic animals requires transfe	ections o	f:		
	(A)	Egg or embryo	(B)	Stem cells		
	(C)	Red blood cells	(D)	All of these		

	T			
Sr.	Questi	on		
No.				
1.	The ph	nenomenon of the reversion of mature cells to	o meri	stematic state leading to formation of
	(A)	Redifferentiation	(B)	Dedifferentiation
	(C)	Either (A) or (B)	(D)	None of these
2.	In tom	ato, fruit is a:		
	(A)	Drupe	(B)	Berry
	(C)	Pepo	(D)	Achene
3.		nal phase of development is:	(T)	
	(A)	Juvenile	(B)	Maturity
4	(C)	Seedling	(D)	Senescence
4.		ater potential of pure water at atmospheric p		
	(A)	-2.3 bar	(B)	+2.3 bar
	(C)	zero bar	(D)	one bar
5.	Synchi	ronization of reproductive behavior of plants	with	their environment is done by:
	(A)	Photoperiod and vernalization	(B)	Respiration and vernalization
	(C)	Transpiration and photoperiodism	(D)	Respiration and transpiration
6.		nal Science Day is celebrated on:		
	(A)	5 June	(B)	21 June
-	(C)	28 February	(D)	16 October
7.		among the following monsoon is mainly res	_	
	(A)	South-East	(B)	North-West
	(C)	South-West	(D)	North-East
8.	Which	gas is generally used in cold stores?		
	(A)	Ethylene	(B)	Oxygen
	(C)	Methane	(D)	Acetelene
9.		ng of coconut, black pepper and ginger simu		
	(A)	Relay cropping	(B)	Intercropping Malkintonia demanding
10	(C)	Multiple cropping	(D)	Multistoried_cropping
10.	(A)	ses, limiting amino acids is: Methionine	(B)	Valine
	(C)	Lysine	(D)	Cystein
11.		a compressed gas is allowed to expand throu	. /	•
		ion temperature, then	. 	vereus prug ut u temperuture uce te rus
	(A)	A fall in temperature is observed	(B)	A rise in temperature is observed
	(C)	A rise after an initial fall in temperature is	(D)	No change in temperature is noticed
	. ,	observed	` ′	
12.	Gas A	can be liquefied at room temperature by app	lving	pressure but gas B cannot. This reflects
12.	(A)	Critical temperature of B is less than that	(B)	Critical temperature of B is greater
	(1-1)	of A	(2)	than that of A
	(C)	Critical temperature of both A and B are	(D)	No conclusion can be drawn on the
	. ,	greater than room temperature	` /	critical temperature of A and B
13.	Clauci	us-Clapeyron's equation gives the variation	of	-
13.	(A)	Boiling point of liquid with temperature	(B)	Vapour pressure of a liquid with
	(21)	Donning point of fiquid with temperature	(3)	temperature
	(C)	Coefficient of viscosity of a liquid with	(D)	Surface tension of a liquid with
	` /	pressure	` '	temperature

14.		y temperature T, the entropy of a solid substa	nce (S	$S_{\rm T}$) is given by the expression
	(A)	$C_P dT$	(B)	$C_{p_{/_{T}}}$
	(C)	$\int_{-T}^{TC_{p}dT} /_{T}$	(D)	$(C_p - C_v)_{/T}$
1.5	Thor	Jo		vation
15.	(A) (C)	ralue of equilibrium constant for an endotherr Increases with increase in temperature Is independent of temperature	(B) (D)	Decreases with increase in temperature Information not sufficient to draw any conclusion
16.	Which (A)	h of the following statement is not correct? Fast reactions have low activation energy	(B)	Activation energy of a reaction depends on the chemical nature of reactants and products
	(C)	A catalyst increases the rate of reaction by decreasing the activation energy of the reaction	(D)	With increase in temperature, the rate of reaction decreases in case of exothermic reactions
17.	Whic	h formula cannot be used to calculate the mol	ar ma:	ss of a solute?
	(A)	$K_b \times W_b \times 10^3$	(B)	$rac{W_BRT}{\pi V}$
	(C)	$\frac{\Delta T_b \times W_A}{\Delta T_b \times W_B \times 10^3}$ $\frac{K_b \times W_A}{K_b \times W_A}$	(D)	$rac{\pi V}{p_A^o imes W_B imes M_A} \ rac{(p_A^o - p) imes W_A}{}$
10				
18.	The E (A)	EMF of the cell, Zn Zn ²⁺ Ag ⁺ Ag is independent. The volume of Zn ²⁺ and Ag ⁺ solutions	lent of (B)	
	(C)	The molarity of Ag ⁺ ions in the solution	(D)	Temperature
19.	What (A) (C)	happens when electric current is passed throughout O ² is evolved at cathode pH of the solution gradually decreases	ugh aq (B) (D)	ueous of sodium chloride O² is evolved at anode pH of the solution gradually increases
20.	The d (A) (C)	limensions of rate constant for a first order real Time and concentration Concentration only	(B) (D)	involve Time only Neither time nor concentration
21.	The t	_{1/2} of a first order reaction is found to be 2 min	nutes.	The percentage of the reactant left after
		econds is 12.5 15	(B) (D)	25 7.5
22.	The n (A) (C)	net energy change in a reversible, cyclic proce 3/2 RT Always >0	ess is (B) (D)	Zero Always <0
23.	The n (A) (C)	nagnetic quantum number for the last electron 3	n in the (B) (D)	e sodium atom (atomic number z=11) is 2 0
24.	The o (A) (C)	octahedral molecular shape is associated with $sp^3d sp^3d^3$	(B) (D)	hybridisation. $sp^{3}d^{2}$ sp^{3}

25.	Whic (A)	h of the following is the strongest acid Acetic acid	(B)	Propionic acid			
	(C)	Butanoic acid	(D)	Chloroacetic acid			
26.	An ex	cample of natural semi conductor is					
	(A)	boron	(B)	silicon			
	(C)	aluminium	(D)	Phosphorous			
27.	The i	onic strength of a solution containing 0.02 M	1 Na ₂ SO	O ₄ and 0.01 M MgCl ₂ is			
	(A)	0.03	(B)	0.06			
	(C)	0.09	(D)	0.1			
28.	Balm	er series consists of lines in the spectral rang	ge				
	(A)	100-180 nm	(B)	230-340 nm			
	(C)	400-700 nm	(D)	900-1100 nm			
29.	Alum	iinium chloride is a/an					
	(A)	Lewis acid	(B)	Lewis base			
	(C)	Bronsted-Lowry acid	(D)	Arrhenius acid			
30.	The p	oH of 10 ⁻⁸ N HCl is approximately					
	(A)	8	(B)	7.02			
	(C)	7	(D)	6.96			
31.	Cova	lent character of the bond is maximum in the	e case o	f			
	(A)	LiCl	(B)	NaCl			
	(C)	KCl	(D)	$CaCl_2$			
32.	This	This species generally act as Bronsted acid and base					
	(A)	HSO ₄	(B)	Na^2CO_3			
	(C)	NH_3	(D)	OH.			
33.	This	This serves as a differentiating solvent for HCl, H ₂ SO ₄ and HNO ₃					
	(A)	Liquid NH ₃	(B)	H_2O			
	(C)	Liquid CH ₃ COOH	(D)	C_6H_6			
34.		on carbide widely used as an abrasive called	carboru	indum belongs to the class of carbides			
	know		(D)	Interstitial corbides			
	(A) (C)	Ionic carbides Covalent carbides	(B) (D)	Interstitial carbides Silicates			
35.		ch of the following statement concerning					
33.		bution function $(4\pi r^2 \Psi^2)$ for s-orbital of					
	(A)	Ψ^2 is minimum at nucleus but $4\pi r^2 \Psi^2$	(B)	Ψ^2 is maximum at nucleus but			
	()	is maximum at nucleus	(-)	$4\pi r^2 \Psi^2$ is minimum at nucleus			
	(C)	Both Ψ^2 and $4\pi r^2 \Psi^2$ are maximum at	(D)	Both Ψ^2 and $4\pi r^2 \Psi^2$ are minimum			
	\ /	nucleus	` '	at nucleus			
36.	Whic	h conformer among the following is most ur	ıstable				
	(A)	(a,e) 1,2 – dimethyl cyclohexane	(B)	(a,e) 1,3 – dimethyl cyclohexane			
	(C)	(a,a) 1,3 - dimethylcyclohexane	(D)	(a,a) 1,4 – dimethylcyclohexane			

Which of the following compounds readily undergoes S_N1 reactions owing to the stability of its cartonium ion

(A)



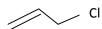
(B)



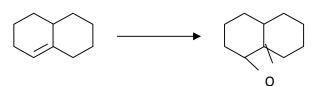
(C)



(D)



38. Which reagent effects the following conversion?



- (A) m- chloroperbenzoic acid
- (C) NaOH/Br₂

- (B) Acetic anhydride
- (D) Acetic acid
- 39. Consider the following photochemical reactions:

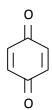
$$H_2 + Cl_2 \xrightarrow{hv} 2 HCl_2$$

$$4000\text{Å}$$
and
$$H_2 + Br_2 \xrightarrow{hv} 2HBr$$

These reactions are the examples of which of the following?

- (A) Reactions of high and low quantum yields, respectively
- (C) Reactions of quantum yields equal to
- (B) Reactions of low and high quantum yields, respectively
- (D) Reactions of equal quantum yields but not equal to one
- 40. Which molecule is anti-aromatic among the following:

(A)



(B)



(C)



(D)



- 41. Acid strength of oxo-acids of halogens is in order
 - (A) HOI >HOBr>HOCl> HOF
- (B) HOF >HOCl>HOBr> HOI
- (C) HOCl>HOBr> HOI > HOF
- (D) HOI > HOF > HOBr > HOC1

42.	Teflon is synthesized by (A) Free radical polymerization of tetrafluo	ro (B)	Condensation of hexane -1, 6- diamine				
	ethylene (C ₂ F ₄) (C) Condensation of E-amino caproic acid	(D)	and adipic acid Polymerization of Cyano ethylene				
43.	 High resolution 'HNMR spectrum of 1,3 – dicl (A) One triplet and one quintet (C) One triplet and two doublets 	hloropropa (B) (D)	one has signals. One triplet and one quartet Two triplets and one quartet				
44.	Which heterocyclic compound is least aromatic (A) Furan (C) Thiophene	c among th (B) (D)	ne following? Pyrrole Pyridine				
45.	Which compound will show the longest wavelength maxima in its UV spectrum?						
	(A)	(B)					
	(C)	(D)					
46.	Viroids differ from viruses for having: (A) Naked DNA molecule	(B)	Naked DNA molecule with viral				
	(C) Naked RNA molecule	(D)	genome Satellite RNA molecule with viral genome				
47.	The character not chosen by Mendel for his work was:						
	(A) Location of flower	(B)	Location of pod				
40	(C) Colour of flower	(D)	Colour of pod				
48.	Sickle cell anemia is an example of: (A) Missense mutation (C) Silent mutation	(B) (D)	Nonsense mutation Frame shift mutation				
49.	Constitutive genes are applicable to: (A) Operator genes	(B)	Overlapping genes				
50.	(C) Housekeeping genes Multiple alleles are present:	(D)	Selfish genes				
50.	(A) At different loci on same chromosome (C) On non-sister chromatids	(B) (D)	At same locus of the chromosome On different chromosomes				
51.	Which one of the following is the basic structu(A) Ecotone(C) Ecosphere	ral and fur (B) (D)	nctional unit of ecology? Ecosystem Ecotype				
52.	A type of behaviour in which animals learn to (A) Habituation	(B)	Imprinting				
	(C) Motivation	(D)	Sensitization				
53.	The ultimate source of organic evolution is:(A) Use and disuse of organs(C) Mutation	(B) (D)	Natural selection Isolation				
54.	PCR and Restricted Fragment Length Polymor (A) DNA Sequencing	(B)	Study of enzymes				
	(C) Genetic fingerprinting	(D)	Genomic transformation				

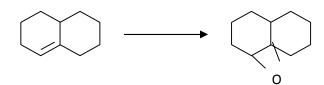
55.		h of the following is symbiotic nitroger		44-h4		
	(A)	Azoll	(B) (D)	Azotobacter Frankia		
	(C)	Glomus	(D)	Ггапкіа		
56.	Arche	enteron begins forming in:				
	(A)	Early gastrula	(B)	Late gastrula		
	(C)	Early morula	(D)	Blastula		
57.	Micro	bbe used for biocontrol of pest butterfly	caternillars	is·		
07.	(A)	Trichoderma sp.	(B)	Saccharomyces cerevisiae		
	(C)	Bacillus thuringiensis	(D)	Streptococcus sp.		
58.	` /	dults are radially symmetrical but larva	, ,	•		
	(A)	Mollusca	(B)	Echinodermata		
	(C)	Hemichordata	(D)	Cephalochordata		
59.		rve has K ⁺ concentration:	(2)	e epitare ener auta		
	(A)	More on the outside	(B)	Less on the outside		
	(C)	More on the inside	(D)	Equal on both sides of membrane		
60.	. /	to acids proline, glycine, valine and three	` /			
00.		enetic code is:	omme are co	aca by four codons cach. It shows that		
	(A)		(B)	Degnerate		
	(C)	Ambiguous	(D)	Universal		
61.	` ′	requency of 'O' blood group in children	` /			
01.			-			
	(A)	0 per cent	(B)	25 per cent		
62.	(C)	50 per cent	(D)	75 per cent		
02.	_	opulation becomes stagnant after expon	~	-		
	(A)	Z-shaped	(B)	S-shaped		
	(C)	J-shaped	(D)	O-shaped		
63.	The e	ra which includes maximum periods is:				
	(A)	Cenozoic	(B)	Proterozoic		
	(C)	Mesozoic	(D)	Palaeozoic		
64.	The commonly used vector (s) for human genome sequencing are:					
	(A)	T-DNA	(B)	BAC and YAC		
	(C)	Expression vectors	(D)	T&A cloning vectors		
65.	In ear	thworms, the fertilization takes place in	ı:	-		
	(A)	Oviduct	(B)	Spermatheca		
	(C)	Clitellum	(D)	Cocoon		
66.	Whenever expression of a trait is limited to one sex, it is known as:					
	(A)	Sex linked trait	(B)	Sex influenced trait		
	(C)	Sex limited trait	(D)	None of these		
67.	. /	lin can be extracted from transgenic pla		- 10000		
	(A)	Brassica napus	(B)	Bacillus napus		
	(C)	Bt brinjal	(D)	Bt Brassica napus		
68.	` /	h of the following is not a bacterial dise		<i>x</i>		
	(A)	Leprosy	(B)	Infantile paralysis		
	(C)	Diphtheria Diphtheria	(D)	Cholera		
	(-)	r	(2)			
69.	_	plete linkage has been reported in:				
	(A)	Human male	(B)	Human female		
	(C)	Male Drosophila	(D)	Female Drosophila		

70.	Enzyme used in formation of cDNA from mRNA	A is:	
	(A) RNA polymerase	(B)	DNA polymerase
	(C) Reverse transcriptase	(D)	Gyrase
71.	Example of a digenetic parasite is:		
	(A) Entamoeba	(B)	Enterobium
	(C) Planaria	(D)	Schistosoma
72.	If the total amount of adenine and thymine in a c	double st	randed DNA is 45%, the amount of
	Guanine in this DNA will be:		
	(A) 22.5%	(B)	27.5%
	(C) 45%	(D)	55%
73.	Modern classification is based on:		
	(A) Physiology	(B)	Fossils
	(C) Phylogeny	(D)	Morphology
74.	Considering fermentation at industrial level, mic	cro-organ	nism Bacillus is used to form:
	(A) Ethanol	(B)	Formic acid
	(C) Acrylic acid	(D)	Glycerol
75.	Production of transgenic animals requires transfe	ections o	f:
	(A) Egg or embryo	(B)	Stem cells
	(C) Red blood cells	(D)	All of these
76.	A genome/ nucleoid consists of		
	(A) Histone and RNA	(B)	A single double stranded DNA
	(C) A single stranded DNA	(D)	Histone and non-histone
77.	A bivalent consists of		
	(A) Two chromatids and one chromosome	(B)	Four chromotids and two centromeres
	(C) Two chromatids and two centromeres	(D)	Four chromatids and four centromeres
78.	The mechanism of ATP formation both in chlore	oplast an	<u>-</u>
	(A) Chemiosmotic theory	(B)	Munch's hypothesis
	(C) Relay pump theory	(D)	Cholodny-Wont's model
79.	Algae differs from Riccia and Marchantia in hav	-	
	(A) Multicellular body	(B)	Multicellular sex organs
	(C) Pyrenoids in the cell	(D)	Thalloid body
80.	Fern stele is a		
	(A) Protostele	(B)	Dictyostele
	(C) Sphinostele	(D)	None of these
81.	The protonema is a stage in the life cycle of		
	(A) Riccia	(B)	Funaria
	(C) Bryophytes	(D)	Cycas
82.	Urcein dye is obtained from the lichen		
	(A) Lasallia	(B)	Cladonia
	(C) Ramalin	(D)	Lecanora
83.	Schizolysigenous cavity is present in		
	(A) Maize stem	(B)	Nymphaea root
	(C) Sunflower root	(D)	None of these
84.	An embryo may sometimes develop from cell of	f an embi	•
	(A) Apospory	(B)	Partheogensis
	(C) Parthenocarpy	(D)	Apogamy
85.	Systematic deals with		
	(A) Identification of organisms	(B)	Classification of organisms
	(C) Diversity of all organisms and existing	(D)	Identification, naming and
	relationships amongst themselves		classification of both plants and animals

86.	Plant	s need one of the following for ATP formatio	n			
	(A)	N, P	(B)	N, Ca		
	(C)	K	(D)	N, Cu		
87.	The o	overall goal of glycolysis, Krebs cycle and ele	ectron 1	transport system is the formation of		
	(A)	Sugars	(B)	Nucleic acids		
	(C)	ATP in stepwise units	(D)	ATP in one large oxidation reaction		
88.	A suc	dden change from anaerobic to aerobic proces	s prod	uces		
	(A)	Emerson effect	(B)	Hill reaction		
	(C)	Pasteur effect	(D)	Blackman's Law		
89.	Root	pressure occurs when there is:				
	(A)	More transpiration and more absorption	(B)	Less transpiration and more absorption		
	(C)	Less transpiration and less absorption	(D)	More transpiration and less absorption		
90.	At w	hich times there is no net gaseous exchange b	etweer	n leaves and the atmosphere		
	(A)	Day time	(B)	Night time		
	(C)	Dawn and Dusk	(D)	Midnight		
91.	NAD	PH ⁺ is reduced to NADPH in:				
	(A)	PSI	(B)	PSII		
	(C)	Non-cyclic photophosphorylation	(D)	Calvin cycle		
92.	A co	mpetitive inhibitor of succinate dehydrogenas	e is:			
	(A)	Malate	(B)	Oxaloacetate		
	(C)	ά- ketoglutarate	(D)	Malonate		
93.	How	many stomata cover the leaf surface?				
	(A)	0.03-0.04%	(B)	10%		
	(C)	1-2%	(D)	50%		
94.	Phyto	phormone which induces triple response is:				
	(A)	ABA	(B)	C_2H_4		
	(C)	IAA	(D)	GA_3		
95.	The pH of a solution is 8.3 what is the [OH]?					
	(A)	5×10^{-9}	(B)	1×10^{-7}		
	(C)	$2x\ 10^{-6}$	(D)	5×10^{-6}		
96.	The electrophoresis technique that uses isoelectric focusing is:					
	(A)	AGE	(B)	PFGE		
	(C)	2D-PAGE	(D)	SDS-PAGE		
97.	In inf	frared spectroscopy, which frequency range is	know			
	(A)	400-1400 cm ⁻¹	(B)	1400-900 cm ⁻¹		
	(C)	900-600 cm ⁻¹	(D)	600-250 cm ⁻¹		
98.	Vacc	ination is an example of				
	(A)	Naturally acquired active immunity	(B)	Artificially acquired active immunity		
	(C)	Naturally acquired passive immunity	(D)	Artificially acquired passive immunity		
99.	Synth	netic seed is produced by encapsulating somat	tic emb	oryo with:		
	(A)	Sodium chloride	(B)	Sodium alginate		
	(C)	Calcium acetate	(D)	Sodium nitrateP		
100.	In tis	sue culture medium, the embryoids formed fr	om po	llen grains are due to:		
	(A)	Cellular totipotency	(B)	Organogenesis		
	(C)	Double fertilization	(D)	Test tube culture		

Sr.	Question		
No.	A 1 C 1 1 1 1 1 1		
1.	An example of natural semi conductor is	(D)	-:1:
	(A) boron	(B)	silicon
2	(C) aluminium	(D)	Phosphorous
2.	The ionic strength of a solution containing 0.02 M		•
	(A) 0.03	(B)	0.06
2	(C) 0.09	(D)	0.1
3.	Balmer series consists of lines in the spectral range (A) 100-180 nm		220 240
		(B)	230-340 nm 900-1100 nm
4	(C) 400-700 nm Aluminium chloride is a/an	(D)	900-1100 IIII
4.		(D)	Lewis base
	(A) Lewis acid	(B)	Lewis base
	(C) Bronsted-Lowry acid	(D)	Arrhenius acid
5.	The pH of 10 ⁻⁸ N HCl is approximately		
	(A) 8	(B)	7.02
	(C) 7	(D)	6.96
6.	Covalent character of the bond is maximum in the	case c	of
	(A) LiCl	(B)	NaCl
	(C) KCl	(D)	$CaCl_2$
7.	This species generally act as Bronsted acid and ba	se	
	(A) HSO_4^-	(B)	Na^2CO_3
	(C) NH_3	(D)	OH-
8.	This serves as a differentiating solvent for HCl, H ₂	` /	
0.	(A) Liquid NH ₃	(B)	H ₂ O
	(C) Liquid CH ₃ COOH	(D)	C_6H_6
9.	Silicon carbide widely used as an abrasive called c	. ,	* *
7.	known as	aroort	and an octongs to the class of carolices
	(A) Ionic carbides	(B)	Interstitial carbides
	(C) Covalent carbides	(D)	Silicates
10.	Which of the following statement concerning	` /	
	distribution function $(4\pi r^2 \Psi^2)$ for s-orbital of I	H_like	species is correct?
	(A) Ψ^2 is minimum at nucleus but $4\pi r^2 \Psi^2$	(R)	Ψ^2 is maximum at nucleus but
	is maximum at nucleus	(D)	1 IS maximum at nucleus but $4-r^2M^2$ is minimum at nucleus
	2 2 2		
		(D)	Both Ψ^2 and $4\pi r^2 \Psi^2$ are minimum
1.1	nucleus	. 11	at nucleus
11.	Which conformer among the following is most un		() 1 2 1 1 1
	(A) (a,e) 1,2 – dimethyl cyclohexane	(B)	(a,e) 1,3 – dimethyl cyclohexane
	(C) (a,a) 1,3 - dimethylcyclohexane	(D)	(a,a) 1,4 – dimethylcyclohexane
12.	Which of the following compounds readily underg	oes S	al reactions owing to the stability of its
12.	cartonium ion	,0 0 5 5	or reactions owing to the statement or its
	(A)	(B)	
	CI	(2)	
			> CI
	(C)	(D)	
	(C)	(-)	>─ CI
	// CI		

13. Which reagent effects the following conversion?



(A) m- chloroperbenzoic acid

(B) Acetic anhydride

(C) NaOH/Br₂

- (D) Acetic acid
- 14. Consider the following photochemical reactions:

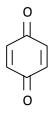
$$H_2 + Cl_2 \xrightarrow{hv} 2 HCl$$

$$\begin{array}{c} 4000\text{\AA} \\ \text{and} \\ H_2 + Br_2 \xrightarrow{hv} 2 HBr \end{array}$$

These reactions are the examples of which of the following?

