Thomas Tutorials

Dat	te: N	VEET - 2010	6 TEST ID: 02
Tin	ne : 03:00:00	РСВ	Marks : 720
1. 2.	Electron <i>volt</i> is a unit ofa) Chargeb) Potential diffec) Momentumd) EnergyIf C be the capacitance and V be the electpotential, then the dimensional formulaisa) $[ML^{-3}TA]$ b) $[K^0LT^{-2}A^0]$	9. erence $10.$ of CV^2	If the angular momentum of a rotating body about a fixed axis is increased by 10%. Its kinetic energy will be increased by a) 10% b) 20% c) 21% d) 5% A shell is fired from a cannon with a velocity v at an angle θ with the horizontal direction. At the highest point in its path, it explodes into two pieces, one retraces its path to the cannon
3.	c) $[ML^{1}T^{-2}A^{-1}]$ d) $[ML^{2}T^{-2}A^{0}]$ Two bodies being a free fall from rest, fr same height 2s apart. How long after the body begins to fall the two bodies will be apart? (Take g = 10ms ⁻²)	om the e first e 40m	and the speed of the other piece immediatelyafter the explosion isa) $3v \cos \theta$ b) $2v \cos \theta$ c) $\left(\frac{3}{2}\right)v \cos \theta$ d) $\left(\frac{\sqrt{3}}{2}\right)v \cos \theta$
4.	a) 1 s b) 2 s c) 3 s d) 4 a If retardation produced by air resistance projectile is one-tenth of acceleration du gravity, the time to reach maximum heig a) Decreases by 11 percent b) Increases by 11 percent c) Decreases by 9 percent	s 11. e of he to ht 12.	When earth moves around the sun, the quantity which remains constant is a) Angular velocity b) Kinetic energy c) Potential energy d) Areal velocity A wire of length 50 <i>cm</i> and cross sectional area of 1 <i>sq. mm</i> is extended by 1 <i>mm</i> . The required work will be $(Y = 2 \times 10^{10} Nm^{-2})$
5.	A particle rests on the top of a hemispher radius <i>R</i> . Find the smallest horizontal ver that must be imparted to the particle if it leave the hemisphere without sliding do a) \sqrt{gR} b) $\sqrt{2gR}$ c) $\sqrt{3gR}$ d) $\sqrt{2}$	ere of elocity 13. t is to wn it $\overline{5gR}$	a) $6 \times 10^{-2} J$ b) $4 \times 10^{-2} J$ c) $2 \times 10^{-2} J$ d) $1 \times 10^{-2} J$ Horizontal tube of non-uniform cross-section has radii of 0.1 m and 0.05 m respectively at <i>M</i> and <i>N</i> . For a streamline flow of liquid the rate of liquid flow is
0.	The work done in 3rd second is a) 2 J b) 4 J c) 16 J d) 1.	2 J	
7.	A stationary bomb explodes into three p One piece of 2 kg mass moves with a vel- of 8 ms ⁻¹ at right angles to the other piece mass 1 kg moving with a velocity of 12 m If the mass of the third piece is 0.5 kg, the velocity is a) 10 ms ⁻¹ b) 20 ms ⁻¹ c) 30 ms ⁻¹ d) 40 A ball of mass <i>m</i> moving with velocity <i>V</i> , a head on elastic collision with a ball of t	hieces. ocity ces of ms ⁻¹ . len its 0 ms^{-1} makes he	a) Changing continuously with time b) Greater at M than N c) Greater at N than at M d) Same at M and N A vessel contains oil (density0.8 gcc ⁻¹) over mercury (density13.6 gcc ⁻¹). A homogeneous sphere floats with half its volume immersed in mercury and the other half in oil. The density of the material of the sphere in gcc ⁻¹ is a) 3 b) 6.4 c) 7.2 d) 12.8
	same mass moving with velocity $2V$ towardTaking direction of V as positive velocitiesthe two balls after collision area) $-V$ and $2V$ b) $2V$ and $-V$ c) V and $-2V$ d) $-2V$ and V	ards it. es of 15.	Which of the curves in figure represents the relation between Celsius and Fahrenheit temperatures



16. When two moles of oxygen is heated from 0°C – 10°C at constant volume, its internal energy changes by 420 J. What is the molar specific heat of oxygen at constant volume?
a) 5.75 JK⁻¹mol⁻¹
b) 10.5 JK⁻¹mol⁻¹
c) 21 JK⁻¹ mol⁻¹
d) 42 JK⁻¹mol⁻¹

d) 4

- 17. A system performs work ΔW when an amount of heat is ΔQ added to the system, the corresponding change in the internal energy is ΔU . A unique function of the initial and final states (irrespective of the mode of change) is a) ΔQ b) ΔW c) ΔU and ΔQ d) ΔU
- 18. A liquid is filled in a container which is kept in a room whose temperature is 20°C. When temperature of liquid is 80°C it emits heat at the rate of 45 cals⁻¹. When temperature liquid falls to 40°C, its rate of heat loose will be a) 15 b) 30 c) 45 d) 60 cals⁻¹ cals⁻¹ cals⁻¹ cals⁻¹
- 19. The displacement *y* of a particle executing periodic motion is given by $y = 4 \cos^2(t/2\sin(1000t))$. This expression may be considered to be a result of the superposition of...... independent harmonic motions

a) Two b) Three c) Four d) Five

- 20. A girl swings on cradle in a sitting position. If she stands what happens to the time period of girl and cradle?
 - a) Time period decreases
 - b) Time period increases
 - c) Remains constant
 - d) First increases and then remains constant
- 21. A source of sound of frequency 256 Hz is moving towards a wall with a velocity of $5ms^{-1}$. Velocity of sound is $330ms^{-1}$. The number of beats s^{-1} heard by an observer standing between the source and the wall is nearly

