May 3119

(NOT TO BE OPENED BEFORE TIME OR TILL ASKED TO DO SO)

(BPH-EE-2019)

altign 31555m

Code	

sr. No.10160

SET-"Z"

Time: 1¼ Hours (75 minutes) Total Questions: 130 Max. Marks: 100

Candidate's Name: \_\_\_\_\_\_\_ Date of Birth: \_\_\_\_\_\_

Father's Name: \_\_\_\_\_\_\_ Mother's Name: \_\_\_\_\_\_\_ (in words)

Date of Examination: \_\_\_\_\_\_ (Signature of the Invigilator) (Signature of the candidate)

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

1. All questions under Part-A and Part-B are compulsory. Part-C is optional. The candidates may attempt either Optional Part-C (i) OR Optional Part-C(ii). All questions carry equal marks i.e. one mark each.

- 2. The candidate MUST return this question book-let and the OMR Answer-She to the Invigilator concerned before leaving the Examination Hall, failing which a care of use of unfair-means/misbehaviour will be registered against him/her, in addition to lodging of an FIR with the police. Further the answer-sheet of such candidate will not be evaluated.
- The candidate MUST NOT do any rough work OR writing in the OMR Answer-Sheet.
   Rough work, if any, may be done in the question book-let itself.
- 4. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
- 5. Question Booklet along-with answer key of all the A,B,C and D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the University website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case will be considered.
- 6. Use only Blue or Black <u>BALL POINT PEN</u> of good quality in the OMR Answer-Sheet.
- 7. There will be no negative marking. Each correct answer will be awarded one full mark Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
- 8. BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT AND COMPLETE QUESTION BOOK-LETS. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER THE START OF EXAMINATION



Question No.	Questions				
	Part-A (Physics)				
1.	Two iron spheres, A (a solid sphere) and B (a hollow sphere), are charged to same potential. Which of the two hold more energy?				
	(1)	A	(2)	В	
	(3)	Both have same	(4)	Can't be predicted	
2.	Two	bulbs A and B of 25 connected in series w	watt and 10 ith a supply	00 watt, respectively, rated at 220 V, of 440 V. Which bulb will fuse?	
	(1)	$\mathbf{A}$	(2)	В	
	(3)	Both will fuse	(4)	None will fuse	
3.	When a charge particle moves through a magnetic field, it may suffer a change in				
	(1)	Energy	(2)	Mass	
	(3)	Speed	(4)	Velocity	
4.		e lectrons are moving e between them will l		o each other in free space, then the	
	(1)	Attractive	(2)	Repulsive	
	(3)	No force	(4)	Can't say anything	
5.	Cur	rent used for electrol	ysis is		
	(1)	D.C.	(2)	A.C.	
	(3)	Both of these	(4)	None of these	



# $\mathbf{Code}\mathbf{-}\mathbf{D}$

Question No.	Questions			
6.	A sample of oxygen and a sample of hydrogen have same mass, volume and pressure. The ratio of their absolute temperature is			
	(1) 1/16 (2) 1/4			
	(3) 4 (4) 16			
7.	The internal energy of a gas will increase when it			
	(1) Expands adiabatically (2) Is compressed adiabatically			
2)-	(3) Expands isothermally (4) Is compressed isothermally			
8.	If the absolute temperature of a perfect black body be doubled, then the quantity of heat radiated per second increases by			
	(1) Two times (2) Four times			
8	(3) Eight times (4) Sixteen times			
9.	The time period of a particle undergoing S.H.M. is 16 s. It starts its motion from mean position. After 2 s, its velocity is 0.4 ms <sup>-1</sup> , the amplitude is			
	(1) 2.88 m (2) 1.44 m			
	(3) 0.72 m (4) 0.36 m			
10.	The speed of wave represented by $y = A \sin(\omega - kx)$ is			
	(1) k/ω (2) ω/k			
	(3) ωk (4) 1/ωk			



Question No.	Questions			
11.	A small insect enters the eye of person riding a bike, the person then applies sudden brakes to his bike without rubbing his eye and he found that the small insect got out of his eye. By which law of physics the small insect got out of eye			
	(1) Newton's third law of motion (2) Newton's second law of motion			
	(3) Newton's first law of motion (4) Newton's law of Gravitation			
12.	Two bodies with masses $m_1$ and $m_2$ ( $m_1 > m_2$ ) are joined by a massless string passing over fixed pulley. The centres of gravity of the two masses are initially at same height. Assume the pulley to be weightless. Then the downward acceleration of mass $m_1$ is			
	(1) $\frac{m_1}{m_1 + m_2} g$ (2) $\frac{m_2}{m_1 + m_2} g$			
	(3) $\frac{m_1 - m_2}{m_1 + m_2} g$ (4) $\left[ \frac{m_1 - m_2}{m_1 + m_2} \right]^2 g$			
13.	A block of mass 1 kg lies on a horizontal surface in a truck. The coefficient of static friction between the block and the surface is 0.6. If the acceleration of truck is 5 ms <sup>-2</sup> , the frictional force acting on the block is			
	(1) 4 N (2) 5 N			
	(3) 6 N (4) 10 N			
14.	Two balls of different mass have same kinetic energy. The ball having greater momentum will be			
	(1) Heavier one (2) Lighter one			
	(3) Both have same (4) Can't say			
15.	The moment of inertia of a ring of mass M and radius R about an axis through the diameter in its plane will be			
	(1) $0.5 \mathrm{MR^2}$ (2) $\mathrm{MR^2}$			
	(3) $1.5 \mathrm{MR^2}$ (4) $2 \mathrm{MR^2}$			