- (A) Reactions of high and low quantum yields, respectively
- (B) Reactions of low and high quantum yields, respectively
- (C) Reactions of quantum yields equal to one
- Reactions of equal quantum yields but not equal to one
- 15. Which molecule is anti-aromatic among the following:

(A)



(B)

(D)



(C)



(D)



- 16. Acid strength of oxo-acids of halogens is in order
 - (A) HOI >HOBr>HOCl> HOF
- (B) HOF >HOCl>HOBr> HOI
- (C) HOCl>HOBr> HOI > HOF
- (D) HOI > HOF > HOBr > HOCl

- 17. Teflon is synthesized by
 - (A) Free radical polymerization of tetrafluoro ethylene (C_2F_4)
- (B) Condensation of hexane -1, 6- diamine and adipic acid
- (C) Condensation of E-amino caproic acid
- (D) Polymerization of Cyano ethylene
- 18. High resolution 'HNMR spectrum of 1,3 dichloropropane has _____ signals.
 - (A) One triplet and one quintet
- (B) One triplet and one quartet
- (C) One triplet and two doublets
- (D) Two triplets and one quartet
- 19. Which heterocyclic compound is least aromatic among the following?
 - (A) Furan

(B) Pyrrole

(C) Thiophene

(D) Pyridine

20. Which compound will show the longest wavelength maxima in its UV spectru			ima in its UV spectrum?	
	(A)		(B)	
	(C)		(D)	
	(C)		(D)	
21.	Viroi	ds differ from viruses for having:		
	(A)	Naked DNA molecule	(B)	Naked DNA molecule with viral
	` ′		` ′	genome
	(C)	Naked RNA molecule	(D)	Satellite RNA molecule with viral
				genome
22.		haracter not chosen by Mendel for his work v		
	(A)	Location of flower	(B)	Location of pod
22	(C)	Colour of flower	(D)	Colour of pod
23.		e cell anemia is an example of:	(D)	N
	(A)	Missense mutation	(B)	Nonsense mutation
2.4	(C)	Silent mutation	(D)	Frame shift mutation
24.		citutive genes are applicable to:	(D)	Overlanding cones
	(A)	Operator genes	(B)	Overlapping genes
25.	(C)	Housekeeping genes ple alleles are present:	(D)	Selfish genes
23.	(A)	At different loci on same chromosome	(B)	At same locus of the chromosome
	` ′		` ′	
26	(C)	On non-sister chromatids	(D)	On different chromosomes
26.	(A)	h one of the following is the basic structural a Ecotone		Ecosystem
	(A) (C)	Ecosphere	(B) (D)	Ecotype
27.		e of behaviour in which animals learn to igno		
21.		Habituation	(B)	Imprinting
	(A)	Haultuation		1 0
	(C)	Motivation	(D)	Sensitization
28.	The u	lltimate source of organic evolution is:		
	(A)	Use and disuse of organs	(B)	Natural selection
	(C)	Mutation	(D)	Isolation
	(-)		()	
29.	PCR a	and Restricted Fragment Length Polymorphis	m are	the methods of:
	(A)	DNA Sequencing	(B)	Study of enzymes
	(C)	Genetic fingerprinting	(D)	Genomic transformation
30.	Whic	h of the following is symbiotic nitrogen fixer	?	
	(A)	Azoll	(B)	Azotobacter
	(C)	Glomus	(D)	Frankia
31.	Arche	enteron begins forming in:		
51.	(A)	Early gastrula	(B)	Late gastrula
	(C)	Early morula	(D)	Blastula
32.		bbe used for biocontrol of pest butterfly catery		
	(A)	Trichoderma sp.	(B)	Saccharomyces cerevisiae
	(C)	Bacillus thuringiensis	(D)	Streptococcus sp.
33.	` '	dults are radially symmetrical but larvae exhi		
	(A)	Mollusca	(B)	Echinodermata
	(C)	Hemichordata	(D)	Cephalochordata

34.	A ner	eve has K ⁺ concentration:					
	(A)	More on the outside	(B)	Less on the outside			
	(C)	More on the inside	(D)	Equal on both sides of membrane			
35.	Amino acids proline, glycine, valine and threonine are coded by four codons each. It shows that						
	the ge	enetic code is:					
	(A)	Overlapping	(B)	Degnerate			
	(C)	Ambiguous	(D)	Universal			
36.	The fi	requency of 'O' blood group in children of pa	irents l	belonging to blood group 'AB' is:			
	(A)	0 per cent	(B)	25 per cent			
	(C)	50 per cent	(D)	75 per cent			
37.	_	opulation becomes stagnant after exponential	-	-			
	(A)	Z-shaped	(B)	S-shaped			
	(C)	J-shaped	(D)	O-shaped			
38.	The e	ra which includes maximum periods is:					
	(A)	Cenozoic	(B)	Proterozoic			
	(C)	Mesozoic	(D)	Palaeozoic			
39.		commonly used vector (s) for human genome	•	· ·			
	(A)	T-DNA	(B)	BAC and YAC			
	(C)	Expression vectors	(D)	T&A cloning vectors			
40.		thworms, the fertilization takes place in:	(D)				
	(A)	Oviduct	(B)	Spermatheca			
	(C)	Clitellum	(D)	Cocoon			
41.	Whenever expression of a trait is limited to one sex, it is known as:						
	(A)	Sex linked trait	(B)	Sex influenced trait			
	(C)	Sex limited trait	(D)	None of these			
42.	Hirud	lin can be extracted from transgenic plant:					
	(A)	Brassica napus	(B)	Bacillus napus			
	(C)	<i>Bt</i> brinjal	(D)	Bt Brassica napus			
43.	Whic	h of the following is not a bacterial disease:					
	(A)	Leprosy	(B)	Infantile paralysis			
	(C)	Diphtheria	(D)	Cholera			
44.	_	blete linkage has been reported in:	(D)				
	(A)	Human male	(B)	Human female			
15	(C)	Male Drosophila	(D)	Female Drosophila			
45.	•	me used in formation of cDNA from mRNA		D			
	(A)	RNA polymerase	(B)	DNA polymerase			
16	(C)	Reverse transcriptase	(D)	Gyrase			
46.	(A)	aple of a digenetic parasite is: Entamoeba	(B)	Enterobium			
	(A) (C)	Planaria	(D)	Schistosoma			
47	` ′		` ′				
47.		total amount of adenine and thymine in a douine in this DNA will be:	ibie sti	randed DNA is 45%, the amount of			
	(A)	22.5%	(B)	27.5%			
	(C)	45%	(D)	55%			
48.	. ,	ern classification is based on:	(D)	20,0			
	(A)	Physiology	(B)	Fossils			
	(C)	Phylogeny	(D)	Morphology			

49.	Cons	idering fermentation at industrial level, micr	o-organ	nism Bacillus is used to form:
	(A)	Ethanol	(B)	Formic acid
	(C)	Acrylic acid	(D)	Glycerol
50.	Produ	action of transgenic animals requires transfer	ctions o	f:
	(A)	Egg or embryo	(B)	Stem cells
	(C)	Red blood cells	(D)	All of these
51.	A ger	nome/ nucleoid consists of		
	(A)	Histone and RNA	(B)	A single double stranded DNA
	(C)	A single stranded DNA	(D)	Histone and non-histone
52.		valent consists of	. ,	
	(A)	Two chromatids and one chromosome	(B)	Four chromotids and two centromeres
	(C)	Two chromatids and two centromeres	(D)	Four chromatids and four centromeres
53.	The r	nechanism of ATP formation both in chlorop	plast an	d mitochondria is explained in
	(A)	Chemiosmotic theory	(B)	Munch's hypothesis
	(C)	Relay pump theory	(D)	Cholodny-Wont's model
54.	` ′	e differs from Riccia and Marchantia in havi	` ′	,
	(A)	Multicellular body	(B)	Multicellular sex organs
	(C)	Pyrenoids in the cell	(D)	Thalloid body
55.		stele is a	()	a cany
	(A)	Protostele	(B)	Dictyostele
	(C)	Sphinostele	(D)	None of these
56.	` ′	protonema is a stage in the life cycle of	(-)	- 10-10
	(A)	Riccia	(B)	Funaria
	(C)	Bryophytes	(D)	Cycas
57.	, ,	in dye is obtained from the lichen	(-)	-)
- , ,	(A)	Lasallia	(B)	Cladonia
	(C)	Ramalin	(D)	Lecanora
58.		colysigenous cavity is present in	(-)	
	(A)	Maize stem	(B)	Nymphaea root
	(C)	Sunflower root	(D)	None of these
59.	` /	mbryo may sometimes develop from cell of	` /	
	(A)	Apospory	(B)	Partheogensis
	(C)	Parthenocarpy	(D)	Apogamy
60.	` ′	matic deals with	(2)	P - Barrel
00.	(A)	Identification of organisms	(B)	Classification of organisms
	` ′	Diversity of all organisms and existing		Identification, naming and
	(0)	relationships amongst themselves	(2)	classification of both plants and
		Total Control of the		animals
61.	Plant	s need one of the following for ATP formation	on	
		•		N. Co.
	(A) (C)	N, P K	(B) (D)	N, Ca N, Cu
62.	` ′	overall goal of glycolysis, Krebs cycle and el	` /	
02.				Nucleic acids
	(A)	Sugars	(B)	Nucleic acids
	(C)	ATP in stepwise units	(D)	ATP in one large oxidation reaction
63.	A suc	lden change from anaerobic to aerobic proce	ess prod	uces
	(A)	Emerson effect	(B)	Hill reaction
	(C)	Pasteur effect	(D)	Blackman's Law
64.	` /	pressure occurs when there is:	\ /	
	(A)	More transpiration and more absorption	(B)	Less transpiration and more absorption
	(C)	Less transpiration and less absorption	` ′	More transpiration and less absorption

65.	At which times there is no net gaseous exchang	ge between	leaves and the atmosphere
	(A) Day time	(B)	Night time
	(C) Dawn and Dusk	(D)	Midnight
66.	NADPH ⁺ is reduced to NADPH in:	` /	6
	(A) PSI	(B)	PSII
	(C) Non-cyclic photophosphorylation	(D)	Calvin cycle
67.	A competitive inhibitor of succinate dehydroge	` ′	
07.	(A) Malate	(B)	Oxaloacetate
	(C) à- ketoglutarate	(D)	Malonate
68.	How many stomata cover the leaf surface?	(D)	Maronate
00.	(A) 0.03-0.04%	(B)	10%
	(C) 1-2%	(D)	50%
69.	Phytohormone which induces triple response is	` /	3070
0).	(A) ABA	(B)	C_2H_4
	(C) IAA	(D)	GA_3
70.	The pH of a solution is 8.3 what is the [OH]?	(D)	UA3
70.	(A) 5×10^{-9}	(B)	1x 10 ⁻⁷
		` ,	5 x10 ⁻⁶
	(C) $2x \cdot 10^{-6}$	(D)	5 X 1 U
71.	The electrophoresis technique that uses isoelec	tric focusir	ng is:
	(A) AGE	(B)	PFGE
	(C) 2D-PAGE	(D)	SDS-PAGE
72.	In infrared spectroscopy, which frequency rang	ge is knowr	n as fingerprint region:
	(A) $400-1400 \text{ cm}^{-1}$	(B)	1400-900 cm ⁻¹
	(C) 900-600 cm ⁻¹	(D)	600-250 cm ⁻¹
73.	Vaccination is an example of	, ,	
	(A) Naturally acquired active immunity	(B)	Artificially acquired active immunity
	(C) Naturally acquired passive immunity	(D)	Artificially acquired passive immunity
74.	Synthetic seed is produced by encapsulating so	matic emb	
	(A) Sodium chloride	(B)	Sodium alginate
	(C) Calcium acetate	(D)	Sodium nitrate
		. ,	
75.	In tissue culture medium, the embryoids forme	d from pol	len grains are due to:
	(A) Cellular totipotency	(B)	Organogenesis
	(C) Double fertilization	(D)	Test tube culture
76.	The phenomenon of the reversion of mature ce		
	callus:		C
	(A) Redifferentiation	(B)	Dedifferentiation
	(C) Either (A) or (B)	(D)	None of these
77.	In tomato, fruit is a:	()	
	(A) Drupe	(B)	Berry
	(C) Pepo	(D)	Achene
78.	The final phase of development is:	(-)	
,	(A) Juvenile	(B)	Maturity
	(C) Seedling	(D)	Senescence
79.	The water potential of pure water at atmospher	` /	
, , ,	(A) -2.3 bar	(B)	+2.3 bar
	(C) zero bar	(D)	one bar
80.		` /	
ou.	Synchronization of reproductive behavior of pl		
	(A) Photoperiod and vernalization	(B)	Respiration and vernalization
	(C) Transpiration and photoperiodism	(D)	Respiration and transpiration

81.	Natio	onal Science Day is celebrated on:					
	(A)	5 June	(B)	21 June			
	(C)	28 February	(D)	16 October			
82.	Whic	ch among the following monsoon is mainly re-	sponsi	ble for rains in India?			
	(A)	South-East	(B)	North-West			
	(C)	South-West	(D)	North-East			
83.		ch gas is generally used in cold stores?	` /				
	(A)	Ethylene	(B)	Oxygen			
	(C)	Methane	(D)	Acetelene			
84.		ving of coconut, black pepper and ginger simu	` /				
	(A)	Relay cropping	(B)	Intercropping			
	(C)	Multiple cropping	(D)	Multistoried_cropping			
85.	. ,	lses, limiting amino acids is:	(2)	s			
· ·	(A)	Methionine	(B)	Valine			
	(C)	Lysine	(D)	Cystein			
86.		n a compressed gas is allowed to expand throu	. ,	•			
00.		sion temperature, then	*5" " F	orous plug at a temperature above its			
	(A)	A fall in temperature is observed	(B)	A rise in temperature is observed			
	(C)	A rise after an initial fall in temperature is	(D)	No change in temperature is noticed			
	(0)	observed	(D)	Two change in temperature is noticed			
87.	Gas A	A can be liquefied at room temperature by app	olving	pressure but gas B cannot. This reflects			
07.	(A)	Critical temperature of B is less than that	(B)	Critical temperature of B is greater			
	(11)	of A	(D)	than that of A			
	(C)	Critical temperature of both A and B are	(D)	No conclusion can be drawn on the			
	(0)	greater than room temperature	(D)	critical temperature of A and B			
88.	Claus	Clausius-Clapeyron's equation gives the variation of					
00.	(A)	Boiling point of liquid with temperature	(B)	Vapour pressure of a liquid with			
	(11)	Bonnig point of riquid with temperature	(D)	temperature			
	(C)	Coefficient of viscosity of a liquid with	(D)	Surface tension of a liquid with			
	(0)	pressure	(2)	temperature			
		pressure		temperature			
89.	At an	y temperature T, the entropy of a solid substa	nce (S	(br) is given by the expression			
	(A)	$C_P dT$	(B)	Cn			
			(D)	$C_{p}/_{T}$ $(C_{p}-C_{v})/_{T}$			
	(C)	$\int^{TC_{p}dT}/T$	(D)	$(c_p - c_v)_{/T}$			
		\int_{0}		' 1			
90.	The	value of equilibrium constant for an endothern	nic res	action			
<i>9</i> 0.		-					
	(A)	Increases with increase in temperature	(B)	Decreases with increase in temperature			
	(C)	Is independent of temperature	(D)	Information not sufficient to draw any conclusion			
91.	Whio	sh of the following statement is not correct?		Conclusion			
91.		ch of the following statement is not correct?	(D)	A ativation anaray of a reaction			
	(A)	Fast reactions have low activation energy	(B)	Activation energy of a reaction			
				depends on the chemical nature of			
	(C)	A actalyat ingranged the rate of reaction by	(D)	reactants and products With ingresse in temperature, the rate			
	(C)	A catalyst increases the rate of reaction by	(D)	With increase in temperature, the rate			
		decreasing the activation energy of the		of reaction decreases in case of			
		reaction		exothermic reactions			

92.	Whic	ch formula cannot be used to calculate the mo	lar ma	ss of a solute?	
	(A)	$\frac{K_b \times W_b \times 10^3}{\Delta T_b \times W_A}$	(B)	$\underline{W_BRT}$	
	(0)	$\Delta T_b \times W_A$	(D)	πV	
	(C)	$\frac{\Delta T_b \times W_B \times 10^3}{K_b \times W_A}$	(D)	$rac{p_A^o imes W_B imes M_A}{(p_A^o - p) imes W_A}$	
				- · · · · · · · · · · · · · · · · · · ·	
93.	The I	EMF of the cell, $Zn Zn^{2+} Ag^{+} Ag$ is indepen	dent of	•	
	(A)	The volume of Zn ²⁺ and Ag ⁺ solutions	(B)	The molarity of Zn ²⁺ ions in the solution	
	(C)	The molarity of Ag ⁺ ions in the solution	(D)	Temperature	
94.	What	t happens when electric current is passed thro	ugh aq	ueous of sodium chloride	
	(A) (C)	O^2 is evolved at cathode pH of the solution gradually decreases	(B) (D)	O ² is evolved at anode pH of the solution gradually increases	
95.	The c	dimensions of rate constant for a first order re	action	involve	
	(A) (C)	Time and concentration Concentration only	(B) (D)	Time only Neither time nor concentration	
96.		$t_{1/2}$ of a first order reaction is found to be 2 m seconds is	inutes.	The percentage of the reactant left after	
	(A) (C)	12.5 15	(B) (D)	25 7.5	
97.	The net energy change in a reversible, cyclic process is				
	(A) (C)	3/2 RT Always >0	(B) (D)	Zero Always <0	
98.	The magnetic quantum number for the last electron in the sodium atom (atomic number z=11) is				
	(A) (C)	3 1	(B) (D)	2 0	
99.	The c	octahedral molecular shape is associated with		hybridisation.	
	(A) (C)	sp^3d sp^3d^3	(B) (D)	$sp^3d^2 sp^3$	
100.	Whic	ch of the following is the strongest acid			
	(A) (C)	Acetic acid Butanoic acid	(B) (D)	Propionic acid Chloroacetic acid	