a)
$$\frac{256 \times 330}{325} - \frac{256 \times 330}{325}$$

b) $256 - \frac{256 \times 330}{325}$

c)
$$\frac{256 \times 330}{325} \times \frac{256 \times 330}{335}$$

d) $\frac{256 \times 330}{325} - 256$

- 22. Consider a neutral conducting sphere. A positive point charge is placed outside the sphere. The net charge on the sphere is then a) Negative and distributed uniformly over the
 - surface of the sphere
 - b) Negative and appears only at the point on the sphere closest to the point charge
 - c) Negative and distributed non-uniformly over the entire surface of the sphere

d)Zero

- 23. When a lamp is connected in series with capacitor, then
 - a) Lamp will not glow
 - b) Lamp will burst out
 - c) Lamp will glow normally

d) None of these

24. When two conductors of charges and potentials C_1, V_1 and C_2, V_2 respectively are joined, the common potential will be

a)
$$\frac{C_1V_1 + C_2V_2}{V_1 + V_2}$$

b) $\frac{C_1V_1^2 + C_2V_2^2}{V_1^2 + V_2^2}$
c) $C_1 + C_2$
d) $\frac{C_1V_1 + C_2V_2}{C_1 + C_2}$

- 25. Which of the following statement is correcta) Electric field is zero on the surface of current carrying wire
 - b) Electric field is non-zero on the axis of hollow current carrying wire Surface integral of magnetic field for any
 - c) closed surface is equal to μ_0 times of total algebraic sum of current which are crossing through the closed surface
 - d)None
- 26. A storage cell is charged by 5 *amp* D.C. for 18 *hours*. Its strength after charging will be
 a) 18 *AH*b) 5 *AH*c) 90 *AH*d) 15 *AH*
- 27. The temperature at which thermoemf is zero, is

a) Temperature of inversion

- b) Temperature of cold junction
- c) Neutral temperature
- d)None of the above
- 28. If same current *I* passing through two parallel wires separated by a distance *b*, then force per unit length will be

a) $\frac{\mu_0}{4\pi} \frac{2I^2}{b}$ b) $\frac{\mu_0 I}{4\pi b^2}$ c) $\frac{\mu_0 I^2}{4\pi b^2}$ d) $\frac{\mu_0 I^2}{4\pi b}$

29. The value of the horizontal component of the earth's magnetic field and angle of dip are $1.8 \times 10^{-5} weber/m^2$ and 30° respectively at some place. The total intensity of earth's magnetic field at that place will be a) $2.08 \times 10^{-5} weber/m^2$ b) $3.67 \times 10^{-5} weber/m^2$ c) $3.18 \times 10^{-5} weber/m^2$

d)
$$5.0 \times 10^{-5}$$
 we ber $/m^2$

30. Two identical short bar magnets, each having magnetic moment of 10 Am^2 , are arranged such that their axial lines are perpendicular to each other and their centres be along the same straight line in a horizontal plane. If the distance between their centres is 0.2 *m*, the resultant magnetic induction at a point midway between them is $(\mu_0 = 4\pi \times 10^{-7} Hm^{-1})$

a)
$$\sqrt{2} \times 10^{-7} tesla$$

b) $\sqrt{5} \times 10^{-7} tesla$
c) $\sqrt{2} \times 10^{-3} tesla$
d) $\sqrt{5} \times 10^{-3} tesla$

31. Pure inductance of 3.0 *H* is connected as shown below. The equivalent inductance of the circuit is



d) 9 *H*

- a) Forward
- b) Backward
- c) Both are in the same phase
- d) None of these
- 33. The phase difference between the alternating current and emfis $\pi/2$. Which of the following cannot be the constituent of the circuit?
- a) *C* alone b) *R*,*L* c) *L*,*C* d) *L* alone 34. The electric field of plane electromagnetic
 - wave in vacuum is represented by

 $\vec{\mathbf{E}}_x = 0; \vec{\mathbf{E}}_y = 0.5 \cos[2\pi \times 10^8 (t - x/c)]; \vec{\mathbf{E}}_z = 0$

What is the direction of propagation of electromagnetic waves?

- a) Along x z direction
- b) Along y-direction
- c) Along *x*-direction
- d) A long y z direction
- 35. A point object is placed at a distance of 30 cm from a convex mirror of a focal length 30 cm. The image will form at

- a) Infinity
- b) Pole
- c) 15 cm behind the mirror
- d) No image will be formed
- 36. A light ray is incident perpendicular to one face of a 90° prism and is totally internally reflected at the glass-air interface. If the angle of reflection is 45° , we conclude that the refractive index *n*

a)
$$n < \frac{1}{\sqrt{2}}$$
 b) $n > \sqrt{2}$ c) $n > \frac{1}{\sqrt{2}}$ d) $n < \sqrt{2}$

37. A light source approaches the observer with velocity 0.8 *c*. The Doppler shift for the light of wavelength 5500Å is

a) 4400 Å b) 1833 Å c) 3167 Å d) 7333 Å

- 38. The speed of an electron having a wavelength of $10^{-10}m$ is
 - a) $7.25 \times 10^6 m/s$ b) $6.26 \times 10^6 m/s$ c) $5.25 \times 10^6 m/s$ d) $4.24 \times 10^6 m/s$
- 39. According to Mosely's law, the frequency of a spectral line in *X*-ray spectrum varies as a) Atomic number of the element
 - b) Square of the atomic number of the element
 - c) Square ropot of the atomic number of the element
 - d) Fourth power of the atomic number of the element
- 40. Which of the following lines of the H-atom spectrum belongs to the Balmer series?
 - a) 1025 Å b) 1218 Å c) 4861 Å d) 18751 Å
- 41. The nuclear reactor at Kaiga is aa) Research reactorb) Fusion reactorc) Breeder reactord) Power reactor