Question No.	Questions			
16.	The	blue colour of sky is du	ie to	
	(1)	Reflection of light	(2)	Refraction of light
	(3)	Scattering of light	(4)	Diffraction of light
17.	If t rati will	o of intensity of maxis	of intens ma and n	ity ratio 25:1 interfere, then the ninima in the interference pattern
	(1)	3:2	(2)	9:4
	(3)	5:1	(4)	25:1
18.	Nuc	clear force between two	nucleons	depends on their
	(1)	Mass	(2)	Charge
	(3)	Spin	(4)	Both (2) and (3)
19.	Cha	arge on a n-type semico	nductor i	9
	(1)	Zero	(2)	Negative
	(3)	Positive	(4)	10 <sup>-6</sup> coulomb
20.	dis			own voltage with a maximum power mum current that can pass through
	(1)	40 mA	(2)	30 mA
	(3)	20 mA	(4)	10 mA

# Code-D

Question No.	Questions			
21.	Lenz's law in electromagnetic induction follows law of conservation of			
	(1) Charge (2) Energy			
	(3) Linear momentum (4) Angular momentum			
22.	Resistance offered by a Capacitor to D.C. is			
	(1) zero (2) negative			
	(3) positive (4) infinite			
23.	Mechanical analogue of inductance is			
	(1) Displacement (2) Velocity			
	(3) Energy (4) Mass			
24.	The classification of Electromagnetic spectrum is roughly based upon			
	(1) How the waves are produced			
	(2) How the waves are detected			
	(3) Both (1) and (2)			
	(4) Wavelength of waves			
25.	If the atmosphere of earth suddenly disappears then duration of day will			
	(1) Increase by 4 minutes (2) Decrease by 4 minutes			
	(3) No change (4) Can't be predicted			



### Code-D

Question No.	Questions			
26.	A thin uniform circular discuss rolling down an inclined plane of inclination 30° without slipping. Its linear acceleration along the plane is			
	(1) g/4 (2) g/3			
	(3) g/2 (4) 2g/3			
27.	A projectile, fired vertically upwards with a speed v escapes from the earth. If it is to be fired at 45° to the horizontal, what should be its speed so that it escapes from the earth?			
	(1) v (2) $v/\sqrt{2}$			
	(3) $\sqrt{2} v$ (4) $2v$			
28.	Which of the following substances has negligible elastic fatigue?			
	(1) glass (2) copper			
	(3) quartz (4) silver			
29.	The modulus of rigidity of water is			
	(1) zero (2) 1			
	(3) 81 (4) infinite			
30.	The surface tension does not depend upon			
	(1) Nature of liquid (2) Temperature			
	(3) Presence of impurity (4) Atmospheric Pressure			



Question No.			G	Quest:	ions
31.		strength of Weal ne order of	c nuclear	force	relative to Electromagnetic force is
	(1)	10-13		(2)	10-11
	(3)	1013		(4)	1011
32.	Para	sec is unit of			
	(1)	Mass		(2)	Length
	(3)	Time		(4)	Frequency
33.	If rem	adius of earth con nains same then t	ntracts by he acceler	2% cation	of its actual value and mass of earth due to gravity will
	(1)	Decrease by 2%	*	(2)	Decrease by 4%
*	(3)	Increase by 2%	H.	(4)	Increase by 4%
34.	wh	e position of an $\alpha$ ere $A = 10$ m, $B = 0$ ocity of this object	$2.5 \text{ ms}^{-2}$ ,	and t	long X-axis is given by $x = A + Bt^2$ , is measured in seconds. The average s and $t = 3$ s is
	(1)	10 ms <sup>-1</sup>		(2)	$15~\mathrm{ms^{-1}}$
	(3)	$20~\mathrm{ms^{-1}}$		(4)	$25~\mathrm{ms^{-1}}$
35.	A l	oall is thrown at a e maximum heigl	speed 28 nt attained	ms <sup>-1</sup> i d by tl	n a direction 30° above the horizontal. he ball will be
	(1)	25 m		(2)	20 m
	(3)	10 m		(4)	) 5 m