Sr. No.	Question	
1.	Which one of the following is the basic str (A) Ecotone (C) Ecosphere	uctural and functional unit of ecology? (B) Ecosystem (D) Ecotype
2.	A type of behaviour in which animals learn (A) Habituation (C) Motivation	n to ignore stimulus which is repeated, is known as: (B) Imprinting (D) Sensitization
3.	The ultimate source of organic evolution is (A) Use and disuse of organs (C) Mutation	
4.	PCR and Restricted Fragment Length Poly	morphism are the methods of:
	(A) DNA Sequencing	(B) Study of enzymes
5.	(C) Genetic fingerprinting Which of the following is symbiotic nitrog	(D) Genomic transformation
	(A) Azoll (C) Glomus	(B) Azotobacter(D) Frankia
6.	Archenteron begins forming in: (A) Early gastrula(C) Early morula	(B) Late gastrula(D) Blastula
7.	Microbe used for biocontrol of pest butters	fly caterpillars is:
	(A) Trichoderma sp.	(B) Saccharomyces cerevisiae
	(C) Bacillus thuringiensis	(D) Streptococcus sp.
8.	The adults are radially symmetrical but lar	
	(A) Mollusca	(B) Echinodermata
9.	(C) Hemichordata A nerve has K ⁺ concentration:	(D) Cephalochordata
	(A) More on the outside(C) More on the inside	(B) Less on the outside(D) Equal on both sides of membrane
10.		preonine are coded by four codons each. It shows that
	the genetic code is: (A) Overlapping	(B) Degnerate
	(C) Ambiguous	(D) Universal
11.		ren of parents belonging to blood group 'AB' is:
	(A) 0 per cent	(B) 25 per cent
10	(C) 50 per cent	(D) 75 per cent
12.	If a population becomes stagnant after exp	
	(A) Z-shaped(C) J-shaped	(B) S-shaped(D) O-shaped
13.	The era which includes maximum periods	•
10.	(A) Cenozoic	(B) Proterozoic
	(C) Mesozoic	(D) Palaeozoic
14.	The commonly used vector (s) for human	genome sequencing are:
	(A) T-DNA	(B) BAC and YAC
	(C) Expression vectors	(D) T&A cloning vectors

15.	In ear	thworms, the fertilization takes place in:		
	(A)	Oviduct	(B)	Spermatheca
	(C)	Clitellum	(D)	Cocoon
16.	` /	never expression of a trait is limited to one sex	, it is	known as:
	(A)	Sex linked trait	(B)	Sex influenced trait
	(C)	Sex limited trait	(D)	None of these
17.	Hiruc	lin can be extracted from transgenic plant:		
	(A)	Brassica napus	(B)	Bacillus napus
	(C)	Bt brinjal	(D)	Bt Brassica napus
18.	Whic	h of the following is not a bacterial disease:		
	(A)	Leprosy	(B)	Infantile paralysis
	(C)	Diphtheria	(D)	Cholera
19.		blete linkage has been reported in:		
	(A)	Human male	(B)	Human female
	(C)	Male Drosophila	(D)	Female Drosophila
20.	-	me used in formation of cDNA from mRNA is		
	(A)	RNA polymerase	(B)	DNA polymerase
	(C)	Reverse transcriptase	(D)	Gyrase
21.		ple of a digenetic parasite is:	(D)	P 1.
	(A)	Entamoeba	(B)	Enterobium
22	(C)	Planaria	(D)	Schistosoma
22.		total amount of adenine and thymine in a dou	ble sti	randed DNA is 45%, the amount of
		ine in this DNA will be:	(D)	27.50/
	(A)	22.5%	(B)	27.5%
22	(C)	45%	(D)	55%
23.		ern classification is based on:	(D)	Eggila
	(A) (C)	Physiology Phylogeny	(B) (D)	Fossils Morphology
24.		Phylogeny idering fermentation at industrial level, micro-		
∠ 1 .	(A)	Ethanol	(B)	Formic acid
	(C)	Acrylic acid	(D)	Glycerol
25.	` /	action of transgenic animals requires transfecti	` /	·
23.	(A)	Egg or embryo	(B)	Stem cells
	(C)	Red blood cells	(D)	All of these
26.	` ′	nome/ nucleoid consists of	(D)	All of these
20.	(A)	Histone and RNA	(B)	A single double stranded DNA
	(C)	A single stranded DNA	(D)	Histone and non-histone
27.	. ,	alent consists of	(D)	Thistone and non-instance
21.	(A)	Two chromatids and one chromosome	(B)	Four chromotids and two centromeres
	` ′		` ′	
	(C)	Two chromatids and two centromeres	(D)	Four chromatids and four centromeres
28.	The n	nechanism of ATP formation both in chloropla	ast and	d mitochondria is explained in
	(A)	Chemiosmotic theory	(B)	Munch's hypothesis
	(C)	Relay pump theory	(D)	Cholodny-Wont's model
29.		e differs from Riccia and Marchantia in having	. ,	•
	(A)	Multicellular body	(B)	Multicellular sex organs
	(C)	Pyrenoids in the cell	(D)	Thalloid body
30.	Fern	stele is a	. /	-
	(A)	Protosteleq	(B)	Dictyostele
	(C)	Sphinostele	(D)	None of these
	((,)	Sommosiere	ロノ)	None of these

31.		protonema is a stage in the life cycle of		
	(A)	Riccia	(B)	Funaria
	(C)	Bryophytes	(D)	Cycas
32.		n dye is obtained from the lichen		
	(A)	Lasallia	(B)	Cladonia
	(C)	Ramalin	(D)	Lecanora
33.		olysigenous cavity is present in		
	(A)	Maize stem	(B)	Nymphaea root
	(C)	Sunflower root	(D)	None of these
34.	An er	mbryo may sometimes develop from cell of an	embr	yo sac other than egg
	(A)	Apospory	(B)	Partheogensis
	(C)	Parthenocarpy	(D)	Apogamy
35.	Syste	matic deals with		
	(A)	Identification of organisms	(B)	Classification of organisms
	(C)	Diversity of all organisms and existing	(D)	Identification, naming and
	(-)	relationships amongst themselves	()	classification of both plants and
				animals
36.	Plants	s need one of the following for ATP formation	1	
	(A)	N, P	(B)	N, Ca
	(C)	K	(D)	N, Cu
37.		overall goal of glycolysis, Krebs cycle and elec		
	(A)	Sugars	(B)	÷ • •
	(C)	ATP in stepwise units	(D)	ATP in one large oxidation reaction
38.		lden change from anaerobic to aerobic process	` /	<u> </u>
			_	
	(A)	Emerson effect	(B)	Hill reaction
20	(C)	Pasteur effect	(D)	Blackman's Law
39.		pressure occurs when there is:	(D)	T
	(A)	More transpiration and more absorption	(B)	Less transpiration and more absorption
40	(C)	Less transpiration and less absorption	(D)	More transpiration and less absorption
40.		nich times there is no net gaseous exchange be		
	(A)	Day time	(B)	Night time
	(C)	Dawn and Dusk	(D)	Midnight
41.	NAD	PH ⁺ is reduced to NADPH in:		-
	(A)	PSI	(B)	PSII
	(C)	Non-cyclic photophosphorylation	(D)	Calvin cycle
42.	` '	mpetitive inhibitor of succinate dehydrogenase	` /	curvin cycle
⊤∠ .	(A)	Malate	(B)	Oxaloacetate
	(C)	α- ketoglutarate	(D)	Malonate
43.		many stomata cover the leaf surface?	(D)	Watonate
τЭ.	(A)	0.03-0.04%	(B)	10%
	(C)	1-2%	(D)	50%
	(C)	1-2/0	(D)	3070
44.	Phyto	phormone which induces triple response is:		
	(A)	ABA	(B)	C_2H_4
	(C)	IAA	(D)	GA_3
45.		oH of a solution is 8.3 what is the [OH]?	` /	-
	(A)	5 x10 ⁻⁹	(B)	1x 10 ⁻⁷
	(C)	$2x \cdot 10^{-6}$	(D)	5×10^{-6}
	(-)	· ~	(-)	- · · · ·

46.	The el	lectrophoresis technique that uses isoelectric	focusi	ng is:			
	(A)	AGÊ	(B)	PFGE			
	(C)	2D-PAGE	(D)	SDS-PAGE			
47.	In infr	rared spectroscopy, which frequency range is	know	n as fingerprint region:			
	(A)	400-1400 cm ⁻¹	(B)				
	(C)	900-600 cm ⁻¹	(D)	600-250 cm ⁻¹			
48.		nation is an example of	()				
	(A)	Naturally acquired active immunity	(B)	Artificially acquired active immunity			
	(C)	Naturally acquired passive immunity	(D)	Artificially acquired passive immunity			
49.		etic seed is produced by encapsulating somat					
	(A)	Sodium chloride	(B)	Sodium alginate			
	(C)	Calcium acetate	(D)	Sodium nitrate			
50.	` ′	sue culture medium, the embryoids formed from	` /				
	(A)	Cellular totipotency	(B)	Organogenesis			
	(C)	Double fertilization	(D)	Test tube culture			
51.		henomenon of the reversion of mature cells t	. ,				
J1.	callus		0 111011	stematic state leading to formation of			
	(A)	Redifferentiation	(B)	Dedifferentiation			
	(C)	Either (A) or (B)	(D)	None of these			
52.	` ′	nato, fruit is a:	(D)	None of these			
34.	(A)	Drupe	(B)	Berry			
	(C)	Pepo	(D)	Achene			
53.		nal phase of development is:	(D)	Acticité			
<i>JJ</i> .	(A)	Juvenile	(B)	Maturity			
		Seedling	(D)	Senescence			
54.	(C)	vater potential of pure water at atmospheric p	. ,				
<i>3</i> 4.		-2.3 bar		+2.3 bar			
	(A)		(B)				
<i></i>	(C)	zero bar	(D)	one bar			
55.	-	pronization of reproductive behavior of plants		· · · · · · · · · · · · · · · · · · ·			
	(A)	Photoperiod and vernalization	(B)	*			
5 .6	(C)	Transpiration and photoperiodism	(D)	Respiration and transpiration			
56.		nal Science Day is celebrated on:	(D)	24.7			
	(A)	5 June	(B)	21 June			
	(C)	28 February	(D)	16 October			
57.	Which among the following monsoon is mainly responsible for rains in India?						
	(A)	South-East	(B)	North-West			
	(C)	South-West	(D)	North-East			
58.	Which gas is generally used in cold stores?						
	(A)	Ethylene	(B)	Oxygen			
	(C)	Methane	(D)	Acetelene			
59.	Grow	ing of coconut, black pepper and ginger simu	ltaneo	•			
	(A)	Relay cropping	(B)	Intercropping			
	(C)	Multiple cropping	(D)	Multistoried_cropping			
60.	In pul	ses, limiting amino acids is:					
	(A)	Methionine	(B)	Valine			
	(C)	Lysine	(D)	Cystein			
61.	When	a compressed gas is allowed to expand throu	ıgh a p	porous plug at a temperature above its			
		sion temperature, then	•	-			
	(A)	A fall in temperature is observed	(B)	A rise in temperature is observed			
	(C)	A rise after an initial fall in temperature is	(D)	No change in temperature is noticed			
		observed					

62.	Gas A (A)	A can be liquefied at room temperature by app Critical temperature of B is less than that of A	olying (B)	pressure but gas B cannot. This reflects Critical temperature of B is greater than that of A			
	(C)	Critical temperature of both A and B are greater than room temperature	(D)	No conclusion can be drawn on the critical temperature of A and B			
63.	Clausius-Clapeyron's equation gives the variation of						
	(A)	Boiling point of liquid with temperature	(B)	Vapour pressure of a liquid with temperature			
	(C)	Coefficient of viscosity of a liquid with pressure	(D)	Surface tension of a liquid with temperature			
64.	At an	At any temperature T, the entropy of a solid substance (S_T) is given by the expression					
	(A)	$C_P dT$	(B)	$C_{p_{/_{T}}}$			
	(C)	$\int_{-\infty}^{TC_{p}dT} dT$	(D)	$(C_p^{\prime T}-C_v)_{/T}$			
65	The	J ₀		andi an			
65.	(A)	ralue of equilibrium constant for an endotherr Increases with increase in temperature	mc rea	Decreases with increase in temperature			
	(A) (C)	Is independent of temperature	(D)	Information not sufficient to draw any conclusion			
66.	Which	h of the following statement is not correct?					
00.	(A)	h of the following statement is not correct? Fast reactions have low activation energy	(B)	Activation energy of a reaction depends on the chemical nature of reactants and products			
	(C)	A catalyst increases the rate of reaction by decreasing the activation energy of the reaction	(D)	With increase in temperature, the rate of reaction decreases in case of exothermic reactions			
67.	Whic	h formula cannot be used to calculate the mol	lar ma	ss of a solute?			
	(A)	$\frac{K_b \times W_b \times 10^3}{\Delta T_b \times W_A}$	(B)	$rac{W_BRT}{\pi V}$			
	(C)	$\frac{\Delta T_b \times W_A}{K_b \times W_A} \times 10^3$	(D)	$rac{p_A^o imes W_B imes M_A}{(p_A^o - p) imes W_A}$			
68.	The F	EMF of the cell, $Zn Z^{-1} Ag^+ Ag$ is independent	lent of	• • • • • • • • • • • • • • • • • • • •			
00.	(A)	The volume of Zn^{2+} and Ag^{+} solutions	(B)	The molarity of Zn ²⁺ ions in the solution			
	(C)	The molarity of Ag ⁺ ions in the solution	(D)	Temperature			
69.	What (A)	happens when electric current is passed throu O ² is evolved at cathode		ueous of sodium chloride O² is evolved at anode			
	(C)	pH of the solution gradually decreases	(D)	pH of the solution gradually increases			
70.	The dimensions of rate constant for a first order reaction involve						
	(A)	Time and concentration	(B)	Time only			
	(C)	Concentration only	(D)	Neither time nor concentration			
71.		_{1/2} of a first order reaction is found to be 2 mineconds is	nutes.	The percentage of the reactant left after			
	(A)	12.5	(B)	25			
	(C)	15	(D)	7.5			

72.	The net energy change in a reversible, cycl (A) 3/2 RT (C) Always >0	ic process is (B) Zero (D) Always <0
73.	The magnetic quantum number for the last (A) 3 (C) 1	electron in the sodium atom (atomic number z=11) is (B) $\begin{array}{cc} 2 \\ (D) & 0 \end{array}$
74.	The octahedral molecular shape is associat (A) sp^3d (C) sp^3d^3	ed withhybridisation. (B) sp^3d^2 (D) sp^3
75.	Which of the following is the strongest aci (A) Acetic acid (C) Butanoic acid	d (B) Propionic acid (D) Chloroacetic acid
76.	An example of natural semi conductor is (A) boron (C) aluminium	(B) silicon(D) Phosphorous
77.	The ionic strength of a solution containing (A) 0.03 (C) 0.09	0.02 M Na ₂ SO ₄ and 0.01 M MgCl ₂ is (B) 0.06 (D) 0.1
78.	Balmer series consists of lines in the spectr (A) 100-180 nm (C) 400-700 nm	ral range (B) 230-340 nm (D) 900-1100 nm
79.	Aluminium chloride is a/an (A) Lewis acid (C) Bronsted-Lowry acid	(B) Lewis base(D) Arrhenius acid
80.	The pH of 10 ⁻⁸ N HCl is approximately (A) 8 (C) 7	(B) 7.02 (D) 6.96
81.	Covalent character of the bond is maximum (A) LiCl (C) KCl	m in the case of (B) NaCl (D) CaCl ₂
82.	This species generally act as Bronsted acid (A) HSO ₄ (C) NH ₃	and base (B) Na ² CO ₃ (D) OH ⁻
83.	This serves as a differentiating solvent for (A) Liquid NH ₃ (C) Liquid CH ₃ COOH	(B) H_2O (D) C_6H_6
84.	known as (A) Ionic carbides (C) Covalent carbides	(B) Interstitial carbides(D) Silicates

Which of the following statement concerning probability density (Ψ^2) and radial distribution function $(4\pi r^2 \Psi^2)$ for s-orbital of H-like species is correct? 85. Ψ^2 is minimum at nucleus but $4\pi r^2 \Psi^2$ (B) Ψ^2 is maximum at nucleus but $4\pi r^2 \Psi^2$ is minimum at nucleus is maximum at nucleus Both Ψ^2 and $4\pi r^2 \Psi^2$ are minimum Both Ψ^2 and $4\pi r^2 \Psi^2$ are maximum at (D) (C) at nucleus Which conformer among the following is most unstable 86. (a,e) 1,2 – dimethyl cyclohexane (a,e) 1,3 – dimethyl cyclohexane (A) (B) (a,a) 1,3 - dimethylcyclohexane (a,a) 1,4 – dimethylcyclohexane (D) Which of the following compounds readily undergoes S_N1 reactions owing to the stability of its 87. cartonium ion (A) (B) (C) (D) 88. Which reagent effects the following conversion? 0 m- chloroperbenzoic acid (B) Acetic anhydride (A) (C) NaOH/Br₂ (D) Acetic acid 89. Consider the following photochemical reactions: $H_2 + Cl_2 - \frac{hv}{4000\text{Å}}$ $H_2 + Br_2 \xrightarrow{hv} 2HBr$ These reactions are the examples of which of the following? Reactions of low and high quantum Reactions of high and low quantum (A) (B) yields, respectively yields, respectively Reactions of quantum yields equal to Reactions of equal quantum yields (C) (D) but not equal to one 90. Which molecule is anti-aromatic among the following: (A) (B) (C) (D)

91.	Acid (A) (C)	strength of oxo-acids of halogens is in order HOI >HOBr>HOCl> HOF HOCl>HOBr> HOI > HOF	(B) (D)	HOF >HOCl>HOBr> HOI HOI > HOF >HOBr>HOCl		
92.	Teflo (A)	rn is synthesized by Free radical polymerization of tetrafluoro ethylene (C ₂ F ₄) Condensation of E-amino caproic acid	(B) (D)	Condensation of hexane -1, 6- diamine and adipic acid Polymerization of Cyano ethylene		
93.		resolution 'HNMR spectrum of 1,3 – dichlor One triplet and one quintet One triplet and two doublets	` ′			
94.		h heterocyclic compound is least aromatic an Furan Thiophene	` /	•		
95.	Whic (A)	h compound will show the longest wavelengt	th max (B)	ima in its UV spectrum?		
	(C)		(D)			
96.	Viroids differ from viruses for having:					
	(A)	Naked DNA molecule	(B)	Naked DNA molecule with viral		
	(C)	Naked RNA molecule	(D)	genome Satellite RNA molecule with viral genome		
97.	The character not chosen by Mendel for his work was:					
	(A)	Location of flower	(B)	Location of pod		
	(C)	Colour of flower	(D)	Colour of pod		
98.	Sickle (A) (C)	e cell anemia is an example of: Missense mutation Silent mutation	(B) (D)	Nonsense mutation Frame shift mutation		
99.	Constitutive genes are applicable to:					
	(A)	Operator genes	(B)	Overlapping genes		
	(C)	Housekeeping genes	(D)	Selfish genes		
100.	Multi (A) (C)	iple alleles are present: At different loci on same chromosome On non-sister chromatids	(B) (D)	At same locus of the chromosome On different chromosomes		

Sr.	Questi	on		
No.	Questi	OII		
1.	When a compressed gas is allowed to expand through a porous plug at a temperature above its inversion temperature, then			
	(A) (C)	A fall in temperature is observed A rise after an initial fall in temperature is observed	(B) (D)	A rise in temperature is observed No change in temperature is noticed
2.	Gas A (A)	can be liquefied at room temperature by app Critical temperature of B is less than that of A	lying p (B)	oressure but gas B cannot. This reflects Critical temperature of B is greater than that of A
	(C)	Critical temperature of both A and B are greater than room temperature	(D)	No conclusion can be drawn on the critical temperature of A and B
3.	Clauci	us-Clapeyron's equation gives the variation of	of.	
5.	(A)	Boiling point of liquid with temperature	(B)	Vapour pressure of a liquid with temperature
	(C)	Coefficient of viscosity of a liquid with pressure	(D)	Surface tension of a liquid with temperature
4.	Atans	temperature T, the entropy of a solid substan	nca (S.	-) is given by the expression
4.	(A)	$C_P dT$	(B)	C_{p}/T
	(C)	$\int_{0}^{TC_{p}dT} /_{T}$	(D)	$\frac{C_{p}}{(C_{p}-C_{v})}/T$
5.	The va	alue of equilibrium constant for an endotherm	nic rea	ction
	(A) (C)	Increases with increases of temperature Is independent of temperature	(B) (D)	Decreases with increase of temperature Information not sufficient to draw any conclusion
6.	Which (A)	of the following statement is not correct? Fast reactions have low activation energy	(B)	Activation energy of a reaction depends on the chemical nature of
	(C)	A catalyst increases the rate of reaction by decreasing the activation energy of the reaction	(D)	reactants and products With increase in temperature, the rate of reaction decreases in case of exothermic reactions
7.	Which (A)	formula cannot be used to calculate the mola $\frac{K_b \times W_b \times 10^3}{\Delta T_b \times W_A}$	ar mas (B)	s of a solute? $\frac{W_BRT}{\pi V}$
		$\Delta I_b \wedge VV_A$		7.LV
	(C)	$\frac{\Delta T_b \times W_B \times 10^3}{K_b \times W_A}$	(D)	$rac{p_A^o imes W_B imes M_A}{(p_A^o - p) imes W_A}$
8.	The El (A)	MF of the cell, Zn Zn ²⁺ Ag ⁺ Ag is independent The volume of Zn ²⁺ and Ag ⁺ solutions	ent of (B)	The molarity of Zn ²⁺ ions in the
	(C)	The molarity of Ag ⁺ ions in the solution	(D)	solution Temperature