a) Z - 1 and A - 1

c) Z - 1 and A

42. A nucleus decays by β^+ -emission followed by $a\gamma$ – emission. If the atomic and mass numbers of the parent nucleus are *Z* and *A* respectively, the corresponding numbers for the daughter nucleus are respectively

b) *Z* + 1 and *A*

d) *Z* + 1 and *A* − 1

43.	Following is the relation	on between current and	53.	Identify th	e pair of ga	ises that ha	ve equal rates
	charge $I = AT^2 e^{q/v_L}$, t	then value of V_L will be		of diffusion	n		
	a) V b) kV	c) $\frac{kT}{T}$ d) $\frac{VT}{T}$		a) CO, NO		b) N ₂ O, (20
	kt T	V k		c) N ₂ O, CO	2	d) CO ₂ , N	10 ₂
44.	An antenna is a device		54.	The enthal	lpy of comł	oustion of H	₂ , cyclohexane
	a) That convert electro	magnetic energy into		(C_6H_{10}) ar	nd cyclohex	$cane (C_6H_{12})$) are
	radio frequency sign	ıal		-241, -38	300 and -3	920 kJ per	mol
	b) That converts radio	frequency signal into		respective	ly. Heat of	hydrogenat	ion of
	electromagnetic ene	rgy		cyclohexai	ne is		
	c) That converts guide	d electromagnetic waves		a) 121 kJ/ı	mol	b) —121	kJ/mol
	into free space elect	romagnetic waves and		c) +242 kJ	/mol	d) -242	kJ/mol
	vice-versa		55.	A gas can	expand fr	om 100 m	L to 250 mL
	d)None of these			under a c	onstant pi	ressure of	2 atm. The
45.	Which fibers are less e	xpensive and simple to		work don	ie by gas is	5	
	construct?			a) 30 38 I	⊔b) 25 I	ر) 5 kg I	d) 16 I
	a) Single-mode step ind	dex fiber	56	In the read	$\frac{10}{20}$	$\rightarrow 2NO \alpha$	is that part of
	b) Multi-mode step ind	ex fiber	50.	N O which	$\frac{1001}{1004}$	$\leftarrow 2NO_2, u$	is that part of
	c) Multi graded index f	iber		molog at a	auilibrium	uill bo	inumber of
	d)All are equally exper	nsive		110100 at e^{-1}	quindinum	will be	
46.	Weight of an atom of a	n element is		a) $(1 + \alpha)$		UJ 3	
	6.644×10^{-23} g. What	will be the number of g	57	(1 + u)	tion state o	$u_{j}(1-t)$	l)
	atom of that element in	n 40 kg?	57.		uon state o	i two suipii	
	a) 10 ³	b) 10 ⁶		$H_2 S_2 U_8$	ل ا (ا		4) 4
	c) 1.5 × 10 ³	d) None of these	F 0	$a_j = 6$	0) - Z	C + 0	(1) - 4
47.	80 g of oxygen contain	s as many atoms as in	58.	In the conv	Persion of f	$5\Gamma_2$ to $5\Gamma_3$, the oxidation
	a) 80 g of hydrogen	b) 1 g of hydrogen		number of	Br change	S IFOIII	
	c) 10 g of hydrogen	d) 5 g of hydrogen		a) Zero to	+5	0) + 1 (0)	+5
48.	Choose the incorrect re	elation on the basis of	50	C) Zero to	-3 ~!! 0	u) +2 l0 h acidified r	+5
	Bohr's theory		59.	dichromot	$g \Pi_2 O_2$ with $a = 1$	n actuilleu]	
	a) Velocity of electron	$\propto \frac{1}{2}$		a) Croop	b) Pod	c) Pluo	d) Brown
	b) Ere au on au of roughu	n tion of ¹	60	The most	alactronosi	tivo olomor	u) biown
	D)Frequency of revolu	$\frac{1011}{n^2}$	00.	metals is	ciccu oposi		
	c) Radius of orbit $\propto n^2$			a) Na	h) K	c) Rh	d) (s
	d)Force on electron \propto	$\frac{1}{n^4}$	61	Buckminst	ter fulleren	eis	u) 00
49.	The lightest particle is		011	a) Pure gra	anhite	b) C-60	
	a) -particle	b) Positron		c) Diamon	d	d) C-90	
	c) Proton	d) Neutron	62	Aluminiun	- n vessels sł	hould not be	washed with
50.	Which of the following	oxides is most basic?	021	materials	containing	washing so	da since
	a) Na_2O	b) SiO ₂		a) Washing	o soda reac	ts with alur	ninium to form
	c) SO ₂	d) All are equally basic		soluble	aluminate		
51.	From elementary mole	cular orbital theory we		b)Washing	g soda reac	ts with alur	ninium to form
	can give the electronic	configuration of the		insolubl	e aluminiu	m oxide	
	singly positive nitrogen molecular ion $\mathrm{N_2^+}$ as			c) Washing	g soda is ex	pensive	
	a) $l\sigma 1s^2$, $\sigma^* 1s^2$, $\sigma 2s^2$, $\sigma^* 2s^2$, $\pi 2p^4$, $\sigma 2p^1$			d) Washing soda is easily decomposed			
	b) $\sigma 1s^2, \sigma^* 1s^2, \sigma 2s^2, \sigma^*$	$^{*}2s^{2},\sigma 2p^{2},\pi 2p^{3}$	63.	A molecule	e having th	ree differen	t chiral carbon
	c) $\sigma 1s^2$, $\sigma^* 1s^2$, $\sigma 2s^2$, σ^*	$^{*}2s^{2}$, $\sigma 2p^{3}$, $\pi 2p^{2}$		atoms, how	w many ste	reoisomers	it will have?
	d) $\sigma 1s^2, \sigma^* 1s^2, \sigma 2s^2, \sigma^*$	$^{*}2s^{2}$, $\sigma 2p^{2}$, $\pi 2p^{4}$		a)8			• •
52.	The number of π -bond	ls present in propyne is		b)3			
	a) 4	b) 1		c) 9			
	c) 3	d) 2		d)6			