9.	What (A) (C)	happens when electric current is passed throu O ² is evolved at cathode pH of the solution gradually decreases	(B)	
10.	The d (A) (C)	limensions of rate constant for a first order rea Time and concentration Concentration only	(B) (D)	involve Time only Neither time nor concentration
11.		of a first order reaction is found to be 2 min econds is 12.5	(B) (D)	The percentage of the reaction left after 25 7.5
12.		net energy change in a reversible, cyclic proce 3/2 RT Always >0	` /	Zero Always <0
13.	The n (A) (C)	nagnetic quantum number for the last electron 3	in the (B) (D)	e sodium atom (atomic number z=11) is 2 0
14.	The c (A) (C)	octahedral molecular shape is associated with sp^3d sp^3d^3	(B) (D)	hybridisation. sp^3d^2 sp^3
15.	Whic (A) (C)	h of the following is the strongest acid Acetic acid Butanoic acid	(B) (D)	Propionic acid Chloroacetic acid
16.	An ex (A) (C)	cample of natural semi conductor is boron aluminium	(B) (D)	silicon phosphorous
17.	The id (A) (C)	onic strength of a solution containing 0.02 M 0.03 0.09	Na ₂ SC (B) (D)	0 ₄ and 0.01 M MgCl ₂ is 0.06 0.1
18.	(A)	er series consists of lines in the spectral range 100-180 nm 400-700 nm	(B)	230-340 nm 900-1100 nm
19.	Alum (A) (C)	iinium chloride is a/an Lewis acid Bronsted-Lowry acid	(B) (D)	Lewis base Arrhenius acid
20.	The p (A) (C)	oH of 10 ⁻⁸ N HCl is approximately 8 7	(B) (D)	7.02 6.96
21.	Cova (A) (C)	lent character of the bond is maximum in the LiCl KCl	case o (B) (D)	f NaCl CaCl ₂
22.	This s (A) (C)	species generally act as Bronsted acid and bas HSO ₄ ⁻ NH ₃	(B) (D)	Na ² CO ₃ OH ⁻

23.	This serves as a differentiating solvent for HCl, H ₂ SO ₄ and HNO ₃				
	(A)	Liquid NH ₃	(B)	H_2O	
	(C)	Liquid CH₃COOH	(D)	C_6H_6	
24.	Silico	n carbide widely used as an abrasive called c	arboru	andum belongs to the class of carbides	
	(A)	Ionic carbides	(B)	Interstitial carbides	
	(C)	Covalent carbides	(D)	Silicates	
25.	Which of the following statement concerning probability density (Ψ^2) and radial distribution function $(4\pi r^2 \Psi^2)$ for s-orbital of H-like species is correct? (A) Ψ^2 is minimum at nucleus but $4\pi r^2 \Psi^2$ (B) Ψ^2 is maximum at nucleus but				
	()	is maximum at nucleus	()	$4\pi r^2 \Psi^2$ is minimum at nucleus	
	(C)	Both Ψ^2 and $4\pi r^2 \Psi^2$ are maximum at nucleus	(D)	Both Ψ^2 and $4\pi r^2 \Psi^2$ are minimum at nucleus	
26.		h conformer among the following is most uns			
	(A)	(a,e) 1,2 – dimethyl cyclohexane	(B)	(a,e) 1,3 – dimethyl cyclohexane	
	(C)	(a,a) 1,3 - dimethylcyclohexane	(D)	(a,a) 1,4 - dimethylcyclohexane	
27.		h of the following compounds readily underg	oes S _N	1 reactions owing to the stability of its	
	(A)		(B)	1	
		Cl		CI CI	
	(C)		(D)		
		CI		CI	
28.	Whiel	h reagent effects the following conversion?			
			0		

(B) Acetic anhydride(D) Acetic acid

(A) (C) m- chloroperbenzoic acid $NaOH/Br_2$

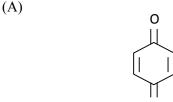
29. 1. Consider the following photochemical reactions:

H₂ + Cl₂
$$\xrightarrow{hv}$$
 2 HCl
and

H₂ + Br₂ \xrightarrow{hv} 2 HBr

These reactions are the examples of which of the following?

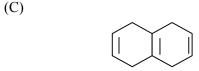
- (A) Reactions of high and low quantum yields, respectively
- (B) Reactions of low and high quantum yields, respectively
- (C) Reactions of quantum yields equal to one
- (D) Reactions of equal quantum yields but not equal to one
- 30. Which molecule is anti-aromatic among the following:





(D)

(B)





- 31. Acid strength of oxo-acids of halogens is in order
 - (A) HOI >HOBr>HOCl> HOF
 - (C) HOCl>HOBr> HOI > HOF
- (B) HOF >HOCl>HOBr> HOI
- (D) HOI > HOF > HOBr > HOC1

- 32. Teflon is synthesized by
 - (A) Free radical polymerization of tetrafluoro ethylene (C_2F_4)
 - (C) Condensation of E-amino caproic acid
- (B) Condensation of hexane -1, 6- diamine and adipic acid
- (D) Polymerization of Cyano ethylene
- 33. High resolution 'HNMR spectrum of 1,3 dichloropropane has _____ signals.
 - (A) One triplet and one quintet
- (B) One triplet and one quartet
- (C) One triplet and two doublets
- (D) Two triplets and one quartet
- 34. Which heterocyclic compound is least aromatic among the following?
 - (A) Furan

(B) Pyrrole

(C) Thiophene

(D) Pyridine

35.	Which (A)	a compound will show the longest wavelength	h maxi (B)	ima in its UV spectrum?
	(C)		(D)	
36.	The 2-(A)(C)	+ → 0+ transition is a transition: Electric dipole Magnetic quadrupole	(B) (D)	Magnetic dipole Electric quadrupole
37.		72 hours, the quantity of a sample of $\frac{24}{11}$ Na is ty. Determine the half-life of the sample (in large)		to be 3.125% of the original sample 4.5 18
38.	Obtair (Masse (A) (C)	the threshold energy (in Mev) for the reaction the threshold energy (in Mev) for the reaction (209) Bi = 208.980394 u; (209) 6.01842 (6.05987)	⁰⁸ Bi = (B)	$^{99}_{3}$ $Bi\left(p, ^{2}_{1}H\right) ^{208}_{83}Bi$ [Some useful data: = 207.979731 u; 2 H=2.014102 u] $^{6.04743}_{6.089765}$
39.	propoi	meson theory of nuclear forces, the potential rtional to $C.\frac{e^{r/R}}{r}$ $C.\frac{e^{R/r}}{r}$	-	y of interaction between two nucleons is $-C.\frac{e^{-r/R}}{r}$ $-C.\frac{-R/r}{r}$
40.		observed total angular momentum of the deulone, the orbital angular momentum 'l' can ta 0,1,2		ues: 0,2
41.		ranium series with parent ${238 \over 92}U$ decays by eact has Z & A 82 & 208 84 & 208	(B) (D)	n of 8α and 6β particles. The end $82 \& 206 \\ 84 \& 206$
42.	The de (A)	etector that can measure the energy of gamma GM counter Scintillation detector	(B) (D)	is Ionization chamber Cloud chamber

43.	The angular momentum and party of $\frac{17}{8}0$ nucleus in the ground state according to the shell					
	model is $(A) 0^+$	(B)	$\frac{1}{2}$ -			
	(C) $\frac{3}{2}$ +	(D)	$\frac{1}{2}$ - $\frac{5}{2}$ +			
44.	All baryons are made up of (A) Quark and an anti-quark combination (C) 3 quark combination	(B) (D)	2 quarks combination 3 ante-quark combination			
45.	A cyclotron is operated at an oscillator frequency. The magnitude of the magnetic field required x10 ⁻²⁷ kg is (A) 0.8 T					
	(C) 1.6 T	(D)	2.0 T			
46.	An oscillator always needs an amplifier with					
	(A) Positive feedback(C) Both types of feedback	(B) (D)	Negative feedback An LC tank circuit			
47.	Compared to a bipolar transistor, the JFET has (A) Greater voltage gain (C) Less input impedance	(B) (D)	Much more input impedance None of these			
48.	A variable Wien bridge oscillator is to be designed 100Hz to 1KHz. the capacitors used in the circuit be used in the circuit?					
	(A) 15.9 K to 159 K	(B)	159 K			
	(C) 15.9 K	(D)	Any value of R			
49.	The feedback signal in a(n) oscillator is a LC circuit.	derived t	from the capacitive voltage divider in the			
	(A) Wein bridge	(B)	Armstrong			
	(C) Colpitts	(D)	Hartley			
50.	A bridge rectifier with a capacitor input filter has transformer has a turns ratio of 8: 1, what is the α (A) $30 V_{rms}$					
	(C) 60 V	(D)	84 V			
51.	The Common – Collector configuration has a impedance.	inpu	at impedance and a output			
	(A) Low, high	(B)	High, low			
	(C) Low, low	(D)	High, high			

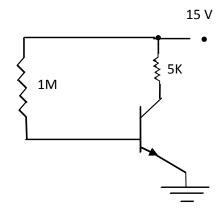
- 52. The PIV across a non-conducting diode in a Full wave rectifier circuit equals approximately
 - (A) Peak value of the secondary voltage
- (B) Twice the peak value of the secondary voltage

Lower forward voltage and higher

- (C) Half the peak value of the secondary voltage
- (D) Four times the peak value of the secondary voltage
- 53. As compared to a silicon rectifier diode an LED has a
 - (A) Lower forward voltage and lower breakdown voltage
- breakdown voltage
 (D) Higher forward voltage

(B)

- (C) Higher forward voltage and lower breakdown voltage
- (D) Higher forward voltage and higher breakdown voltage
- 54. The two ends of the load line for the following circuit are (in V, mA)



(A) (15, 0) & (0, 3)

(B) (0,0) & (15,0)

(C) (3,0) & (0,15)

- (D) (0, 3) &(15, 3)
- 55. If the load resistance in a zener regulator circuit decreases, the zener current
 - (A) Decreases

(B) Increases

(C) Remains the same

- (D) Equals the load current
- 56. Miller indices of a plane parallel to x and z axes are
 - (A) (100)

(B) (010)

(C) (001)

- (D) (101)
- 57. The average energy of an atomic oscillator is given by
 - (A) hv

(B) $\frac{hv}{e^{hv/kt}-1}$

(C) hv

(D) $\frac{hv}{(e^{-hv/kt}-1)^2}$

- 58. For a non-dispersive medium
 - (A) $\omega = vk$

(B) $\omega = vk^2$

(C) $\omega = vk^3$

(D) $\omega = vk^n (n \neq 1)$

59.	If a = (A) (C)	= $b \neq c$ and $\alpha = \beta = y = 90^{\circ}$, the crysto triclinic hexagonal	ll syst (B) (D)	tem is tetragonal monoclinic
60.	Brava (A) (C)	is lattice for diamond structure is sc fcc	(B) (D)	bcc hcp
61.		istance between the adjacent atomic planes in scattering for 0.03 nm X- ray is 0^0 5.80	(B) (D)	O_3 is 0.3 nm. The smallest angle of 0.9^0 0.9^0
62.	Phono (A) (C)	on is the quantum of electromagnetic wave gravitational wave	(B) (D)	elastic wave deBroglie wave
63.	The re(A)	eciprocal lattice to direct simple cubic lattice simple cubic face centered cubic	is (B) (D)	Body centered cubic base centered cubic
64.		ermi energy of a metal is 1.4eV, the Fermi te 1.6×10^3 K 1.6×10^5 K	(B)	ture of the metal is approximately $1.6 \times 10^4 \text{ K}$ $1.6 \times 10^6 \text{ K}$
65.	A sup (A) (C)	diamagnetic erromagnetic	(B) (D)	paramagnetic ferrimagnetic
66.	The v (A) (C)	alues of a for which {(1,a,1),(a,1,1),(1,1,a)} i 0,1 1,2	n R ³ aı (B) (D)	re linearly independent in R ³ are: 1,-2 all values except 1 and -2
67.	Which	h of below are true regarding solution of follo 2x-y+z=2, x+2y-z=3 3x+y+2z=-1	owing	linear system of equations
	(A) (C)	No Solution Infinite solutions	(B) (D)	Unique solution x=0, y=0, z=0
68.	Nume	erical Derivative of f (0.4) using Central Diffe	erence	formula from below data:
	(0.3,7	.38910),(0.4,7.4633),(0.5,7.5383),(0.6,7.614	1),(0.7,	7.6906) equals
	(A) (C)	0 746	(B) (D)	371 None of above

69.	The date (A) (C)	ifferential equation $(A x + B y) dx + (C x)$ A = C B = C	(B)) dy = 0 is exact, if and only if A = D B = D
70.		n one of the following is the integrating factor $P(x) y = Q(x)$:	r for th	ne linear differential equation
	(A)	$P(x) e^{\int X}$	(B)	$O(x)e^{\int x}$
	(C)	$P(x) e^{\int x}$ $e^{\int P(x) dx}$	(D)	$Q(x)e^{\int x}$ $e^{\int Q(x)dx}$
71.		n of the following statements is NOT equival atter scientist or a mathematician who knows. There exists a person who is a computer scientist and who knows both discrete math and Bioscience or there exists a person who is a mathematician and who knows both discrete math and Bioscience. There exists a person who is a computer scientist and who knows both discrete math and Bioscience or there exists a mathematician who knows both discrete math and Bioscience.		
72.	which	alues of k for which $f(x)=(1-k)k^x$ can serve a takes countable infinite values $0,1,2,3$	-	•
	(A) (C)	k>1 k<0	(B) (D)	0 <k<1 k=1</k<1
73.		cher gives a 20 point test to 10 students. The he percentile rank of a score of 12. 65% 68%	marks (B) (D)	are 18, 15, 12, 6, 8, 2, 3, 5, 20, 10. 45% 70%
74.	Mean, (A) (C)	Median and standard deviation for data set 35,35,17 30,34,19	-	, 50, 30, 40, 20 are given by 34,34,17.1 35,35,17.1
75.		udent randomly guesses 5 multiple choice quudent gets exactly 3 right answers is given b 0.04 0.01		s each having 5 choices, the probability 0.05 0.02

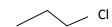
76. A rare but serious disease found in 0.01% of a certain population. A test has been developed will become +ve for 98% of those who have the disease and be +ve only for 3% of the don't have the disease. Probability that a person tested as +ve does not have the disease by			
	(Å) 0.997	(B)	0.917
	(C) 0.003	(D)	0.100
77.	If A & B are independent, then following are true (A) A & B' are independent	(B)	A' & B are independent.
	(C) A' & B' are independent.	(D)	All of above are true
78.	Rank of the matrix $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 1 & 2 & 1 \end{bmatrix}$ is:		
	(A) 2	(B)	1
	(A) 2 (C) 3	(D)	0
79.	Classify the following ordinary differential equation (A) Separable and not linear (C) Both separable and linear	(B)	y/dx+3y=x²y Linear and not separable Neither separable nor linear
80.	General solution of 2nd ordinary differential equutare arbitrary constants):	ion 4y	(2)+9y=0 is given by (where C1 and C2
	(A) $y=C_1 e^t + C_2 e^{-t}$	(B)	$y = C_1 e^{2t} + C_2 e^{-t}$
	(C) $y=C_1 \cos(t)+C_2 \sin(t)$	(D)	$y = C_1 \cos(3t/2) + C_2 \sin(3t/2)$
81.	Consider 2 nd order ordinary differential equation y ⁰ with respect to variable t. The values of r for which solution of the form y=e ^{rt} are:		
	(A) $2, -4$	(B)	2, 4 -2, -4
	(C) $-2, 4$	(D)	-2, -4
82.	The slope of the tangent line to the graph of f at $x = f(x) = -x^2 + 4 * sqrt(x)$ is	= 4, gi	ven that
	(A) -8		-10
	(C) –9	(D)	-7
83.	The value of x where the function $f(x) = x^3 - 9x^2 + 3$	24x +	4 has a local maximum is
	(A) 2	(B)	1
	(C) -2	(D)	-1
84.	The values of A and B so that function f defined by > 2 is differentiable at $x = 2$ are	f(x)	$= 2x^2 \text{ for } x \le 2 \text{ and } f(x) = A x + B \text{ for } x$
	(A) 8, 8		8, -8
	(C) $-8, -8$	(D)	-8, 8

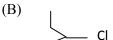
85.	The approximation of $sin(1)$ obtained by Taylor's series approximation upto 5^{th} degree about $x=0$ for $sin(x)$ is given by:						
	(A)	$ \begin{array}{r} 1 - \frac{1}{2} + \frac{1}{24} \\ 1 - \frac{1}{6} + \frac{1}{120} \end{array} $		$ \begin{array}{l} 1 + \frac{1}{2} + \frac{1}{24} \\ 1 + \frac{1}{2} + \frac{1}{120} \end{array} $			
86.		Maclaurian series for $1/(1-x)$ is $1+x+x^2+x^3$	+				
	(A)	power series for $x^2/(1-x^2)$ is given by: $x+x^2+x^3+\dots$	(B)	$x^2+x^4+x^6+\dots$			
	(C)	$x^3 + x^6 + x^9 + \dots$	(D)	$1+x^2+x^4+x^6+\dots$			
87.	If Ari	ithmetic mean of a set of n data points is 10	6.6 when	re n=8, then Harmonic mean of given			
	(A)	0.8502	(B)	0.8510			
	(C)	0.8528	(D)	0.0850			
88.		tionship among the averages	(D)				
	(A)	$HM \ge GM \ge AM$	(B)	AM≥GM≥HM			
	(C)	GM ≤HM ≤AM	(D)	AM ≥HM <gm< td=""></gm<>			
89.	are ap	ce car is travelling on a straight track at a ve pplied at time t=0 seconds. From time t=0 to e race car is given by $a(t) = -6t^2 - t$ meters p far does the race car travel?	the mo	ment the race car stops, the acceleration			
	(A)		(B)	198.766m			
	(C)		(D)	267.089m			
90.	A function fis continuous on the closed interval [2,5] with $f(2)=17$ and $f(5)=17$. Which of the following additional conditions guarantees that there is a number cin the open interval (2,5) such that $f^{(1)}(c)=0$?						
	(A)	No additional conditions are necessary.	(B)	fhas a relative extrema on the open interval (2,5)			
	(C)	fis differentiable on the open interval (2,5)	(D)	finite integral of f between 2 and 5 exists.			
91.	The v	ce sculpture in the form of a sphere melts in volume of the sphere is decreasing at a cons in square meters per hour, is the surface are adius is 5 meters?	tant rate	of 2π cubic meters per hour. At what			
	(A)	$4\pi/5$	(B)	40π			
	(C)	80 π	(D)	100π			
92.	Sequ	Sequence defined by $a_n = \ln(2n^3 + 2) - \ln(5n^3 + 2n^2 + 4)$ converges to					
	(A)	0	(B)	ln(2/5)			
	(C)	$-\ln(2/5)$	(D)	2/5			
93.	The s	sum of series $\sum_{n=2}^{\infty} \frac{6}{n(n+3)}$ is given by					
	(A)	0	(B)	13/2			
	(C)	5/3	(D)	13/6			

94.	The a (A)	rea of region between the graph of $y=x^2$ and $2/3$	-	from x=0 to x=2? 8/3
	(C)	4	(B) (D)	14/3
95.	An ec	quation of line tangent to graph of y=x+cos(x)	at the	point (0,1) is
	(A)	y=2x+1	(B)	y=x+1
	(C)	y=x	(D)	y=x-1
96.	Natio	onal Science Day is celebrated on:		
	(A)	5 June	(B)	21June
	(C)	28 February	(D)	16 October
	(0)	20 T cordary	(D)	10 0010001
97.	Whic	ch among the following monsoon is mainl	y resp	onsible for rains in India?
	(A)	South-East	(B)	North-West
	(C)	South-West	(D)	North-East
98.	Whic	ch gas is generally used in cold stores?		
	(A)	Ethylene	(B)	Oxygen
	(C)	Methane	(D)	Acetelene
	(C)	Wiethane	(D)	Accidic
99.		ving of coconut, black pepper and ginger suple of:	simult	aneously in the same field is an
		Relay cropping	(B)	Intercropping
	(C)	Multiple cropping	` ′	Multistoried_cropping
	(0)	watapic cropping	(D)	wattistoriea_cropping
100.	In pu	lses, limiting amino acids is:		
	(A)	Methionine	(B)	Valine
	(C)	Lysine	(D)	Cystein
	` /	-	` /	-

Sr.	Question
No.	

- 1. Which conformer among the following is most unstable
 - (a,e) 1,2 dimethyl cyclohexane (A)
- (a,e) 1,3 dimethyl cyclohexane (B)
- (C) (a,a) 1,3 - dimethylcyclohexane
- (a,a) 1,4 dimethylcyclohexane (D)
- 2. Which of the following compounds readily undergoes S_N1 reactions owing to the stability of its cartonium ion
 - (A)

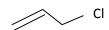




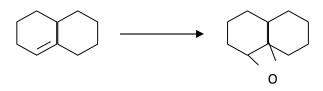
(C)



(D)



3. Which reagent effects the following conversion?



- m- chloroperbenzoic acid (A)
- (C) NaOH/Br₂

- Acetic anhydride (B)
- Acetic acid (D)
- 1. Consider the following photochemical reactions: 4.

H₂ + Cl₂
$$\xrightarrow{\text{hv}}$$
 2 HCl

and

and

$$H_2 + Br_2 \xrightarrow{hv} 2HBr$$

These reactions are the examples of which of the following?

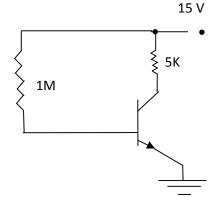
- Reactions of high and low quantum (A)
 - yields, respectively
- Reactions of quantum yields equal to (C) one
- Reactions of low and high quantum (B) yields, respectively
- Reactions of equal quantum yields (D) but not equal to one

5.	Which molecule is anti-aromatic among the following:			
	(A)	о Ц	(B)	
		0		
	(C)		(D)	
6.	Acid s (A) (C)	trength of oxo-acids of halogens is in order HOI >HOBr>HOCl> HOF HOCl>HOBr> HOI > HOF	(B) (D)	HOF >HOCl>HOBr> HOI HOI > HOF >HOBr>HOCl
7.	Teflor (A)	is synthesized by Free radical polymerization of tetrafluoro ethylene (C_2F_4)	(B)	Condensation of hexane -1, 6- diamine and adipic acid
	(C)	Condensation of E-amino caproic acid	(D)	Polymerization of Cyano ethylene
8.	High r	resolution 'HNMR spectrum of 1,3 – dichloro	opropa	ne has signals.
0.	(A)	One triplet and one quintet	(B)	One triplet and one quartet
	(C)	One triplet and two doublets	(D)	Two triplets and one quartet
9.	Which (A)	heterocyclic compound is least aromatic am Furan	ong th (B)	e following? Pyrrole
	(C)	Thiophene	(D)	Pyridine
10.		compound will show the longest wavelength		ima in its UV spectrum?
	(A)		(B)	
	(C)		(D)	
11.	The 2- (A) (C)	+ → 0+ transition is a transition: Electric dipole Magnetic quadrupole	(B) (D)	Magnetic dipole Electric quadrupole

12.	After	72 hours, the quantity of a sample of $^{24}_{11}$ Na is	s found	d to be 3.125% of the original sample
		tity. Determine the half-life of the sample (in		
	(A)	3	(B)	4.5
	(C)	9	(D)	18
13.	Obtai	in the threshold energy (in Mev) for the reacti	on : 20	$\frac{09}{33}$ Bi $(p, \frac{2}{1}H)\frac{208}{83}$ Bi [Some useful data:
	(Mass	ses)p = 938 Mev, 209 Bi = 208.980394 u; 2	08 _{Bi} =	$= 207.979731 \text{ u};$ $^{2}\text{H}=2.014102 \text{ u}]$
	(A)	6.01842		6.04743
	(C)	6.05987	(D)	6.089765
14.		meson theory of nuclear forces, the potential ortional to	energ	y of interaction between two nucleons is
	(A)	$e^{r/R}$	(B)	$e^{-r/R}$
	` ′	$C.\frac{}{r}$	` ′	$-C.\phantom{aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa$
	(C)	$C.\frac{e^{r/R}}{r}$ $C.\frac{e^{R/r}}{r}$	(D)	$-C.\frac{e^{-r/R}}{r}$ $-C.\frac{-R/r}{r}$
		$c.{r}$		r
15.	If the	observed total angular momentum of the deu	iteron	'l' has a magnitude 1, then based on this
	data a	alone, the orbital angular momentum '1' can ta	ake va	lues:
	(A)	0,1,2	(B)	
	(C)	0	(D)	0.1
16.		Jranium series with parent $\frac{238}{92}U$ decays by e act has Z & A	missio	on of 8α and 6β particles. The end
	(A)		(B)	82 & 206
	(C)		` /	84 & 206
	. ,		` /	
17.		letector that can measure the energy of gamm		
	(A)	GM counter	(B)	Ionization chamber
	(C)	Scintillation detector	(D)	Cloud chamber
18.		ingular momentum and party of ${17 \over 8}0$ nucleus	in the	ground state according to the shell
	mode (A)	0^+	(B)	1
	(A)	O .	(D)	$\frac{1}{2}$ - $\frac{5}{2}$ +
	(C)	3	(D)	5
	(0)	$\frac{3}{2}$ +	(D)	$\frac{3}{2}$ +
		2		2
19.	All ba	aryons are made up of		
	(A)	Quark and an anti-quark combination	(B)	2 quarks combination
	(C)	3 quark combination	(D)	3 ante-quark combination

20.	A cyclotron is operated at an oscillator frequency of 12 MHz and has a dee radius of 53 cm. The magnitude of the magnetic field required to accelerate protons, whose mass is 1.67×10^{-27} kg is			
	(A) (C)	0.8 T 1.6 T	(B) (D)	1.0 T 2.0 T
21.	An ose (A) (C)	cillator always needs an amplifier with Positive feedback Both types of feedback	(B) (D)	Negative feedback An LC tank circuit
22.	Comp (A) (C)	ared to a bipolar transistor, the JFET has Greater voltage gain Less input impedance	(B) (D)	Much more input impedance None of these
23.	100Hz	table Wien bridge oscillator is to be designed to 1KHz, the capacitors used in the circuit and in the circuit?		
	(A)	15.9 K to 159 K	(B)	159 K
	(C)	15.9 K	(D)	Any value of R
24.	The fe		rived f	from the capacitive voltage divider in the
	(A)	Wein bridge	(B)	Armstrong
	(C)	Colpitts	(D)	Hartley
25.		lge rectifier with a capacitor input filter has a former has a turns ratio of 8: 1, what is the out		
	(A)	$30~\mathrm{V}_{\mathrm{rms}}$	(B)	42 V
	(C)	60 V	(D)	84 V
26.	The C imped	ommon – Collector configuration has aance.	_ inpu	t impedance and a output
	(A)	Low, high	(B)	High, low
	(C)	Low, low	(D)	High, high
27.	The D	IV across a non-conducting diode in a Full w	novo re	actifier circuit aquals approximately
21.	(A)	Peak value of the secondary voltage	(B)	Twice the peak value of the secondary voltage
	(C)	Half the peak value of the secondary voltage	(D)	Four times the peak value of the secondary voltage
28.	As con	mpared to a silicon rectifier diode an LED ha	s a	
	(A)	Lower forward voltage and lower	(B)	Lower forward voltage and higher
		breakdown voltage	, ,	breakdown voltage
	(C)	Higher forward voltage and lower breakdown voltage	(D)	Higher forward voltage and higher

29. The two ends of the load line for the following circuit are (in V, mA)



(A) (15,0) & (0,3)

(B) (0,0) & (15,0)

(C) (3, 0) & (0, 15)

- (D) (0,3) & (15,3)
- 30. If the load resistance in a zener regulator circuit decreases, the zener current
 - (A) Decreases

(B) Increases

(C) Remains the same

- (D) Equals the load current
- 31. Miller indices of a plane parallel to x and z axes are
 - (A) (100)

(B) (010)

(C) (001)

- (D) (101)
- 32. The average energy of an atomic oscillator is given by
 - (A) hv

 $\frac{hv}{e^{hv/kt}-1}$

(C)
$$\frac{hv}{e^{-hv/kt} - 1}$$

(D) $\frac{hv}{(e^{-hv/kt}-1)^2}$

- 33. For a non-dispersive medium
 - (A) $\omega = vk$

(B) $\omega = vk^2$

(C) $\omega = vk^3$

- (D) $\omega = vk^n (n \neq 1)$
- 34. If $a = b \neq c$ and $\alpha = \beta = y = 90^{\circ}$, the crystal system is
 - (A) triclinic

(B) tetragonal

(C) hexagonal

- (D) monoclinic
- 35. Bravais lattice for diamond structure is
 - (A) sc

(B) bcc

(C) fcc

- (D) hcp
- 36. The distance between the adjacent atomic planes in CaCO₃ is 0.3 nm. The smallest angle of Bragg scattering for 0.03 nm X- ray is
 - (A) 0^0

(B) 2.9°

(C) 5.8°

(D) 90°

37.	Phono (A)	on is the quantum of electromagnetic wave	(B)	elastic wave
	(C)	gravitational wave	(D)	deBroglie wave
38.	The re	eciprocal lattice to direct simple cubic lattice	is	
	(A)	simple cubic	(B)	Body centered cubic
	(C)	face centered cubic	(D)	base centered cubic
39.		ermi energy of a metal is 1.4eV, the Fermi te		
	(A)	$1.6 \times 10^3 \mathrm{K}$	(B)	$1.6 \times 10^4 \mathrm{K}$
	(C)	$1.6 \times 10^5 \mathrm{K}$	(D)	$1.6 \times 10^6 \mathrm{K}$
40.	A sup (A)	erconductor is a material diamagnetic	(B)	paramagnetic
	(A) (C)	ferromagnetic	(D)	ferrimagnetic
	(C)	Terromagnetic	(D)	Terrimagnetic
41.		alues of a for which $\{(1,a,1),(a,1,1),(1,1,a)\}$		re linearly independent in R ³ are: 1,-2
	(A)	0,1	(B)	all values except 1 and -2
	(C)	1,2	(D)	an values except 1 and -2
42.	Which	n of below are true regarding solution of follo 2x-y+z=2, x+2y-z=3 3x+y+2z=-1	owing	linear system of equations
	(A)	No Solution	(B)	Unique solution
	(C)	Infinite solutions	(D)	x=0, y=0, z=0
43.	Nume	rical Derivative of f (0.4) using Central Diffe	erence	formula from below data:
	(0.3,7	.38910),(0.4,7.4633),(0.5,7.5383),(0.6,7.614	1),(0.7	,7.6906) equals
	(1)	0	(D)	371
	(A)	0	(B)	None of above
	(C)	746	(D)	None of above
44.		ifferential equation $(A x + B y) dx + (C x)$	•	
	(A)	A = C	(B)	A = D
	(C)	B = C	(D)	B = D
45.	Which	n one of the following is the integrating factor	or for th	ne linear differential equation
	$\frac{\mathrm{dy}}{\mathrm{dx}}$ +	P(x) y = Q(x) :		
	(A)	$P(x) e^{\int x}$	(B)	$Q(x)e^{\int x}$

	(C)	$e^{\int P(x)dx}$	(D)	$e^{\int Q(x) dx}$
46.		n of the following statements is NOT equivalenter scientist or a mathematician who knows		
	(A) 1	There exists a person who is a computer scientist and who knows both discrete math and Bioscience or there exists a person who is a mathematician and who	(B)	There exists a person who is a computer scientist or there exists a person who is a mathematician who knows discrete math or who knows
	(C)	knows both discrete math and Bioscience. There exists a person who is a computer scientist and who knows both discrete math and Bioscience or there exists a mathematician who knows both discrete math and Bioscience.	(D)	Bioscience. There exists a computer scientist who knows both discrete math and Bioscience or there exists a person who is a mathematician who knows both discrete math and Bioscience.
47.		alues of k for which $f(x)=(1-k)k^x$ can serve as takes countable infinite values $0,1,2,3$	proba	ability distribution of a random variable
	(A)	k>1	(B)	0 <k<1< td=""></k<1<>
	(C)	k<0	(D)	k=1
48.		ther gives a 20 point test to 10 students. The he percentile rank of a score of 12.	marks	are 18, 15, 12, 6, 8, 2, 3, 5, 20, 10.
	(A) (C)	65% 68%	(B) (D)	45% 70%
49.		Median and standard deviation for data set		
	(A) (C)	35,35,17 30,34,19	(B) (D)	34,34,17.1 35,35,17.1
50.		udent randomly guesses 5 multiple choice que udent gets exactly 3 right answers is given by		s each having 5 choices, the probability
	(A)	0.04	(B)	0.05
	(C)	0.01	(D)	0.02
51.	will b	but serious disease found in 0.01% of a certa ecome +ve for 98% of those who have the di have the disease. Probability that a person tes	sease	and be +ve only for 3% of those who
	(A) (C)	0.997 0.003	(B) (D)	0.917 0.100
52.	` /	B are independent, then following are true A & B' are independent	(B)	A' & B are independent.
	(C)	A' & B' are independent.	(D)	All of above are true

53.	Rank	s of the matrix $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 1 & 2 & 1 \end{bmatrix}$ is:		
	(A) (C)	2 3	(B) (D)	1 0
54.	Class (A) (C)	sify the following ordinary differential equati Separable and not linear Both separable and linear	(B) (D)	Linear and not separable
55.		eral solution of 2nd ordinary differential eqaurbitrary constants):	ition 4y	(2)+9y=0 is given by (where C1 and C2
	(A)	$y = C_1 e^t + C_2 e^{-t}$	(B)	$y = C_1 e^{2t} + C_2 e^{-t}$
	(C)	$y=C_1 \cos(t)+C_2 \sin(t)$	(D)	$y = C_1 \cos(3t/2) + C_2 \sin(3t/2)$
56.	with	sider 2 nd order ordinary differential equation yrespect to variable t. The values of r for which ion of the form y=e ^{rt} are:		
	(A)	2, -4 -2, 4	(B) (D)	2, 4 -2, -4
57.		slope of the tangent line to the graph of f at x = $-x^2+4*sqrt(x)$ is	=4, gi	ven that
		-8	(B)	-10
	(C)	-9	(D)	-7
58.	The v	value of x where the function $f(x) = x^3 - 9x^2 + 2$	-24x + (B)	
	(C)	-2	(D)	
59.		values of A and B so that function f defined by differentiable at $x = 2$ are	by f(x)	$= 2x^2 \text{ for } x \le 2 \text{ and } f(x) = A x + B \text{ for } x$
	(A)	8, 8 -8, -8		8, -8 -8, 8
<i>c</i> 0	` ′	•	. ,	,
60.		approximation of $sin(1)$ obtained by Taylor's $in(x)$ is given by:	series	approximation upto 5° degree about x=0
		$ \begin{array}{r} 1 - \frac{1}{2} + \frac{1}{24} \\ 1 - \frac{1}{6} + \frac{1}{120} \end{array} $	` /	$ \begin{array}{r} 1 + \frac{1}{2} + \frac{1}{24} \\ 1 + \frac{1}{2} + \frac{1}{120} \end{array} $
61.	The I	Maclaurian series for $1/(1-x)$ is $1+x+x^2+x^3+$ power series for $x^2/(1-x^2)$ is given by:		
	(A)	$x+x^2+x^3+\dots$	(B)	$x^2+x^4+x^6+\dots$
	(C)	$x^3 + x^6 + x^9 + \dots$	(D)	$1+x^2+x^4+x^6+\dots$

62.	If Ar	If Arithmetic mean of a set of n data points is 106.6 where n=8, then Harmonic mean of given data					
	(A) (C)	0.8502 0.8528	(B) (D)	0.8510 0.0850			
63.	Relat (A) (C)	ionship among the averages HM ≥GM ≥AM GM ≤HM ≤AM	(B) (D)	AM≥GM≥HM AM≥HM <gm< td=""></gm<>			
64.	are ap of the how	the car is travelling on a straight track at a velocity oplied at time $t=0$ seconds. From time $t=0$ to be race car is given by $a(t) = -6t^2 - t$ meters per far does the race car travel?	the mo	ment the race car stops, the acceleration ad per second. During this time period,			
	(A)	188.229m	(B)	198.766m			
	(C)	260.042m	(D)	267.089m			
65.	A function fis continuous on the closed interval [2,5] with $f(2)=17$ and $f(5)=17$. Which of the following additional conditions guarantees that there is a number cin the open interval (2,5) such that $f^{(1)}(c)=0$?						
	(A)	No additional conditions are necessary.	(B)	fhas a relative extrema on the open interval (2,5)			
	(C)	fis differentiable on the open interval (2,5)	(D)	finite integral of f between 2 and 5 exists.			
66.	An ice sculpture in the form of a sphere melts in such a way that it maintains its spherical shape. The volume of the sphere is decreasing at a constant rate of 2π cubic meters per hour. At what rate, in square meters per hour, is the surface area of the sphere decreasing at the moment when the radius is 5 meters?						
	(A)	$4\pi/5$	(B)	40π			
	(C)	80π	(D)	100π			
67.		ence defined by $a_n = \ln(2n^3 + 2) - \ln(5n^3 + 2n^2 +$					
	(A)	0	(B)	ln(2/5)			
	(C)	$-\ln(2/5)$	(D)	2/5			
68.	The s	sum of series $\sum_{n=2}^{\infty} \frac{6}{n(n+3)}$ is given by					
	(A)	0	(B)	13/2			
	(C)	5/3	(D)	13/6			
69.		area of region between the graph of y=x ² and					
	(A)	2/3	(B)	8/3			
	(C)	4	(D)	14/3			
70.	An ed (A)	quation of line tangent to graph of $y=x+\cos(x)$ y=2x+1	(B)	e point $(0,1)$ is $y=x+1$			
	\ /		\ /	•			

	(C)	y=x	(D)	y=x-1
71.	Natio (A) (C)	onal Science Day is celebrated on: 5 June 28 February	(B) (D)	21June 16 October
72.	Whic (A) (C)	h among the following monsoon is mainl South-East South-West	y resp (B) (D)	onsible for rains in India? North-West North-East
73.	Whice (A) (C)	th gas is generally used in cold stores? Ethylene Methane	(B) (D)	Oxygen Acetelene
74.		ving of coconut, black pepper and ginger sple of: Relay cropping Multiple cropping	(B) (D)	aneously in the same field is an Intercropping Multistoried_cropping
75.	In pu (A) (C)	lses, limiting amino acids is: Methionine Lysine	(B) (D)	Valine Cystein
76.		a compressed gas is allowed to expand throusion temperature, then A fall in temperature is observed A rise after an initial fall in temperature is observed	(B) (D)	A rise in temperature is observed No change in temperature is noticed
77.	Gas A (A) (C)	Critical temperature of B is less than that of A Critical temperature of both A and B are greater than room temperature		pressure but gas B cannot. This reflects Critical temperature of B is greater than that of A No conclusion can be drawn on the critical temperature of A and B
78.	Claus (A)	ius-Clapeyron's equation gives the variation Boiling point of liquid with temperature	of (B)	Vapour pressure of a liquid with temperature
	(C)	Coefficient of viscosity of a liquid with pressure	(D)	Surface tension of a liquid with temperature
79.	At any (A) (C)	y temperature T, the entropy of a solid substa $ C_P dT $ $ \int_0^{TC_p dT} /_T $	(B)	T) is given by the expression $C_{p}/_{T}$ $(C_{p} - C_{v})/_{T}$