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64. In the sequence of reactions, $C_2H_4 \xrightarrow{\text{HBr}} X \xrightarrow{\text{AgCN}} Y \xrightarrow[H_2/Ni]{(H)} Z,$ Compound Z is a) N-methyl ethanamine b) N-propylamine c) N, N-dimethylamine d) Ethyl cyanide ^{65.} CH₃ - CH₂ - C \equiv CH $\xrightarrow{\text{HgSO}_4} A$ The compound *A* is 0 a) Ш $CH_3 - CH_2 - C - CH_3$ b) $CH_3 - CH_2 - CH_2 - CHO$ c) $CH_3 - CH_2 - CH_2 - COOH$ d)None of the above 66. Which of the following statements is not true? a) Ammonia acts as sink for NO_x b) Limestone acts as sink for SO_x c) The average residence time of NO is one month d) SO_x can be removed from flue gases by passing through a solution of citrate ions 67. Which is not the correct statement for ionic solids in which positive and negative ions are held by strong electrostatic attractive forces? The radius r^+/r^- increases as coordination a) number increases b) As the difference in size of ions increases, coordination number increases When coordination number is eight, the c) r^+/r^- ratio lies between 0.225 to 0.414 In ionic solid of the type *AX*(ZnS, Wurtzite), d) the coordination number of Zn²⁺andS²⁻ respectively are 4 and 4 68. The ionic radii of Rb^+ and I^- are 1.46 Å and 2.16 Å. The most probable type of structure exhibited by it is a) CsCl type b) ZnS type c) NaCl type d) CaF₂ type 69. The relative lowering of vapour pressure of a dilute aqueous solution containing nonvolatile solute is 0.0125. The molality of the solution is about a) 0.70 b) 0.50 d) 0.80 c) 0.90 70. If sodium sulphate is considered to be completely dissociated into cations and anions in aqueous solution, the change in freezing

point of water (ΔT_f), when 0.01 mole of sodium sulphate is dissolved in 1 kg of water, is $(k_f = 1.86 \text{ Kkg mol}^{-1})$ a) 0.0372 K b) 0.0558 K d) 0.0186 K c) 0.0744 L 71. On passing 0.1 F of electricity through aluminium metal deposited at cathode is (AI =27) a) 0.3 g b) 0.6 g c) 0.9 g d) 1.2 g 72. The half-life period for a first order reaction is 693 s. The rate constant of this reaction would be a) $0.1 \, \mathrm{s}^{-1}$ b) $0.01 \, \mathrm{s}^{-1}$ c) $0.001 \, \text{s}^{-1}$ d) 0.0001 s^{-1} 73. For the reaction system $2NO(g) + O_2(g) \rightarrow 2NO_2(g)$ if the volume of the reaction vessel is reduced to one-third of its original volume, what will be the order of the reaction? a) Diminished to one fourth of its initial value b) Diminished to one twenty seven of its initial value c) Increase to twenty seven times of its initial value d) Increase to four times of its initial value 74. A catalyst a) Lowers the activation energy b) Changes the rate constant c) Changes the product d) Itself destroys in the reaction 75. Which of the following is correct? a) Tin stone is magnetic in nature b) Wolframite is non-magnetic in nature c) Wolframeite is FeWO₄ d) Cassiterite and rutile are sulphides ore 76. Naturally occurring substances from which a metal can be profitably (or economically) extracted are called a) Ores b) Mineral c) Salts d) Gangue 77. Which one of the following statements regarding helium is incorrect? a) Is is used to fill gas balloons instead of hydrogen because it is lighter and noninflammable b) It is used as a cryogenic agent for carrying out experiments at low temperatures. c) It is used to produce and sustain powerful superconducting magnets

d) It is used in gas cooled nuclear reactors.

- 78. The magnetic moment (in BM) of Zn²⁺ion according to spin-only formula is
 a) Zero
 b) 1.73
 c) 2.84
 d) 3.87
- 79. Which of the following compounds volatilises on heating?
 - a) MgCl₂ b) HgCl₂ c) CaCl₂ d) FeCl₃
- 80. Two isomers X and Y with the formula Cr(H₂O)₅ClBr₂were taken for experiment on depression in freezing point. It was found that one mole of X gave depression corresponding to 2 moles of particles and one mole of Y gave depression due to 3 moles of particles. The structural formula of X and Y respectively, are a) [Cr(H₂O)₅Cl]Br₂; [Cr(H₂O)₄Br₂]Cl. H₂O b) [Cr(H₂O)₅Cl]Br₂; [Cr(H₂O)₄ClBr₂].2H₂O] c) [Cr(H₂O)₅Br]BrCl; [Cr(H₂O)₄ClBr]Br. H₂O d) [Cr(H₂O)₄Br₂]ClH₂O; [Cr(H₂O)₅Cl]Br₂
- 81. Chloroform gives a trichloro derivative of an alcohol on reaction with
 - a) conc. nitric acid
 - b)aq. alkali
 - c) acetone and alkali
 - d) a primary amine and an alkali
- 82. Phenol, *p*-methylphenol, *m*-nitrophenol and *p*-nitrophenol follows order of increasing strength as
 - Phenol, *p*-methylphenol, *p*-nitrophenol, *m*-a) nitrophenol
 - b)^{*p*-methylphenol, pheol,*m*-nitrophenol,*p*nitrophenol}
 - c) *p*-methylphenol,*m*-nitrophenol, phenol, *p*nitrophenol
 - d) m-nitrophenol, *p*-nitrophenol, phenol, *p*methylphenol
- 83. In the reaction,

L

84.

CH₃

$$CH_3 - C - CH_2 \xrightarrow{Conc.H_2SO_4} A$$
 the product *A* is

OH OH CH_3 H H a) | b) || $CH_3 - C = CH_2$ $CH_3 - C = C - CH_3$ CH_3 CH_3 c) | d) | $CH_3 - CH_2 - C = 0$ $CH_3 - CH - CHO$

This reaction is called a) The Stevens reaction

- b) The carbonylationreactionc
- c) The Koch reaction
- d)Oxidation
- 85. Examine the following two structures for the anilinium ion and choose the correct statement from the ones given below
 - a) II is not acceptable as canonical structure because carbonium ions are less stable than ammonium ions
 - b) II is not an acceptable canonical structure because it is non-aromatic
 - c) II is not an acceptable canonical structure because in it N has 10 valence electronsd) II is an acceptable as canonical structure
- 86. Amino group is *ortho/ para*-directing for aromatic electrophilic substitution. On nitration of aniline, a good amount of *m*nitroaniline is obtained. This is due to In nitration mixture, ortho, para-activity of a) $^{\text{III III uteration 1}}_{\text{NH}_2}$ group is completely lost b) $-NH_2$ because $-NH_3^+$, which is m-directing c) $\frac{-\text{NH}_2 \text{ becomes } - \text{NH}^+\text{SO}_4^-}{\text{directing}}$, which is *m*d) $\frac{-NH_2 \text{ becomes } - NH^-NO_2^+}{\text{directing}}$, which is *m*-87. A distinctive and characteristics functional group of fats is a) A peptide group b) An ester group c) An alcoholic group d) A ketonic group 88. In which of the following polymers, empirical formula resembles with monomer? a) Bakelite b) Teflon c) Nylon-6,6 d) Dacron 89. Which of the following has been used in the manufacture of non-inflammable photographic films? a) Cellulose nitrate b) Cellulose xanthate c) Cellulose perchlorate d)Cellulose acetate 90. Which one of the following types of drugs reduces fever? a) Tranquiliser b) Antibiotic d) Analgesic c) Antipyretic

91. 'Ordines Anomali' of Bentham and Hoo						
	includes					
	a) Seed plants showing	g abnormal forms of				
	growth and develop	oment				
	only in fossil state					
	c) Plants described in the literature but which					
	Bentham and Hooker did not see in origina					
	d) A few orders which	could not be placed				
	satisfactorily in the	classification				
92.	Species are consider as					
	a) Artificial concept of	f human mind which				
	cannot be defined ir	n absolute terms				
	b) Real units of classification devised by					
	taxonomists	taxonomists				
	c) Real basic units of classification					
	d)The lowest units of classification					
93.	The concept of genus v	was proposed by				
	a) John Ray	b) Tourne Fort				
~ .	c) Hooker	d) Bessey				
94.	On the basis of their sl	hape, bacteria are				
	grouped undercateg	zories				
05	a) Three b) Four	c) Five d) Six				
95.	ds RNA is found in					
	a) Reovirus	D) IMV d) Nore of these				
06	$C \int \phi \times 1/4$	d) None of these				
96.	a) Mossos and	b) Forms and				
	liverworts	b) Ferris anu				
	c) Mosses and horse	d) Ferns and horse				
	tails	tails				
97	Kingdom-Plantae inclu	udes				
<i>.</i>	a) Algae, bryophytes	b) Algae, bryophytes				
	and pteridophytes	nteridophytes.				
	····· P ···· P ···	gymnosperms and				
		angiosperms				
	c) Algae, fungi,	d) Algae,				
	peteridophytes,	pteridophytes,				
	gymnosperms and	gymnosperms and				
	angiosperms	angiosperms				
98.	Skeletal system in echi	inoderms is				
	a) Formed by the	b) Calcareous				
	distension of the	exoskeleton				
	water vascular					
	system					
	c) Siliceous	d) None of the above				
	endoskeleton					
99.	The function of clitellum in <i>Pheretima</i> is					
	n					
	b)Secretion of hormone					
	c) Nutrition of sperm					
	d)Respiration					

100	00. Which of the following statements are true (T)				
	and which are false (F)? Choose the correct				
	option				
	I. Amphibians have metanephric kidneys				
	II The skull of mammals is dicondulic				
	III Aves conulate by cloacal apposition				
	III. Aves copulate by cloadal apposition				
	V Lopus is grogarious in nature				
	v. Lepus is gregarious in nature				
	a j II, IV and V are true, I b j II, III and IV are true,				
	c) II and	d V are true I II	d) I II and V are	aise	
	and V	I v are falso	III and IV ar	e ti ue,	
101	The trip	ale laise	chromosomos	e laise	
101	first tax	yon in 10 times	noro than the h	anloid	
	number	of abromosom	nore than the n	apioiu I tavon	
	numbel	l ol cillolliosoill ha dialaid aurah	es of the second	i taxoli,	
	wille u		her of the till a t	axon is	
	SIX UIIIt	e more man the	a of the following	or the	
	the	taxon. which on		ig snows	
	the asc	ending order of	the number of	2	
	chromosomes in their respective endosperm?				
	a) Oryza-Allium-Saccharum-Nicotiana				
	b) Allium-Oryza-Nicotiana-Saccharum				
	c) Nicotiana-Saccharum-Oryza-Allium				
d)Saccharum-Oryza-Nicotiana-Allium				,	
102. Green leaf-like modified aerial stems/branches				oranches	
	with a s	single internode	are called		
	a) Phyll	oclades	b) Phyllodes		
	c) Bulb	ils	d) Cladodes		
103	Match th	e following pairs.	Florel	Simple	
	1.	Polysiphonous Pollen	– Floral bectaries	-simple	
		plate	beetarreb	Sieve	
	2.	Angular collocyte	-Monosiphonous	-	
		Synandry			
	2	T	Pollen	Contra e e	
	3. 4	Exerted stamens	-Simple leaves	-spines -Peno	
		Ener tea stamens	divergent	repo	
			venation		
	select th	e correct pair of ans	swers, in which the	former in	
	the nair	shows the set of cha	aracters presents ir	<i>Cucurhita</i>	

the pair shows the set of characters presents in *Cucurbita* and the latter in the pair shows the set of character absent in Acacia.