	(A) (C)	Increases with increases of temperature Is independent of temperature	(B) (D)	Decreases with increase of temperature Information not sufficient to draw any conclusion
81.	Which (A)	of the following statement is not correct? Fast reactions have low activation energy	(B)	Activation energy of a reaction depends on the chemical nature of
	(C)	A catalyst increases the rate of reaction by decreasing the activation energy of the reaction	(D)	reactants and products With increase in temperature, the rate of reaction decreases in case of exothermic reactions
82.	Which (A)	formula cannot be used to calculate the mol $\frac{K_b \times W_b \times 10^3}{\Delta T_b \times W_A}$	ar mas (B)	as of a solute? $\frac{W_BRT}{\pi V}$
	(C)	$\frac{\Delta T_b \times W_A}{\Delta T_b \times W_B \times 10^3}$ $\frac{K_b \times W_A}{K_b \times W_A}$	(D)	$\frac{p_A^o \times W_B \times M_A}{(p_A^o - p) \times W_A}$
83.	The E	MF of the cell, $Zn Zn^{2+} Ag^{+} Ag$ is independ	ent of	
	(A)	The volume of Zn ²⁺ and Ag ⁺ solutions	(B)	The molarity of Zn ²⁺ ions in the solution
	(C)	The molarity of Ag ⁺ ions in the solution	(D)	Temperature
84.		happens when electric current is passed throu O ² is evolved at cathode	ıgh aqı (B)	
	(A) (C)	pH of the solution gradually decreases	(D)	pH of the solution gradually increases
85.	The di	mensions of rate constant for a first order rea	action	involve
	(A) (C)	Time and concentration Concentration only	(B) (D)	Time only Neither time nor concentration
86.		₂ of a first order reaction is found to be 2 min	utes.T	he percentage of the reaction left after
	360 se (A)	econds is 12.5	(B)	25
	(C)	15	(D)	7.5
87.	The ne	et energy change in a reversible, cyclic proce	ss is	
	(A)	3/2 RT	(B)	Zero
0.0	(C)	Always >0	(D)	Always <0
88.	The m (A)	agnetic quantum number for the last electron 3	in the (B)	e sodium atom (atomic number z=11) is 2
	(C)	1	(D)	0
89.	The oc	ctahedral molecular shape is associated with		
	(A)	sp^3d	(B)	sp^3d^2
0.0	(C)	sp^3d^3	(D)	sp^3
90.	Which (A)	of the following is the strongest acid Acetic acid	(B)	Propionic acid
	(C)	Butanoic acid	(D)	Chloroacetic acid
91.	An ex	ample of natural semi conductor is	•	
	(A)	boron	(B)	silicon

	(C)	aluminium	(D)	Phosphorous					
92.	The i	onic strength of a solution containing 0.02 M	Na ₂ SO	O ₄ and 0.01 M MgCl ₂ is					
	(A)	0.03	(B)	0.06					
	(C)	0.09	(D)	0.1					
93.		Balmer series consists of lines in the spectral range							
	(A)	100-180 nm	(B)	230-340 nm					
	(C)	400-700 nm	(D)	900-1100 nm					
94.	Alum	ninium chloride is a/an							
	(A)	Lewis acid	(B)	Lewis base					
	(C)	Bronsted-Lowry acid	(D)	Arrhenius acid					
95.	The p	oH of 10 ⁻⁸ N HCl is approximately							
	(A)	8	(B)	7.02					
	(C)	7	(D)	6.96					
96.		lent character of the bond is maximum in the							
	(A)	LiCl	(B)	NaCl					
	(C)	KCl	(D)	CaCl ₂					
97.	This species generally act as Bronsted acid and base								
	(A)	HSO ₄	(B)	Na ² CO ₃					
	(C)	NH_3	(D)	OH-					
98.		serves as a differentiating solvent for HCl, H ₂							
	(A) (C)	Liquid NH ₃ Liquid CH ₃ COOH	(B) (D)	H_2O C_6H_6					
	(C)	Liquid CH3COOH	(D)	$C_6\Pi_6$					
99.	Silicon carbide widely used as an abrasive called carborundum belongs to the class of carbides known as								
	(A)	Ionic carbides	(B)	Interstitial carbides					
	(C)	Covalent carbides	(D)	Silicates					
100.	Which of the following statement concerning probability density (Ψ^2) and radial distribution function $(4\pi r^2 \Psi^2)$ for s-orbital of H-like species is correct?								
	(A)	Ψ^2 is minimum at nucleus but $4\pi r^2 \Psi^2$	(B)						
	()	is maximum at nucleus	(-)	$4\pi r^2 \Psi^2$ is minimum at nucleus					
	(C)	Both Ψ^2 and $4\pi r^2 \Psi^2$ are maximum at	(D)	Both Ψ^2 and $4\pi r^2 \Psi^2$ are minimum					
	` /	nucleus	` '	at nucleus					

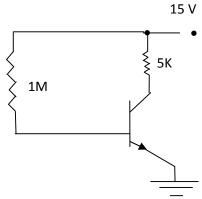
Sr.	Question
No.	

- 1. The Common Collector configuration has a _____ input impedance and a _____ output impedance.
 - (A) Low, high

(B) High, low

(C) Low, low

- (D) High, high
- 2. The PIV across a non-conducting diode in a Full wave rectifier circuit equals approximately
 - (A) Peak value of the secondary voltage
- (B) Twice the peak value of the secondary voltage
- (C) Half the peak value of the secondary voltage
- (D) Four times the peak value of the secondary voltage
- 3. As compared to a silicon rectifier diode an LED has a
 - (A) Lower forward voltage and lower breakdown voltage
- (B) Lower forward voltage and higher breakdown voltage
- (C) Higher forward voltage and lower breakdown voltage
- (D) Higher forward voltage and higher breakdown voltage
- 4. The two ends of the load line for the following circuit are (in V, mA)



(A) (15,0) & (0,3)

(B) (0,0) & (15,0)

(C) (3, 0) & (0, 15)

- (D) (0,3) & (15,3)
- 5. If the load resistance in a zener regulator circuit decreases, the zener current
 - (A) Decreases

(B) Increases

(C) Remains the same

- (D) Equals the load current
- 6. Miller indices of a plane parallel to x and z axes are
 - (A) (100)

(B) (010)

(C) (001)

(D) (101)

7.	The a	The average energy of an atomic oscillator is given by					
	(A)	hv	(B)	hv			
				$e^{hv/kt}-1$			
	(C)	hv	(D)	hv			
	(0)	$\frac{hv}{e^{-hv/kt}-1}$	(D)	$\frac{hv}{(e^{-hv/kt}-1)^2}$			
8.		non-dispersive medium	(D)				
	(A)	$\omega = vk$ $\omega = vk^3$		$\omega = vk^2$ $\omega = vk^n (n \neq 1)$			
	(C)	$\omega - \nu \kappa$	(D)	$\omega = \nu \kappa (n \neq 1)$			
9.		$=b \neq c \text{ and } \alpha = \beta = y = 90^{\circ}, \text{ the crys}$	_				
	(A)	triclinic	(B)	tetragonal			
	(C)	hexagonal	(D)	monoclinic			
10.	Brava	ais lattice for diamond structure is					
	(A)	sc	(B)	bcc			
	(C)	fcc	(D)	hcp			
11.	The o	listance between the adjacent atomic planes	in CaC	O ₂ is 0.3 nm. The smallest angle of			
		g scattering for 0.03 nm X- ray is	iii cuc	os is one min. The smantest ungle of			
	(A)	0^0	(B)	2.9^{0}			
	(C)	5.8°	(D)	90^{0}			
12.	Phon	on is the quantum of					
12.	(A)	electromagnetic wave	(B)	elastic wave			
	(C)	gravitational wave	(D)	deBroglie wave			
13.	The r	reciprocal lattice to direct simple cubic lattic	e is				
13.	(A)	simple cubic	(B)	Body centered cubic			
	(C)	face centered cubic	(D)	base centered cubic			
	. ,		, ,				
14.	The Fermi energy of a metal is 1.4eV, the Fermi temperature of the metal is approximately (A) 1.6×10^3 K (B) 1.6×10^4 K						
		$1.6 \times 10^3 \text{ K}$					
	(C)	$1.6 \times 10^5 \mathrm{K}$	(D)	$1.6 \times 10^6 \mathrm{K}$			
15.	A superconductor is a material						
	(A)	diamagnetic	(B)	paramagnetic			
	(C)	ferromagnetic	(D)	ferrimagnetic			
16.	The values of a for which $\{(1,a,1),(a,1,1),(1,1,a)\}$ in \mathbb{R}^3 are linearly independent in \mathbb{R}^3 are:						
	(A)	0,1	(B)	1,-2			
	(C)	1,2	(D)	all values except 1 and -2			
17.	Whic	th of below are true regarding solution of fol	lowing	linear system of equations			
	-	2x-y+z=2,	3	1			
		x+2y-z=3					
		3x+y+2z=-1	(D)	***			
	(A)	No Solution	(B)	Unique solution			
	(C)	Infinite solutions	(D)	x=0, y=0, z=0			

18.	Numerical Derivative of $f(0.4)$ using Central Difference formula from below data:			formula from below data:
	(0.3,7.	.38910),(0.4,7.4633),(0.5,7.5383),(0.6,7.6141),(0.7,	7.6906) equals
	(A) (C)	0 746	(B) (D)	371 None of above
19.	The di (A) (C)	ifferential equation $(A x + B y) dx + (C x A = C B = C$	(B)	dy = 0 is exact, if and only if A = D B = D
20.		n one of the following is the integrating factor $P(x) y = Q(x)$:	for th	e linear differential equation
	(A)	$P(x) e^{\int x}$	(B)	$Q(x)e^{\int x}$
	(C)	$P(x) e^{\int x}$ $e^{\int P(x) dx}$	(D)	$Q(x)e^{\int x}$ $e^{\int Q(x)dx}$
21.		of the following statements is NOT equivalenter scientist or a mathematician who knows. There exists a person who is a computer scientist and who knows both discrete math and Bioscience or there exists a person who is a mathematician and who knows both discrete math and Bioscience. There exists a person who is a computer scientist and who knows both discrete math and Bioscience or there exists a mathematician who knows both discrete math and Bioscience.		
22.		alues of k for which $f(x)=(1-k)k^x$ can serve as takes countable infinite values $0,1,2,3$ $k>1$ $k<0$	(B) (D)	bility distribution of a random variable 0 <k<1 k="1</td"></k<1>
23.		ther gives a 20 point test to 10 students. The he percentile rank of a score of 12. 65% 68%	marks (B) (D)	are 18, 15, 12, 6, 8, 2, 3, 5, 20, 10. 45% 70%
24.	Mean, (A) (C)	Median and standard deviation for data set 35,35,17 30,34,19	10, 60, (B) (D)	, 50, 30, 40, 20 are given by 34,34,17.1 35,35,17.1

25.	If a student randomly guesses 5 multiple choice questions each having 5 choices, the probability				
	that student gets exactly 3 right answers is given b (A) 0.04	(B) 0.05			
	(C) 0.01	(D) 0.02			
26.	A rare but serious disease found in 0.01% of a cer will become +ve for 98% of those who have the don't have the disease. Probability that a person to by	lisease and be +ve only for 3% of those who			
	(A) 0.997	(B) 0.917			
27.	(C) 0.003 If A & B are independent, then following are true	(D) 0.100			
	(A) A & B' are independent	(B) A' & B are independent.			
	(C) A' & B' are independent.	(D) All of above are true			
28.	Rank of the matrix $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 1 & 2 & 1 \end{bmatrix}$ is:				
	(A) 2 (C) 3	(B) 1 (D) 0			
29.	Classify the following ordinary differential equation (A) Separable and not linear (C) Both separable and linear	on: e ^x dy/dx+3y=x ² y (B) Linear and not separable (D) Neither separable nor linear			
30.	General solution of 2nd ordinary differential equuare arbitrary constants):	tion $4y^{(2)}+9y=0$ is given by (where C1 and C2			
	(A) $y = C_1 e^t + C_2 e^{-t}$	(B) $y=C_1 e^{2t}+C_2 e^{-t}$			
	(C) $y=C_1 \cos(t)+C_2 \sin(t)$	(D) $y=C_1 \cos(3t/2)+C_2 \sin(3t/2)$			
31.	Consider 2 nd order ordinary differential equation y with respect to variable t. The values of r for whic solution of the form y=e ^{rt} are:	2 2 11			
	(A) $2, -4$	(B) 2, 4			
	(C) $-2, 4$	(D) -2, -4			
32.	The slope of the tangent line to the graph of f at x $f(x) = -x^2+4*sqrt(x)$ is	= 4, given that			
	(A) -8	(B) -10			
	(C) -9	(D) -7			
33.	The value of x where the function $f(x) = x^3 - 9x^2 +$	24x + 4 has a local maximum is			
	(A) 2	(B) 1			
	(C) -2	(D) -1			

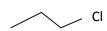
34.		values of A and B so that function f defined by a differentiable at $x = 2$ are	f(x)	$= 2x^2 \text{ for } x \le 2 \text{ and } f(x) = A x + B \text{ for } x$
	(A) (C)	8, 8 -8, -8		8, -8 -8, 8
35.		approximation of sin(1) obtained by Taylor's sn(x) is given by:	series a	approximation upto 5 th degree about x=0
		$1 - \frac{1}{2} + \frac{1}{24}$	(B)	$1 + \frac{1}{2} + \frac{1}{24}$
	` /	1 - 1/6 + 1/120	` /	$1 + \frac{1}{2} + \frac{1}{120}$
36.		Maclaurian series for $1/(1-x)$ is $1+x+x^2+x^3+$. sower series for $x^2/(1-x^2)$ is given by:		
	(A)	$x+x^2+x^3+\dots$	(B)	$x^2+x^4+x^6+\dots$
	(C)	$x^3 + x^6 + x^9 + \dots$	(D)	$1+x^2+x^4+x^6+\dots$
37.	If Ari data	thmetic mean of a set of n data points is 106.6	6 wher	e n=8, then Harmonic mean of given
	(A)	0.8502	(B)	0.8510
	(C)	0.8528	(D)	0.0850
38.		ionship among the averages		
	(A)	$HM \ge GM \ge AM$	(B)	AM≥GM≥HM
	(C)	GM ≤HM ≤AM	(D)	AM ≥HM <gm< td=""></gm<>
39.	are ap	e car is travelling on a straight track at a velocity oplied at time $t=0$ seconds. From time $t=0$ to the race car is given by $a(t) = -6t^2 - t$ meters per far does the race car travel?	he moi	ment the race car stops, the acceleration
	(A)	188.229m	(B)	198.766m
	(C)	260.042m	(D)	267.089m
40.	follov	action fis continuous on the closed interval [2 wing additional conditions guarantees that the $^{(1)}(c)=0$?		
	(A)	No additional conditions are necessary.	(B)	fhas a relative extrema on the open interval (2,5)
	(C)	fis differentiable on the open interval (2,5)	(D)	finite integral of f between 2 and 5 exists.
41.	The v	e sculpture in the form of a sphere melts in survolume of the sphere is decreasing at a constant in square meters per hour, is the surface area or adius is 5 meters?	nt rate	of 2π cubic meters per hour. At what
	(A)	$4\pi/5$	(B)	40π
	(C)	80 π	(D)	100π

42.	Sequence defined by $a_n = \ln(2n^3 + 2) - \ln(5n^3 + 2n^2 + 4)$ converges to				
	(A) 0	(B)	ln(2/5)		
	(C) $-\ln(2/5)$	(D)	2/5		
43.	The sum of series $\sum_{n=2}^{\infty} \frac{6}{n(n+3)}$ is given by				
	(A) 0 (C) 5/3	(B) (D)	13/2 13/6		
44.	The area of region between the graph of $y=x^2$ and				
	(A) 2/3 (C) 4	(B) (D)	8/3 14/3		
45.	An equation of line tangent to graph of $y=x+\cos(x)$) at the	e point (0,1) is		
	(A) $y=2x+1$ (C) $y=x$	(B) (D)	y=x+1 $y=x-1$		
46.	National Science Day is celebrated on:				
	(A) 5 June	(B)	21June		
	(C) 28 February	(D)	16 October		
47.	Which among the following monsoon is main	-			
	(A) South-East(C) South-West	(B) (D)	North-West North-East		
	(C) South-West	(D)	North-East		
48.	Which gas is generally used in cold stores?	(D)			
	(A) Ethylene(C) Methane	(B) (D)	Oxygen Acetelene		
		()			
49.	Growing of coconut, black pepper and ginger example of:	simul	taneously in the same field is an		
	(A) Relay cropping	(B)	Intercropping		
	(C) Multiple cropping	(D)	Multistoried_cropping		
50.	In pulses, limiting amino acids is:	(-)			
	(A) Methionine	(B)	Valine		
	(C) Lysine	(D)	Cystein		
51.	When a compressed gas is allowed to expand thro inversion temperature, then	ugh a p	porous plug at a temperature above its		
	(A) A fall in temperature is observed	(B)	A rise in temperature is observed		
	(C) A rise after an initial fall in temperature is observed	(D)	No change in temperature is noticed		
52.	Gas A can be liquefied at room temperature by ap		-		
	(A) Critical temperature of B is less than that of A	(B)	Critical temperature of B is greater than that of A		
	(C) Critical temperature of both A and B are greater than room temperature	(D)	No conclusion can be drawn on the critical temperature of A and B		

53.	Claus	sius-Clapeyron's equation gives the variation	of						
	(A)	Boiling point of liquid with temperature	(B)	Vapour pressure of a liquid with temperature					
	(C)	Coefficient of viscosity of a liquid with pressure	(D)	Surface tension of a liquid with temperature					
54.	At an	y temperature T, the entropy of a solid substa	ince (S	$S_{\rm T}$) is given by the expression					
	(A)	$C_P dT$	(B)	$C_{\mathcal{P}_{/_{T}}}$					
	(C)	$\int_{0}^{TC_{p}dT} /_{T}$	(D)	$(C_p^T - C_v)_T$					
55.	The s	The value of equilibrium constant for an endothermic reaction							
00.	(A)	Increases with increases of temperature	(B)	Decreases with increase of temperature					
	(C)	Is independent of temperature	(D)	Information not sufficient to draw any conclusion					
56.	Whic	th of the following statement is not correct?							
	(A)	Fast reactions have low activation energy	(B)	Activation energy of a reaction depends on the chemical nature of reactants and products					
	(C)	A catalyst increases the rate of reaction by decreasing the activation energy of the reaction	(D)	With increase in temperature, the rate of reaction decreases in case of exothermic reactions					
57.	Whic	h formula cannot be used to calculate the mo	lar mas	ss of a solute?					
	(A)	$\frac{K_b \times W_b \times 10^3}{\Delta T_b \times W_A}$	(B)	$rac{W_BRT}{\pi V}$					
	(C)		(D)	$p_A^o \times W_B \times M_A$					
	` ′	$\frac{\Delta T_b \times W_B \times 10^3}{K_b \times W_A}$	` ′	$\frac{p_A^o \times W_B \times M_A}{(p_A^o - p) \times W_A}$					
58.	The F	The EMF of the cell, $Zn Zn^{2+} Ag^+ Ag $ is independent of							
	(A)	The volume of Zn ²⁺ and Ag ⁺ solutions	(B)	The molarity of Zn ²⁺ ions in the solution					
	(C)	The molarity of Ag ⁺ ions in the solution	(D)	Temperature					
59.	What	happens when electric current is passed through	uah aa	means of sodium chloride					
37.	(A)	O^2 is evolved at cathode	(B)						
	(C)	pH of the solution gradually decreases	(D)	pH of the solution gradually increases					
60.		dimensions of rate constant for a first order re-							
	(A)	Time and concentration	(B)	Time only					
	(C)	Concentration only	(D)	Neither time nor concentration					
61.	360 s	_{1/2} of a first order reaction is found to be 2 mir econds is		•					
	(A)	12.5	(B)	25					
	(C)	15	(D)	7.5					
62.		net energy change in a reversible, cyclic proce		7					
	(A)	3/2 RT Always >0	(B)	Zero Always <0					
	(C)	Always ~0	(D)	Aiways V					

63.	The n (A) (C)	nagnetic quantum number for the last electron 3	in the (B) (D)	e sodium atom (atomic number z=11) is 2 0
64.		octahedral molecular shape is associated with $sp^3d sp^3d^3$	(B) (D)	hybridisation. sp^3d^2 sp^3
65.	Which (A) (C)	h of the following is the strongest acid Acetic acid Butanoic acid	(B) (D)	Propionic acid Chloroacetic acid
66.	An ex (A) (C)	cample of natural semi conductor is boron aluminium	(B) (D)	silicon Phosphorous
67.	The id (A) (C)	onic strength of a solution containing 0.02 M 0.03 0.09	Na ₂ SO (B) (D)	O ₄ and 0.01 M MgCl ₂ is 0.06 0.1
68.	Balmo (A) (C)	er series consists of lines in the spectral range 100-180 nm 400-700 nm	(B) (D)	230-340 nm 900-1100 nm
69.	Alum (A) (C)	inium chloride is a/an Lewis acid Bronsted-Lowry acid	(B) (D)	Lewis base Arrhenius acid
70.	The p (A) (C)	oH of 10 ⁻⁸ N HCl is approximately 8 7	(B) (D)	7.02 6.96
71.	Coval (A) (C)	lent character of the bond is maximum in the LiCl KCl	case o (B) (D)	f NaCl CaCl ₂
72.	This s (A) (C)	species generally act as Bronsted acid and bas $HSO_4^ NH_3$	se (B) (D)	Na ² CO ₃ OH ⁻
73.	This s (A) (C)	serves as a differentiating solvent for HCl, H ₂ Liquid NH ₃ Liquid CH ₃ COOH	SO ₄ ar (B) (D)	
74.	Silico	on carbide widely used as an abrasive called c n as	arboru	andum belongs to the class of carbides
	(A) (C)	Ionic carbides Covalent carbides	(B) (D)	Interstitial carbides Silicates
75.	Which distriction (A)	th of the following statement concerning puttion function $(4\pi r^2 \Psi^2)$ for s-orbital of F Ψ^2 is minimum at nucleus but $4\pi r^2 \Psi^2$ is maximum at nucleus Both Ψ^2 and $4\pi r^2 \Psi^2$ are maximum at	I-like	poility density (Ψ^2) and radial species is correct? Ψ^2 is maximum at nucleus but $4\pi r^2 \Psi^2$ is minimum at nucleus Both Ψ^2 and $4\pi r^2 \Psi^2$ are minimum
	(0)	nucleus	(D)	at nucleus

- 76. Which conformer among the following is most unstable
 - (A) (a,e) 1,2 dimethyl cyclohexane
- (B) (a,e) 1,3 dimethyl cyclohexane
- (C) (a,a) 1,3 dimethylcyclohexane
- (D) (a,a) 1,4 dimethylcyclohexane
- 77. Which of the following compounds readily undergoes S_N1 reactions owing to the stability of its cartonium ion
 - (A)

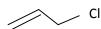


(B)

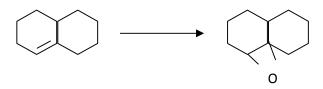


- (C)
- // c

(D)



78. Which reagent effects the following conversion?



- (A) m- chloroperbenzoic acid
- (C) NaOH/Br₂

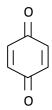
- (B) Acetic anhydride
- (D) Acetic acid
- 79. 1. Consider the following photochemical reactions:

H₂ + Cl₂
$$\xrightarrow{\text{hv}}$$
 2 HCl and

$$H_2 + Br_2 \xrightarrow{hv} 2HBr$$

These reactions are the examples of which of the following?