a) I and III b) I and II c) II and III d) III and IV IV

- 104. Triticale is a hybrid formed from the members belonging to the following families
 - a) Brassicaceae and Poaceae
 - b) Poaceae and Poaceae
 - c) Poaceae and Fabaceae
 - d) Alismaceae and Poaceae

- 105. The roots of angiosperms show exarch xylem and their stems have endarch bundles. These are continuous throughout the change occurs in
 - a) Epicotyl region
- b) Hypocotyl region
- c) Upper part of root d) Lower part of stem
- 106. The merismatic tissue responsible for the cutting of vascular tissue (xylem and phloem) is called
 - a) Cork cambium
 - b) Vascular cambium
 - c) Lateral meristem
 - d)Endodermis
- 107. Which of the following tissue forms the epidermis of the skin in land vertebrates?
 - a) None-keratinised b) Keratinised stratified squamous stratified squamous epithelium epithelium
 - c) Stratified ciliated d) Stratified cuboidal columnar epithelium epithelium
- 108. The is a straight tube which runs between the first to last segment of the earthworm's body
 - a) Pharynx
 - b)Intestine
 - c) Stomach
 - d)Alimentary canal
- 109. Within the nucleus DNA is organised along with proteins into material called
 - a) Nuclear lamina b) Chromatin
 - c) Chromosome d) Chromatid
- 110. The process of removal of introns and joining of exons in called
 - a) Capping b) Tailing
 - c) Termination d) Splicing
- 111.Cellulose is made up of
 - Branched chain of glucose molecule linked
 - by $\alpha-1,4$ glycosidic bond in straight chain and $\beta - 1$, 6 glycosidic bond at the site of
 - branching Branched chain of glucose molecule linked
 - by $\alpha-1, 6$ glycosidic bond in straight chain
 - b) and β -1, 4 glycosidic bond at the site of branching
 - Unbranched chain of glucose molecule
 - c) linked by β -1, 4 glycosidic bond Unbranched chain of glucose molecule d) linked by α -1, 6 glycosidic bond
- 112.An enzyme extract when subjected to electric field, separates into two fractions each catalyzing the same reaction. These fractions

- are
- a) Allosteric enzymes b) Isoenzymes
- c) Inducible enzymes d) Coenzymes
- 113. At which stage of cell cycle colchicine arrests the spindle?
 - a) Anaphase
 - b) Prophase
 - c) Telophase
 - d)Interphase
- 114. Recombination is involved in the process of a) Cytokinesis
 - b) Spindle formation
 - c) Crossing over
 - d)Chromosome duplication
- 115. Choose the correct combination of labeling of the potato osmoscopeexperiement.



a) A-Final level **B**-Dotpin C-Initial level

D-Sugar solution

B-Dotpin

D-Water

b)A-Initial level **C-Final level** E-Potato tuber

E-Potato tuber

- c) A-Final level **B-Dotpin D**-Water C-Initial level E-Potato tuber
- d)A-Final level **B-Dotpin** D-Water **C-Initial level E**-Container
- 116. Graham's law is correlated with
 - a) Diffusion b) Osmoregupation
 - c) Osmosis d) Absorption
- 117. Some cells are placed in a solution of glucose to measure the rate of diffusion. As the concentration of glucose solution is being increased, the diffusion rate increases simultaneously. However, when the concentration of glucose solution reaches above 10 m, the diffusion rate no longer increases

Which statement best define the mechanism of glucoses transport in the cells?

a) Transport of b) Transport of hydrophilic hydrophilic substances along the substances along

concentration	and against the
gradient through	concentration
fixed membrane	gradient <i>via</i> carrier
transport protein	proteins
without the	
involvement of	
energy expenditure	
c) Active transport <i>via</i>	d) Facilitated diffusion
transporter proteins	without carrier
	proteins
118.Mg ²⁺ is an activator of	
I. alcohol dehydrogenas	se
II. nitrogenase	
III. ribulose bisphospha	ite carboxylase
oxygenase	
IV. phosphoenol pyruva	ate carboxylase
Choose the correct opti	on
a) Only III	b) Only I
c) Only IV	d) III and IV
119.Premature leaf fall is	due to deficiency of
a) Phosphorus	b) Nitrogen
c) Calcium	d) Potassium
120.What is the effect of hig	h CO_2 concentration
and higher values of AT	'P/ADP ratio?
a) Rate of Calvin cycle in	ncreased
b) Rate of Kreb cycle de	creased
c) Rate of glycolate cycl	e decreased
d) All of the above	
121.0xygen which is liberat	ed during
photosynthesis, comes	from
a) Carbon cells	b) Spongy cells
c) Palisade cells	d) Bundle sheath cells
122. How many times ATP is	s utilised in glycolysis?
a) 2 b) 3	c) 4 d) 5
123. The similarity between	NAD ⁺ and NADP ⁺ is
that	
a) Take up electron at a	time
b) Take up two protons	at a time
c) Take up two electron	is at a time
d) Give up one protons a	at a time
124. Which pigment involves	s in photoperiodic
change in plants?	
a) Phytochrome	b) Cytochrome
c) Chlorophyll	d) Anthocyanin
125. Which is used as weedi	cide?
a) 2,4-D b) IBA	c) IAA d) ABA
126. Abscission and dorman	cy are caused by
a) ABA	b) $CH_2 - CH_2$
c) IAA	d) IBA

b) Absorption of mono	mers by the body			
c) Conversion of mono	mers into polymers			
d)Absorption of water	d) Absorption of water and food			
128.In horses, rabbits, hare	es, the cellulose gets			
digested in the				
a) Caecum	b) Stomach			
c) Appendix	d) Rumen			
129. Identify A to E in the g	iven diagram and choose			
the correct option acco	ordingly			
Inspired air Expired air	8-J			
Alveolar air	— A			
CO2 O2				
	E			
(carrying deoxygenated blood) pO ₂ = 40 mm Ha	oxygenated blood) $\rho O_2 = 95 \text{ mm Hg}$			
$pO_2 = 45 \text{ mm Hg}$	$pCO_2 = 40 \text{ mm Hg}$			
)			
Body tissues				
a) A-Alveolus, B-Pulmo	onary artery, C-			
Pulmonary vein, D-S	ystemic vein, E-			
Systemic arteries				
b)A-Alveolus, B-Pulmo	nary vein, C-Pulmonary			
artery, D-Systemic v	ein, E-Systemic arteries			
c) A-Alveolus, B-Pulmo	nary vein, C-Pulmonary			
artery, D-Systemic a	rteries, E-Systemic vein			
d)A-Alveolus, B-Pulmo	onary vein, C-Pulmonary			
artery, D-Systemic a	rteries, E-Portal vein			
130. Site of aerobic respirat	ion in higher organisms			
is/are				
a) Golgi apparatus	b) Mitochondria			
c) Both (a) and (b)	d) Lungs			
131. Tricuspid valve is pres	ent in			
a) Right atria and right	ventricle			
b) Left atria and left ve	ntricle			
c) Wall of atrium				
d) Wall of ventricles				
132. Which nodal fibres lies	along the right and left			
ventricles (interventri	cular septum)?			
a) Bundle of His	b) Purkinje fibre			
c) Neural tissue fibre	d) Cardiac tissue fibre			
133. Which is not correct w	ith respect to human			
kidnev?	F			
a) The peripheral region	on is called cortex and			
central medulla				
	Page 9			

127. What do you mean by the process of digestion? a) Conversion of complex substances into

simpler form

b) Malpighian capsule are present in the cortex region c) Blood enters glomerulus through efferent arterioles d) The concave part of kidney is called hilus 134. Which substance is in higher concentration in blood than in glomerular filtrate? a) Water b) Glucose c) Urea d) Plasma proteins 135.In human, excretory system consists of I. pair of kidneys II. one pair of ureters III. urinary bladder III. Urethra V. skin VI. Lungs VII. liver a) I, II, III and II b) I, II, III and IV c) I, II, III and IV d) I, II, III, IV, V, IV and VII 136.Volkmann's canal occurs in a) Bone b) Cartilage c) liver d) internal ear 137. Which one of the following item gives its correct total number? a) Floating ribs in humans-4 b) Amino acids found in proteins-16 c) Types of diabetes-3 d) Cervical vertebrae in humans-8 138.Synovial fluid is present in a) Fibrous joints b) Cartilaginous joints c) Freely movable d) Intervertebral joints joints 139. During the transmission of nerve impulse through a nerve fibre, the potential on the inner side of the plasma membrane has which type of electric charge? a) First negative, then positive and again back to negative b) First positive, then negative and continue to be negative c) First negative, then positive and continue to be positive d) First positive, then negative and again back to positive 140.Photoreceptor cells that contains the light sensitive proteins are called a) Rhodopigments b) Photopigments c) Conopigments d) None of these

141. The estrogen is synthesised and secreted mainly by growing ...A... . After ovulation the ruptured follicle is converted to a structure called ...B... which secretes ...C.... Choose the correct option for A, B and C a) A-corpus luteum, B-corpus callosum, Cprogesterone b) A-Graafian follicle, B-corpus luteum, Cprogesterone c) A-corpus callosum, B-corpus luteum, Cestrogen d) A-Graafian follicle, B-corpus luteum, Cestrogen 142. Hormones released by the neurosecretory cells in hypothalamus regulate the ...A... gland. Mainly the neurosecretory hormones are of B... type Here A and B refers to a) A-pineal; B-two b) A-pituitary; B-three c) A-pineal; B-three d) A-pituitary; B-two 143. Pollination is a) Transfer of gametes on stigma b) Transfer of male gametes on stigma c) Transfer of female gametes on stigma d) Fusion of male and female gametes 144. Bamboo species flower only in a) 50-100 yrs b)25-50 yrs c) 75-100 yrs d)60-80 yrs 145. Micropyle helps in a) Germination of pollen grain b) Growth of pollen tube c) Coming out of pollen tube from pollen grain d) Allowing entry of pollen tube 146. Function of aleurone layer is to a) Prepare b) Prepare c) Prepare d) Prepare proteina peptidas food amylase se e 147. Microspore develops into ova. This sentence is a) b) c) Sometimd) Neither es (a) True False and (a) nor sometim (b) es (b) 148. Wall of each seminiferous tubules is formed of a single layer called a) Germinal epithelium b)Germ cell c) Spermatogonia d)Spermatozoa