- (A) Reactions of high and low quantum yields, respectively
- (B) Reactions of low and high quantum yields, respectively
- (C) Reactions of quantum yields equal to one
- (D) Reactions of equal quantum yields but not equal to one
- 80. Which molecule is anti-aromatic among the following:
 - (A)



(B)



(C)



(D)



81.	Acid (A) (C)	strength of oxo-acids of halogens is in order HOI >HOBr>HOCl> HOF HOCl>HOBr> HOI > HOF	(B) (D)	HOF >HOCl>HOBr> HOI HOI > HOF >HOBr>HOCl			
	. ,		(-)				
82.	Teflo (A)	on is synthesized by Free radical polymerization of tetrafluoro ethylene (C ₂ F ₄)	(B)	Condensation of hexane -1, 6- diamine and adipic acid			
	(C)	Condensation of E-amino caproic acid	(D)	Polymerization of Cyano ethylene			
83.	High	resolution 'HNMR spectrum of 1,3 – dichlor	opropa	ane has signals.			
	(A) (C)	One triplet and one quintet One triplet and two doublets	(B) (D)	One triplet and one quartet Two triplets and one quartet			
84.	Whic	ch heterocyclic compound is least aromatic an	nong tl	ne following?			
	(A)	Furan	(B)	Pyrrole			
	(C)	Thiophene	(D)	Pyridine			
85.	Whic	ch compound will show the longest wavelengt	th max	ima in its UV spectrum?			
	(A)		(B)				
				,			
	(C)		(D)				
86.	The 2	$2+ \rightarrow 0+$ transition is a transition:					
00.	(A)	Electric dipole	(B)	Magnetic dipole			
	(C)	Magnetic quadrupole	(D)	Electric quadrupole			
87.	After	After 72 hours, the quantity of a sample of $^{24}_{11}$ Na is found to be 3.125% of the original sample					
		tity. Determine the half-life of the sample (in					
	(A)	3	(B)	4.5			
	(C)	9	(D)	18			
88.	Obtain the threshold energy (in Mev) for the reaction : $\frac{209}{83}$ Bi $\left(p, \frac{2}{1}H\right) \frac{208}{83}$ Bi [Some useful data:						
	(Masses)p = 938 Mev, 209 Bi = 208.980394 u; 208 Bi = 207.979731 u; 2 H=2.014102 u]						
	(A)	6.01842	(B)	6.04743			
	(C)	6.05987	(D)	6.089765			
89.	From meson theory of nuclear forces, the potential energy of interaction between two nucleons is proportional to						
	(A)	$e^{r/R}$	(B)	$e^{-r/R}$			
	,	$C.\frac{e^{r/R}}{r}$ $C.\frac{e^{R/r}}{r}$		$-C.\frac{e^{-r/R}}{r}$ $-C.\frac{-R/r}{r}$			
	(C)	$C.\frac{e^{\kappa/r}}{}$	(D)	$-C.\frac{-R/r}{}$			
		r		r			

90. If the observed total angular momentum of the deuteron 'l' has a magnitude data alone, the orbital angular momentum 'l' can take values:				
	(A) (C)	0,1,2 0	(B) (D)	0,2 0.1
91.		franium series with parent ${238 \over 92}U$ decays by eact has Z & A	nissioı	n of 8α and 6β particles. The end
	(A) (C)	82 & 208 84 & 208	(B) (D)	82 & 206 84 & 206
92.		etector that can measure the energy of gamma		
	(A) (C)	GM counter Scintillation detector	(B) (D)	Ionization chamber Cloud chamber
93.	The ar	ngular momentum and party of $\frac{17}{8}0$ nucleus	in the g	ground state according to the shell
	(A)		(B)	$\frac{1}{2}$
	(C)	$\frac{3}{2}$ +	(B) (D)	$\frac{2}{5}$ +
94.	All ba	ryons are made up of		
	(A) (C)	Quark and an anti-quark combination 3 quark combination	(B) (D)	2 quarks combination 3 ante-quark combination
95.	-	lotron is operated at an oscillator frequency on agnitude of the magnetic field required to the is		
	(A)	0.8 T	(B)	1.0 T
	(C)	1.6 T	(D)	2.0 T
96.	An oso (A)	cillator always needs an amplifier with Positive feedback	(B)	Negative feedback
	(C)	Both types of feedback	(D)	An LC tank circuit
97.	_	ared to a bipolar transistor, the JFET has	(D)	W 1
	(A) (C)	Greater voltage gain Less input impedance	(B) (D)	Much more input impedance None of these
98.	100Hz	able Wien bridge oscillator is to be designed at to 1KHz. the capacitors used in the circuit and in the circuit?		
	(A)	15.9 K to 159 K	(B)	159 K
	(C)	15.9 K	(D)	Any value of R

99.		feedback signal in a(n) _ ircuit.	oscillator is derived	from the capacitive voltage divider in the	
	(A)	Wein bridge	(B)	Armstrong	
	(C)	Colpitts	(D)	Hartley	
100.	A bridge rectifier with a capacitor input filter has an input voltage of 240 $V_{rms.}$. If the step-down transformer has a turns ratio of 8: 1, what is the output voltage? (ignore diode drops)				
	(A)	$30 V_{\rm rms}$	(B)	42 V	
	(C)	60 V	(D)	84 V	

Sr. No.	Question		
1.	A rare but serious disease found in 0.01% of a cert will become +ve for 98% of those who have the d don't have the disease. Probability that a person terby	isease	and be +ve only for 3% of those who
2.	by (A) 0.997 (C) 0.003 If A & B are independent, then following are true	(B) (D)	0.917 0.100
	(A) A & B' are independent	(B)	A' & B are independent.
	(C) A' & B' are independent.	(D)	All of above are true
3.	Rank of the matrix $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 1 & 2 & 1 \end{bmatrix}$ is:		
	(A) 2 (C) 3	(B) (D)	1 0
4.	Classify the following ordinary differential equation (A) Separable and not linear	on: e ^x d	y/dx+3y=x ² y Linear and not separable
	(C) Both separable and linear	(D)	Neither separable nor linear
5.	General solution of 2nd ordinary differential equut are arbitrary constants):	ion 4y	(2)+9y=0 is given by (where C1 and C2
	(A) $y = C_1 e^t + C_2 e^{-t}$	(B)	$y = C_1 e^{2t} + C_2 e^{-t}$
	(C) $y=C_1 \cos(t)+C_2 \sin(t)$	(D)	$y = C_1 \cos(3t/2) + C_2 \sin(3t/2)$
6.	Consider 2 nd order ordinary differential equation y with respect to variable t. The values of r for which solution of the form y=e ^{rt} are:		
	(A) 2, -4 (C) -2, 4	(B) (D)	2, 4 -2, -4
7.	The slope of the tangent line to the graph of f at $x = f(x) = -x^2 + 4 * sqrt(x)$ is	= 4, gi	ven that
	(A) -8	(B)	-10
	(C) –9	(D)	- 7

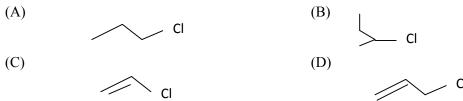
8.	The va (A) (C)	alue of x where the function $f(x) = x^3 - 9x^2 + 2$ $\frac{2}{-2}$	(B) (D)	1
9.		alues of A and B so that function f defined by differentiable at $x = 2$ are	f(x) =	$= 2x^2 \text{ for } x \le 2 \text{ and } f(x) = A x + B \text{ for } x$
	(A) (C)	8, 8 -8, -8		8, -8 -8, 8
10.		opproximation of sin(1) obtained by Taylor's s n(x) is given by:	eries a	approximation upto 5 th degree about x=0
		$1 - \frac{1}{2} + \frac{1}{24}$	(B)	$1 + \frac{1}{2} + \frac{1}{24}$
	` /	$1 - \frac{1}{6} + \frac{1}{120}$		$1 + \frac{1}{2} + \frac{1}{120}$
	(0)	1 1/0 1 1/120	(D)	1 - /2 - 1/120
11.		factaurian series for $1/(1-x)$ is $1+x+x^2+x^3+$ ower series for $x^2/(1-x^2)$ is given by:		
	(A)	$x+x^2+x^3+\dots$	` /	$x^2 + x^4 + x^6 + \dots$
	(C)	$x^3 + x^6 + x^9 + \dots$	(D)	$1+x^2+x^4+x^6+\dots$
12.	If Arit data	thmetic mean of a set of n data points is 106.6	wher	e n=8, then Harmonic mean of given
	(A)	0.8502	(B)	0.8510
	(C)	0.8528	(D)	0.0850
	(-)		()	
13.	Relati	onship among the averages		
	(A)	$HM \ge GM \ge AM$	(B)	AM≥GM≥HM
	(C)	GM ≤HM ≤AM	(D)	AM≥HM <gm< td=""></gm<>
	(0)	S111 _11112 _1 1111	(2)	2211 _2211
14.	are ap	e car is travelling on a straight track at a velocity plied at time $t=0$ seconds. From time $t=0$ to the race car is given by $a(t) = -6t^2$ —t meters per ar does the race car travel?	ne mor	ment the race car stops, the acceleration
	(A)	188.229m	(B)	198.766m
	(C)	260.042m	(D)	267.089m
	,		` /	
15.	follow	ection fis continuous on the closed interval [2, $\frac{1}{2}$] ing additional conditions guarantees that therefore $\frac{1}{2}$] conditions $\frac{1}{2}$		
	(A)	No additional conditions are necessary.	(B)	fhas a relative extrema on the open interval (2,5)
	(C)	fis differentiable on the open interval (2,5)	(D)	finite integral of f between 2 and 5 exists.

16.	An ice sculpture in the form of a sphere melts in such a way that it maintains its spherical shape. The volume of the sphere is decreasing at a constant rate of 2π cubic meters per hour. At what rate, in square meters per hour, is the surface area of the sphere decreasing at the moment when the radius is 5 meters?				
	(A) (C)	$4 \pi/5$ 80π	(B) (D)	40 π 100 π	
17.	Seque	nce defined by $a_n = \ln(2n^3 + 2) - \ln(5n^3 + 2n^2 + 4n^2 $	l) conv	verges to	
	(A)	0	(B)	ln(2/5)	
	(C)	$-\ln(2/5)$	(D)	2/5	
18.		or of series $\sum_{n=2}^{\infty} \frac{6}{n(n+3)}$ is given by			
	(A)	0	(B)	13/2	
	(C)	5/3	(D)	13/6	
19.	The ar	rea of region between the graph of $y=x^2$ and	y=-x	from $x=0$ to $x=2$?	
	(A)	2/3	(B)	8/3	
	(C)	4	(D)	14/3	
20.	An equation of line tangent to graph of $y=x+\cos(x)$ at the point $(0,1)$ is				
	(A)	y=2x+1	(B)		
	(C)	y=x	(D)	y=x-1	
21.	Natio	nal Science Day is celebrated on:			
21.	(A)	5 June	(B)	21June	
	(C)	28 February	(D)	16 October	
	` /	·	. ,		
22.	Which among the following monsoon is mainly responsible for rains in India?				
	(A)	South-East	(B)	North-West	
	(C)	South-West	(D)	North-East	
23.	Which gas is generally used in cold stores?				
	(A)	Ethylene	(B)	Oxygen	
	(C)	Methane	(D)	Acetelene	
24.		ing of coconut, black pepper and ginger sple of:	imult	aneously in the same field is an	
	-	Relay cropping	(B)	Intercropping	
	(C)	Multiple cropping	(D)	Multistoried_cropping	
2.5			(D)		
25.	_	lses, limiting amino acids is:	(D)	Valina	
	(A)	Methionine	(B)	Valine	
	(C)	Lysine	(D)	Cystein	

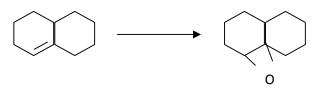
26.	When a compressed gas is allowed to expand through a porous plug at a temperature above its inversion temperature, then						
	(A) (C)	A fall in temperature is observed A rise after an initial fall in temperature is observed	(B) (D)	A rise in temperature is observed No change in temperature is noticed			
27.	Gas A (A)	A can be liquefied at room temperature by app Critical temperature of B is less than that of A	olying (B)	pressure but gas B cannot. This reflects Critical temperature of B is greater than that of A			
	(C)	Critical temperature of both A and B are greater than room temperature	(D)	No conclusion can be drawn on the critical temperature of A and B			
28.	Clausius-Clapeyron's equation gives the variation of						
	(A)	Boiling point of liquid with temperature	(B)	Vapour pressure of a liquid with temperature			
	(C)	Coefficient of viscosity of a liquid with pressure	(D)	Surface tension of a liquid with temperature			
29.	At any (A)	y temperature T, the entropy of a solid substa $C_P dT$	(B)	$C_{P/_}$			
	(C)	$\int_0^{TC_p dT} /_T$	(D)	$(C_p^{\prime T} - C_v)_{/T}$			
30.	The value of equilibrium constant for an endothermic reaction						
	(A)	Increases with increases of temperature	(B)	Decreases with increase of temperature			
	(C)	Is independent of temperature	(D)	Information not sufficient to draw any conclusion			
31.	Whic	h of the following statement is not correct?					
	(A)	Fast reactions have low activation energy	(B)	Activation energy of a reaction depends on the chemical nature of reactants and products			
	(C)	A catalyst increases the rate of reaction by decreasing the activation energy of the reaction	(D)	With increase in temperature, the rate of reaction decreases in case of exothermic reactions			
32.	Which formula cannot be used to calculate the molar mass of a solute?						
	(A)	$K_b \times W_b \times 10^3$	(B)	$\frac{W_BRT}{\pi V}$			
	(C)	$\frac{\Delta T_b \times W_A}{\Delta T_b \times W_B \times 10^3}$ $\frac{K_b \times W_A}{K_b \times W_A}$		$rac{\pi V}{p_A^o imes W_B imes M_A}{(p_A^o - p) imes W_A}$			
				••			
33.	The E (A)	EMF of the cell, $Zn Zn^{2+} Ag^+ Ag$ is independent. The volume of Zn^{2+} and Ag^+ solutions	lent of (B)	The molarity of Zn ²⁺ ions in the solution			
	(C)	The molarity of Ag ⁺ ions in the solution	(D)	Temperature			
34.		happens when electric current is passed through					
	(A)	O ² is evolved at cathode	(B)	O ² is evolved at anode			
	(C)	pH of the solution gradually decreases	(D)	pH of the solution gradually increases			

35.	The di (A) (C)	imensions of rate constant for a first order rea Time and concentration Concentration only	(B) (D)	involve Time only Neither time nor concentration
36.		of a first order reaction is found to be 2 min	utes.T	
	(A) (C)	12.5 15	(B) (D)	25 7.5
37.	The no (A) (C)	et energy change in a reversible, cyclic proces 3/2 RT Always >0	ss is (B) (D)	Zero Always <0
38.	The m (A) (C)	nagnetic quantum number for the last electron 3	in the (B) (D)	sodium atom (atomic number z=11) is 2 0
39.	The od (A) (C)	ctahedral molecular shape is associated with sp^3d sp^3d^3	(B) (D)	hybridisation. sp^3d^2 sp^3
40.	Which (A) (C)	Acetic acid Butanoic acid	(B) (D)	Propionic acid Chloroacetic acid
41.	An ex (A) (C)	ample of natural semi conductor is boron aluminium	(B) (D)	silicon Phosphorous
42.	The ic	onic strength of a solution containing 0.02 M	Na ₂ SC	0 ₄ and 0.01 M MgCl ₂ is
	(A)	0.03	(B)	0.06
	(C)	0.09	(D)	0.1
43.	Balme	er series consists of lines in the spectral range		
	(A) (C)	100-180 nm 400-700 nm	(B) (D)	230-340 nm 900-1100 nm
44.	` /	inium chloride is a/an Lewis acid Bronsted-Lowry acid	(B) (D)	Lewis base Arrhenius acid
45.	The p	H of 10 ⁻⁸ N HCl is approximately	, ,	
	(A) (C)	8 7	(B) (D)	7.02 6.96
46.	Coval	ent character of the bond is maximum in the	case of	f
	(A) (C)	LiCl KCl	(B) (D)	NaCl CaCl ₂
47.	This s (A) (C)	pecies generally act as Bronsted acid and bas $HSO_4^ NH_3$	e (B) (D)	Na ² CO ₃ OH⁻

- 48. This serves as a differentiating solvent for HCl, H₂SO₄ and HNO₃ (A) Liquid NH₃ (B) H₂O Liquid CH₃COOH (C) (D) C_6H_6 49. Silicon carbide widely used as an abrasive called carborundum belongs to the class of carbides known as (A) Ionic carbides (B) Interstitial carbides Covalent carbides (D) Silicates (C)
- Which of the following statement concerning probability density (Ψ^2) and radial 50. distribution function $(4\pi r^2 \Psi^2)$ for s-orbital of H-like species is correct?
 - Ψ^2 is minimum at nucleus but $4\pi r^2 \Psi^2$ is maximum at nucleus
 - Both Ψ^2 and $4\pi r^2 \Psi^2$ are maximum at (C) nucleus
- (B) Ψ^2 is maximum at nucleus but $4\pi r^2 \Psi^2$ is minimum at nucleus
- (D) Both Ψ^2 and $4\pi r^2 \Psi^2$ are minimum at nucleus
- Which conformer among the following is most unstable 51.
 - (a,e) 1,2 dimethyl cyclohexane (C)
- (a,e) 1,3 dimethyl cyclohexane (B)
- (a,a) 1,3 dimethylcyclohexane
 - (a,a) 1,4 dimethylcyclohexane (D)
- 52. Which of the following compounds readily undergoes S_N1 reactions owing to the stability of its cartonium ion



53. Which reagent effects the following conversion?



m- chloroperbenzoic acid (A)

Acetic anhydride (B)

(C) NaOH/Br₂

- (D) Acetic acid
- 54. 1. Consider the following photochemical reactions:

$$H_2 + Cl_2 \xrightarrow{hv} 2 HCl_2$$

$$\begin{array}{c} hv \\ 4000\text{\AA} \\ \text{and} \\ H_2 + Br_2 \xrightarrow{hv} 2 HBr_2 \end{array}$$

These reactions are the examples of which of the following?