149.Cryptorchidism is a condition in which a) Testis does not descend into scrotal sac b) Sperm is not found c) Male hormones are not reactive d) Ovaries are removed 150.Neoteny refers to a) Development of gonads b) Pre-adult animal c) Metamorphosis d) Retention of larval or embryonic trait in the adult body 151. The type of connective tissue that is associated with the umbilical cord is a) Areolar connective tissue b) Jelly-like connective tissue c) adipose connective tissue d) Reticular connective tissue 152.'Hum Do Hamare Do' slogan for encourages a) Family planning b) Immunisation c) Electric growth d)Patriotism 153. Artificial insemination mean: a) Transfer of sperms of husband to a test tube containing ova b) Artificial introduction of sperms of a healthy donor into the vagina c) Introduction of sperms of a healthy donor directly into the ovary d) Transfer of sperms of a healthy donor to a test tube containing ova 154. Identify the symbols given below and the correct option with respect to A, B and C a) A-Male, B-Female, C-Sex unspecified b) A-Male, B-Female, C-Sterile c) A-Male, B-Female, C-Fertile d) A-Female, B-Male, C-Sex unspecified 155.Mendel obtained recessive character in F₂ by ...A... the ...B... plants. Here A and B refers to a) A-self-pollinating; $B-F_1$ b) A-self-pollinating; $B-F_2$ c) A-cross-pollinating; $B-F_1$ d)A-cross-pollinating; $B-F_2$ 156.I. Myotonic dystrophy is an autosomal dominant trait II. Sickle-cell anaemia is an autosomal recessive trait III. Failure of segregation of alleles results in

chromosomal loss IV. Failure of segregation of allele result in chromosomal gain V. Cystic fibrosis is a Mendelian disorder Correct statements are a) I, II, III and IV b) I, III, IV and V c) I, II, IV and V d)All of these 157.Intron is a I. coding sequences II. non-coding sequences III. character of prokaryotic IV. character of eukaryotic Which of the statements given above are correct about intron? a) I, II, III and IV b) II and IV c) II, III and IV d) I, II and III 158. The one aspect which is not a salient feature of genetic code, is its being a) Degenerate b) Ambiguous c) Universal d) Specific 159. Which of the following is an example of an ancestral homology? a) Almost all modern b) The first birds and reptiles, birds and all their descendant mammals have species have forelimbs, a trait feathers, a trait that they also share with is unknown in any contemporary other group amphibians c) Humans and many d) All of the above insect species have eyes 160. Maximum cranial capacity is of a) Neanderthal man b) Cro –magnon man c) Modern man d) Java man 161. Removal or absence of thymus in early life shall bring about a) Lack of laymphocytes b) Lack of antibodies c) Lack of lymph nodes d)All of these 162. Benign tumours I. remain confined to their original location and do not spread to other parts II. cause little damage Which of the statements given above is/are correct? a) Only I b) Only II d) None of the above c) I and II

163.Diphtheria is caused by

- a) Poisons released by living bacterial cells into the host tissues
- b) Poisons released from dead bacterial cells into the host tissues
- c) Poisons released by virus into host tissues
- d) Excessive immune response by the host's body

164.In 1960 to 2000 wheat production increased from ...A... tonnes to ...B... tonnes while rice production was from ...C... tonnes to ...D... tonnes

Here A to D refers to

- a) A-11 million, B-75 b) A-14 million, B-80 million, C-35 million, million, C-40 D-89.5 million million, D-92.5 million
- c) A-10 million, B-71 d) A-15 million, B-70 million, C-35 million, million, C-40 D-89.5 million million, D-90 million

165. Rinderpest is the disease of:

- a) Cattle b) Poultry c) Fish d) Camel 166. In poultry birds, nasal and eye discharges with
- foul smell, acute respiratory problem and inflamed and swollen eyes are the symptoms of
 - a) Chronic respiratory disease
 - b) Infectious coryza disease
 - c) Brooder pneumonia disease
 - d) Marck's disease
- 167. Which one of the following is used as biological insecticide?
 - a) Tiger beetle b) Caterpillar c) Silkmoth d) Mazrapoka
- 168. Abnormal gene is replaced by normal gene through:

a) Gene therapy	b) Medicines
c) Cloning	d) Radiation

- 169.Plasmid is
 - a) An autonomously replicating circular extrachromosomal DNA
 - b) An autonomously replicating circular extrachromosomal RNA
 - c) An circular protein molecules
 - d) An autonomously replicating chromosomal DNA
- 170. Solution of polyethylene glycol (PEG) or a very brief high voltage electric current is used in fusion of b) Protoplasts
 - a) Protoplasms

c) Somatic cells d) Germinal cells 171.C-peptide of human insulin is a) A part of mature insulin molecule b) Responsible for the formation of disulphide bridges c) Removed during the maturation of proinsulin to insulin d) Responsible for its biological activity 172. Automated DNA sequencers, work on the principle of the method developed by a) Erwin Chargaff b) Maurice Wilkins c) Frederick Sanger d) Francis Crick 173. Population of any species is a) A static phenomena b) A dynamic phenomena c) Neither (a) nor (b) d)Both (a) and (b) 174. Association of animals belonging to different species, where both partners are benefitted, is called a) Commensalism b) Mutualism c) Colony d) sympathy 175. A community that starts the process of succession in a barren habitat is called a) Emotional community b) Climax community c) Seral community d) Pioneer community 176. Organisms are classified into trophic levels according to a) Their habitat b) The source of their nutrients c) How much they weight d)All of the above 177. According to the IUCN 2004, the total number of plant and animal species described so far is over a) 2.5 million b) 2 million c) 1.5 million d) 1 million 178. Rajaji national park is situated in a) Tamil Nadu b) Karnataka c) Uttarakhand d) Rajasthan 179. Eutrophication is often seen in a) Fresh water lakes b) Ocean c) Mountains d) Deserts 180. One of the main reasons of soil erosion in India is a) Jhum cultivation b) Deforestation c) Drought conditions d) Temperature