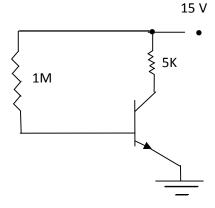
- (A) Reactions of high and low quantum yields, respectively
- (B) Reactions of low and high quantum yields, respectively
- Reactions of quantum yields equal to (C) one
- Reactions of equal quantum yields (D) but not equal to one

55.	Which (A)	n molecule is anti-aromatic among the follow	ring: (B)	
	(C)		(D)	
56.	Acid s (A) (C)	strength of oxo-acids of halogens is in order HOI >HOBr>HOCl> HOF HOCl>HOBr> HOI > HOF	(B) (D)	HOF >HOCl>HOBr> HOI HOI > HOF >HOBr>HOCl
57.	Teflor (A)	n is synthesized by Free radical polymerization of tetrafluoro ethylene (C ₂ F ₄)	(B)	Condensation of hexane -1, 6- diamine and adipic acid
	(C)	Condensation of E-amino caproic acid	(D)	Polymerization of Cyano ethylene
58.	High	resolution 'HNMR spectrum of 1,3 – dichlore	opropa	ine has signals.
	(A)	One triplet and one quintet	(B)	One triplet and one quartet
	(C)	One triplet and two doublets	(D)	Two triplets and one quartet
59.	Which	h heterocyclic compound is least aromatic am	nong th	ne following?
	(A)	Furan	(B)	Pyrrole
	(C)	Thiophene	(D)	Pyridine
60.	Which	h compound will show the longest wavelengt	h max	ima in its UV spectrum?
	(A)		(B)	
	(C)		(D)	
61.	The 2	$+ \rightarrow 0+$ transition is a transition:		
	(A)	Electric dipole	(B)	Magnetic dipole
	(C)	Magnetic quadrupole	(D)	Electric quadrupole

62.		72 hours, the quantity of a sample of ${24 \atop 11}$ Na is		d to be 3.125% of the original sample
	_	ity. Determine the half-life of the sample (in	hrs).	
	(A)	3	(B)	4.5
	(C)	9	(D)	18
63.	Obtai	n the threshold energy (in Mev) for the reacti	on : $\frac{20}{8}$	$\frac{09}{33}$ Bi $\left(p, \frac{2}{1}H\right) \frac{208}{83}$ Bi [Some useful data:
	(Mass	$(ses)p = 938 \text{ Mev}, ^{209}\text{Bi} = 208.980394 \text{ u}; ^{2}$	08 _{Bi} =	= 207.979731 u; ² H=2.014102 u]
	(A)	6.01842	(B)	6.04743
	(C)	6.05987	(D)	6.089765
64.		meson theory of nuclear forces, the potential ortional to	energ	y of interaction between two nucleons is
	(A)	$e^{r/R}$	(B)	$e^{-r/R}$
	()	$C.\frac{\sigma}{\sigma}$	()	$-C.\frac{\sigma}{\sigma}$
	(C)	R/r	(D)	$-C.\frac{e^{-r/R}}{r}$ $-C.\frac{-R/r}{r}$
	(0)	$C.\frac{e^{r/R}}{r}$ $C.\frac{e^{R/r}}{r}$	(D)	$-C.\frac{-C.\frac{-C.r}{r}}{r}$
65.	If the	observed total angular momentum of the deu	teron '	'l' has a magnitude 1, then based on this
00.		alone, the orbital angular momentum '1' can ta		
	(A)	0,1,2	(B)	
	(C)	0	(D)	
	` ′	200		
66.	The U	Jranium series with parent $\frac{238}{92}U$ decays by e	missio	on of 8α and 6β particles. The end
	produ	ect has Z & A		
	(A)	82 & 208	(B)	82 & 206
	(C)	84 & 208	(D)	84 & 206
67.	The d	letector that can measure the energy of gamm	a rays	is
	(A)	GM counter	(B)	Ionization chamber
	(C)	Scintillation detector	(D)	Cloud chamber
68.	The	noular momentum and norty of ¹⁷ 0 nucleus	in tha	around state according to the shall
	THE a	ngular momentum and party of ${17 \over 8}0$ nucleus	III tile	ground state according to the shell
	mode			
	(A)	0^+	(B)	$\frac{1}{2}$
				2
	(C)	3 +	(D)	5 +
		$\overline{2}$		$\frac{1}{2}$ $\frac{5}{2}$
<i>(</i> 0	A 11 1			
69.		aryons are made up of	(D)	2 annulus annuluimeti
	(A)	Quark and an anti-quark combination	(B)	2 quarks combination
	(C)	3 quark combination	(D)	3 ante-quark combination

70.	The	A cyclotron is operated at an oscillator frequency of 12 MHz and has a dee radius of 53 cm. The magnitude of the magnetic field required to accelerate protons, whose mass is 1.67×10^{-27} kg is							
			(D)	1.0 T					
	(A)	0.8 T 1.6 T	(B)	1.0 T 2.0 T					
	(C)	1.0 1	(D)	2.0 1					
71.	An o	scillator always needs an amplifier with							
	(A)	Positive feedback	(B)	Negative feedback					
	(C)	Both types of feedback	(D)	An LC tank circuit					
72.	Com	pared to a bipolar transistor, the JFET has							
12.	(A)	Greater voltage gain	(B)	Much more input impedance					
	(C)	Less input impedance	(D)	None of these					
	(C)	Less input impedance	(D)	None of these					
73.	100H	riable Wien bridge oscillator is to be designed to 1KHz. the capacitors used in the circuit and in the circuit?							
		15.9 K to 159 K	(B)	159 K					
	(C)	15.9 K	(D)	Any value of R					
	(C)	13.9 K	(D)	Any value of K					
74.		feedback signal in a(n) oscillator is c ircuit.	derived f	from the capacitive voltage divider in the					
	(A)	Wein bridge	(B)	Armstrong					
	(C)	Colpitts	(D)	Hartley					
75.		dge rectifier with a capacitor input filter has former has a turns ratio of 8: 1, what is the control of 8: 1.							
	(A)	$30~\mathrm{V_{rms}}$	(B)						
	(C)	60 V	(D)	84 V					
76.		Common – Collector configuration has a dance.	inpu	at impedance and a output					
	(A)	Low, high	(B)	High, low					
	(C)	Low, low	(D)	High, high					
77.	The l	PIV across a non-conducting diode in a Full		actificar aircuit a quala approximataly					
//.	(A)	Peak value of the secondary voltage	(B)	Twice the peak value of the secondary voltage					
	(C)	Half the peak value of the secondary voltage	(D)	Four times the peak value of the secondary voltage					
78.	As co	ompared to a silicon rectifier diode an LED	has a						
	(A)	Lower forward voltage and lower	(B)	Lower forward voltage and higher					
	` /	breakdown voltage	` /	breakdown voltage					
	(C)	Higher forward voltage and lower breakdown voltage	(D)	Higher forward voltage and higher breakdown voltage					

79. The two ends of the load line for the following circuit are (in V, mA)



(A) (15,0) & (0,3)

(B) (0,0) & (15,0)

(C) (3,0) & (0,15)

- (D) (0,3) & (15,3)
- 80. If the load resistance in a zener regulator circuit decreases, the zener current
 - (A) Decreases

(B) Increases

(C) Remains the same

- (D) Equals the load current
- 81. Miller indices of a plane parallel to x and z axes are
 - (A) (100)

(B) (010)

(C) (001)

- (D) (101)
- 82. The average energy of an atomic oscillator is given by
 - (A) hv

 $\frac{hv}{e^{hv/kt}-1}$

(C)
$$\frac{hv}{e^{-hv/kt}-1}$$

(D) $\frac{hv}{(e^{-hv/kt}-1)^2}$

- 83. For a non-dispersive medium
 - (A) $\omega = vk$

(B) $\omega = vk^2$

(C) $\omega = vk^3$

- (D) $\omega = vk^n (n \neq 1)$
- 84. If $a = b \neq c$ and $\alpha = \beta = y = 90^{\circ}$, the crystal system is
 - (A) triclinic

(B) tetragonal

(C) hexagonal

- (D) monoclinic
- 85. Bravais lattice for diamond structure is
 - (A) sc

(B) bcc

(C) fcc

- (D) hcp
- 86. The distance between the adjacent atomic planes in CaCO₃ is 0.3 nm. The smallest angle of Bragg scattering for 0.03 nm X- ray is
 - (A) 0^0

(B) 2.9°

(C) 5.8°

(D) 90°

87.	Phono (A) (C)	n is the quantum of electromagnetic wave gravitational wave	(B) (D)	elastic wave deBroglie wave
88.	The re (A) (C)	ciprocal lattice to direct simple cubic lattice is simple cubic face centered cubic	is (B) (D)	Body centered cubic base centered cubic
89.	The Fe (A) (C)	ermi energy of a metal is 1.4eV, the Fermi ter $1.6 \times 10^3 \text{ K}$ $1.6 \times 10^5 \text{ K}$	(B)	ure of the metal is approximately $1.6 \times 10^4 \text{ K}$ $1.6 \times 10^6 \text{ K}$
90.	A supe (A) (C)	erconductor is a material diamagnetic ferromagnetic	(B) (D)	paramagnetic ferrimagnetic
91.	The va (A) (C)	alues of a for which $\{(1,a,1),(a,1,1),(1,1,a)\}$ in 0,1 1,2	n R ³ ar (B) (D)	e linearly independent in R³are: 1,-2 all values except 1 and -2
92.	Which	of below are true regarding solution of follo 2x-y+z=2, x+2y-z=3 3x+y+2z=-1	wing	linear system of equations
	(A) (C)	No Solution Infinite solutions	(B) (D)	Unique solution x=0, y=0, z=0
93.	Nume	rical Derivative of f (0.4) using Central Diffe	rence	formula from below data:
	(0.3,7.	38910),(0.4,7.4633),(0.5,7.5383),(0.6,7.6141),(0.7,	7.6906) equals
	(A) (C)	0 746	(B) (D)	371 None of above
94.	(A)	fferential equation $(A x + B y) dx + (C x A = C B = C$	+ D y) (B) (D)	dy = 0 is exact, if and only if $A = DB = D$
95.		one of the following is the integrating factor $P(x) y = Q(x)$:	for th	e linear differential equation
	(A)	$P(x) e^{\int x}$	(B)	$Q(x)e^{\int x}$
	(C)	$e^{\int P(x)dx}$	(D)	$e^{\int Q(x)dx}$

96.		n of the following statements is NOT equivalenter scientist or a mathematician who knows		
	(A)	There exists a person who is a computer scientist and who knows both discrete math and Bioscience or there exists a person who is a mathematician and who knows both discrete math and Bioscience. There exists a person who is a computer	(B)	There exists a person who is a computer scientist or there exists a person who is a mathematician who knows discrete math or who knows Bioscience. There exists a computer scientist who
	` ,	scientist and who knows both discrete math and Bioscience or there exists a mathematician who knows both discrete math and Bioscience.		knows both discrete math and Bioscience or there exists a person who is a mathematician who knows both discrete math and Bioscience.
97.		alues of k for which $f(x)=(1-k)k^x$ can serve as takes countable infinite values $0,1,2,3$	proba	ability distribution of a random variable
	(A)	k>1	(B)	0 <k<1< td=""></k<1<>
	(C)	k<0	(D)	k=1
98.		cher gives a 20 point test to 10 students. The he percentile rank of a score of 12.	marks	are 18, 15, 12, 6, 8, 2, 3, 5, 20, 10.
	(A)	65%	(B)	45%
	(C)	68%	(D)	70%
99.	Mean,	, Median and standard deviation for data set	10, 60	, 50, 30, 40, 20 are given by
	(A)	35,35,17	(B)	34,34,17.1
	(C)	30,34,19	(D)	35,35,17.1
100.		udent randomly guesses 5 multiple choice que udent gets exactly 3 right answers is given by		s each having 5 choices, the probability
	(A)	0.04	(B)	0.05
	(C)	0.01	(D)	0.02

Answer Key PG Non Med A

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1.	В	35.	D	69.	С
2.	A	36.	D	70.	С
3.	В	37.	В	71.	В
4.	С	38.	С	72.	В
5.	A	39.	В	73.	A
6.	D	40	A	74.	D
7.	С	41.	В	75.	В
8.	A	42.	С	76.	A
9.	D	43.	D	77.	D
10.	В	44.	С	78.	A
11.	A	45.	A	79.	С
12.	В	46.	С	80.	D
13.	D	47.	В	81.	A
14.	В	48.	A	82.	D
15.	D	49.	С	83.	A
16.	В	50.	В	84.	В
17.	A	51.	В	85	С
18.	В	52.	A	86	В
19.	A	53.	C	87	С
20.	D	54.	A	88	В
21.	A	55.	A	89	B C
22.	В	56.	В	90	C
23.	В	57.	В	91	A
24.	С	58.	D	92	В
25.	В	59.	В	93	D
26.	C	60.	C	94	D
27.	D	61.	В	95	В
28.	A	62.	В	96	С
29.	A	63.	A	97	С
30.	D	64.	В	98	A
31.	В	65.	A	99	D
32.	A	66.	D	100	A
33.	A	67.	В		
34.	A	68.	С		

Answer Key PG Non Med B

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1.	С	35.	С	69.	D
2.	D	36.	В	70.	В
3.	A	37.	В	71.	С
4.	A	38.	A	72.	С
5.	D	39.	В	73.	A
6.	В	40	A	74.	D
7.	A	41.	D	75.	A
8.	A	42.	В	76.	В
9.	A	43.	С	77.	A
10.	D	44.	С	78.	В
11.	D	45.	С	79.	С
12.	В	46.	В	80.	A
13.	С	47.	В	81.	D
14.	В	48.	A	82.	С
15.	A	49.	D	83.	A
16.	В	50.	В	84.	D
17.	С	51.	A	85	В
18.	D	52.	D	86	A
19.	C	53.	A	87	В
20.	A	54.	C	88	D
21.	C	55.	D	89	В
22.	В	56.	A	90	D
23.	A	57.	D	91	В
24.	C	58.	A	92	A
25.	В	59.	В	93	В
26.	В	60.	C	94	A
27.	A	61.	В	95	D
28.	$\frac{R}{C}$	62.	C	96	A
29.	A	63.	В	97	В
30.	A	64.	В	98	В
31.	B	65.	C	99	C
32.	В	66.	A	100	В
33.	D	67.	B	100	В
34.	В	68.	D		

Answer Key PG Non Med C

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1.	В	35.	C	69.	A
2.	A	36.	В	70.	D
3.	С	37.	С	71.	A
4.	A	38.	В	72.	В
5.	A	39.	В	73.	В
6.	В	40	С	74.	С
7.	В	41.	A	75.	В
8.	D	42.	В	76.	С
9.	В	43.	D	77.	D
10.	C	44.	D	78.	A
11.	В	45.	В	79.	A
12.	В	46.	С	80.	D
13.	A	47.	С	81.	В
14.	В	48.	A	82.	A
15.	A	49.	D	83.	A
16.	D	50.	A	84.	A
17.	В	51.	В	85	D
18.	C	52.	A	86	D
19.	C	53.	В	87	В
20.	C	54.	C	88	С
21.	В	55.	A	89	В
22.	В	56.	D	90	A
23.	A	57.	С	91	В
24.	D	58.	A	92	С
25.	В	59.	D	93	D
26.	A	60.	В	94	С
27.	D	61.	A	95	A
28.	A	62.	В	96	С
29.	C	63.	D	97	В
30.	D	64.	В	98	A
31.	A	65.	D	99	С
32.	D	66.	В	100	В
33.	A	67.	A		
34.	В	68.	В		

Answer Key PG Non Med D

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1.	A	35.	В	69.	C
2.	D	36.	A	70.	A
3.	A	37.	В	71.	С
4.	С	38.	D	72.	В
5.	D	39.	В	73.	A
6.	A	40	D	74.	С
7.	D	41.	В	75.	В
8.	A	42.	A	76.	В
9.	В	43.	В	77.	A
10.	С	44.	A	78.	С
11.	В	45.	D	79.	A
12.	С	46.	A	80.	A
13.	В	47.	В	81.	В
14.	В	48.	В	82.	В
15.	С	49.	С	83.	D
16.	A	50.	В	84.	В
17.	В	51.	С	85	С
18.	D	52.	D	86	В
19.	D	53.	A	87	В
20.	В	54.	A	88	A
21.	C	55.	D	89	В
22.	С	56.	В	90	A
23.	A	57.	A	91	D
24.	D	58.	A	92	В
25.	A	59.	A	93	C
26.	В	60.	D	94	С
27.	A	61.	D	95	С
28.	В	62.	В	96	В
29.	С	63.	С	97	В
30.	A	64.	В	98	A
31.	D	65.	A	99	D
32.	С	66.	В	100	В
33.	A	67.	C		
34.	D	68.	D		

Answer Key PG Med A

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1.	В	35.	A	69.	A
2.	В	36.	В	70.	D
3.	A	37.	A	71.	С
4.	С	38.	В	72.	В
5.	В	39.	С	73.	A
6.	В	40	A	74.	С
7.	All	41.	D	75.	D
8.	A	42.	С	76.	В
9.	D	43.	A	77.	A
10.	С	44.	D	78.	С
11.	A	45.	В	79.	С
12.	С	46.	A	80.	D
13.	С	47.	В	81.	A
14.	В	48.	D	82.	С
15.	С	49.	В	83.	B C
16.	С	50.	D	84.	
17.	D	51.	В	85	В
18.	С	52.	A	86	A
19.	В	53.	В	87	В
20.	С	54.	A	88	D
21.	С	55.	D	89	В
22.	В	56.	A	90	D
23.	В	57.	В	91	С
24.	В	58.	В	92	A
25.	A	59.	С	93	В
26.	В	60.	В	94	С
27.	В	61.	С	95	С
28.	D	62.	D	96	D
29.	С	63.	A	97	В
30.	A	64.	A	98	С
31.	С	65.	D	99	C
32.	C	66.	В	100	A
33.	A	67.	A		
34.	D	68.	A		

Answer Key PG Med B

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1.	В	35.	В	69.	C
2.	В	36.	С	70.	С
3.	D	37.	D	71.	D
4.	С	38.	A	72.	В
5.	A	39.	A	73.	С
6.	С	40	D	74.	С
7.	C	41.	В	75.	A
8.	A	42.	A	76.	В
9.	D	43.	A	77.	В
10.	A	44.	A	78.	A
11.	В	45.	D	79.	С
12.	A	46.	С	80.	В
13.	В	47.	В	81.	В
14.	С	48.	A	82.	All
15.	A	49.	С	83.	A
16.	D	50.	D	84.	D
17.	С	51.	В	85	С
18.	A	52.	A	86	A
19.	D	53.	С	87	С
20.	В	54.	С	88	С
21.	A	55.	D	89	В
22.	В	56.	A	90	С
23.	D	57.	С	91	С
24.	В	58.	В	92	D
25.	D	59.	С	93	C
26.	В	60.	В	94	В
27.	A	61.	A	95	С
28.	В	62.	В	96	С
29.	A	63.	D	97	В
30.	D	64.	В	98	В
31.	A	65.	D	99	В
32.	В	66.	С	100	A
33.	В	67.	A		
34.	С	68.	В		

Answer Key PG Med C

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1.	В	35.	В	69.	В
2.	A	36.	A	70.	С
3.	В	37.	В	71.	С
4.	A	38.	D	72.	В
5.	D	39.	В	73.	В
6.	A	40	D	74.	В
7.	В	41.	С	75.	A
8.	В	42.	A	76.	В
9.	С	43.	В	77.	В
10.	В	44.	С	78.	D
11.	С	45.	С	79.	С
12.	D	46.	D	80.	A
13.	A	47.	В	81.	С
14.	A	48.	С	82.	C
15.	D	49.	C	83.	A
16.	В	50.	A	84.	D
17.	A	51.	В	85	A
18.	A	52.	В	86	В
19.	A	53.	A	87	A
20.	D	54.	С	88	В
21.	С	55.	В	89	С
22.	В	56.	В	90	A
23.	A	57.	All	91	D
24.	С	58.	A	92	С
25.	D	59.	D	93	A
26.	В	60.	С	94	D
27.	A	61.	A	95	В
28.	С	62.	С	96	A
29.	С	63.	С	97	В
30.	D	64.	В	98	D
31.	A	65.	С	99	В
32.	С	66.	С	100	D
33.	В	67.	D		
34.	С	68.	С		

Answer Key PG Med D

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1.	В	35.	С	69.	D
2.	A	36.	A	70.	В
3.	С	37.	С	71.	A
4.	С	38.	С	72.	В
5.	D	39.	В	73.	D
6.	A	40	С	74.	В
7.	С	41.	С	75.	D
8.	В	42.	D	76.	В
9.	C	43.	С	77.	A
10.	В	44.	В	78.	В
11.	A	45.	C	79.	A
12.	В	46.	С	80.	D
13.	D	47.	В	81.	A
14.	В	48.	В	82.	В
15.	D	49.	В	83.	В
16.	С	50.	A	84.	С
17.	A	51.	В	85	В
18.	В	52.	В	86	С
19.	С	53.	D	87	D
20.	С	54.	С	88	A
21.	D	55.	A	89	A
22.	В	56.	С	90	D
23.	C	57.	C	91	В
24.	C	58.	A	92	A
25.	A	59.	D	93	A
26.	В	60.	A	94	A
27.	В	61.	В	95	D
28.	A	62.	A	96	С
29.	С	63.	В	97	В
30.	В	64.	С	98	A
31.	В	65.	A	99	С
32.	All	66.	D	100	D
33.	A	67.	С		
34.	D	68.	A		