Question No.	Questions		
	Part-B (Chemistry)		
36.	The reaction of		
	CH <sub>3</sub> -CH=CH—OH with HBr gives:		
	(1) CH <sub>3</sub> CHBrCH <sub>2</sub> —OH		
	(2) CH <sub>3</sub> CH <sub>2</sub> CHBr—OH		
	(3) CH <sub>3</sub> CHBrCH <sub>2</sub> ——Br		
	(4) CH <sub>3</sub> CH <sub>2</sub> CHBr——Br		
37.	Among the following the one that gives positive Idoform test upon reaction		
	with I <sub>2</sub> and NaOH is: (1) CH <sub>3</sub> CH <sub>2</sub> CH(OH)CH <sub>3</sub> CH <sub>3</sub> (2) C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub> CH <sub>2</sub> OH		
	(1) CH <sub>3</sub> CH <sub>2</sub> CH(OH)CH <sub>2</sub> CH <sub>3</sub> (2) C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub> CH <sub>2</sub> OH  CH <sub>3</sub>		
	(3) CH <sub>3</sub> —CH <sub>3</sub> (4) PhCHOHCH <sub>3</sub>		
38.	In the following sequence of reaction, identify the final product:		
	$CH_3\text{-Mg-Br} + \bigcup_{O} \xrightarrow{H_3O^+} A \xrightarrow{HBr} B \xrightarrow{Mg.ether} C \xrightarrow{CH_3CHO} D$		
	(1) CH <sub>3</sub> CHOH CH <sub>3</sub> C=O CH <sub>3</sub>		
	(3) CHOH-CH <sub>3</sub> (4) CH <sub>2</sub> OH CH <sub>3</sub>		

Question No.	Questions			
39.	The correct order of increasing acidic strength is -			
	(1) Phenol < Ethanol < Chloroacetic acid < Acetic acid			
	(2) Ethanol < Phenol < Chloroacetic acid < Acetic acid			
	(3) Ethanol < Phenol < Acetic acid < Chloroacetic acid			
	(4) Chloroacetic acid < Acetic acid < Phenol < Ethanol			
40.	Among the following which one does not act as an intermediate in Hofmann rearrangement?			
	(1) RNCO (2) RCON:			
	(3) RCON:HBr (4) RNC			
41.	Which alkene on ozonolysis gives $\mathrm{CH_3CH_2CHO}$ and $\mathrm{CH_3COCH_3}$ ?			
	(1) $CH_3CH_2CH=C(CH_3)_2$ (2) $CH_3CH_2CH=CHCH_2CH_3$			
	(3) $CH_3CH_2CH=CHCH_3$ (4) $CH_3C(CH_3)=CHCH_3$			
42.	$NBS \rightarrow A \xrightarrow{NaC \equiv CH} B$ , what are A and B:			
	(1) $\bigcap_{H}^{Br} \cdot \bigcap_{H}^{C \equiv CH}$ (2) $\bigcap_{H}^{Br} \cdot \bigcap_{C \equiv C-Na}^{C \equiv C-Na}$			
	(3) $C = CH$ (4) None of them			

Question No.	Questions	
43.	Identify the compound Y in the following reaction:	
	$ \begin{array}{c c}  & NH_2 \\ \hline  & NaNO_2 + HC\ell \\ \hline  & 273-278 \text{ K} \end{array} $ $ \begin{array}{c c}  & Cu_2C\ell_2 \\ \hline  & Y + N_2 \end{array} $	
	$(1) \bigcirc^{C\ell} \qquad (2) \bigcirc$	
	$(3) \qquad \begin{array}{c} C\ell \\ C\ell \end{array}$	
44.	Which reagent will you use for the following reaction?	
	$CH_{3}CH_{2}CH_{2}CH_{3} \rightarrow CH_{3}CH_{2}CH_{2}CH_{2}C\ell + CH_{3}CH_{2}CHC\ell CH_{3}$	
	(1) $C\ell_2$ / UV light (2) $NaC\ell + H_2SO_4$	
	(3) $C\ell_2$ gas in dark (4) $C\ell_2$ gas in the presence of iron in dark	
45.	In the following sequence of reaction:	
	$CH_3CH_2OH \xrightarrow{P+I_2} A \xrightarrow{Mg} B \xrightarrow{HCHO} C \xrightarrow{H_2O} D$	
	The compound D is:	
	(1) Butanal (2) n- butyl alcohol	
	(3) n- propyl alcohol (4) Propanal	

Question No.	Questions			
46.	The term that accounts for intramolecular force in van der Waal's equation for non-ideal gas is			
	(1) RT (2) V-b			
	(3) $P + \frac{a}{V^2}$ (4) $(RT)^{-1}$			
47.	Which one of the following is not applicable to the phenomena of absorption			
	(1) $\Delta H > 0$ (2) $\Delta G < 0$			
	(3) $\Delta S < 0$ (4) $\Delta H < 0$			
48.	Which one of the following is a positively charged sol			
	(1) Gold sol (2) $As_2S_3$ sol			
	(3) Methylene blue sol (4) Gelatin			
49.	What is the normality of 1 M H <sub>3</sub> PO <sub>2</sub> solution?			
\	(1) 0.5 N (2) 1.0 N			
į	(3) 2.0 N (4) 3.0 N			
50.	A cricket ball 0.5 Kg is moving with a velocity of 100 ms <sup>-1</sup> . The wavelength associated with its motion is:			
	(1) $1/100 \text{ cm}$ (2) $6.6 \times 10^{-34} \text{ m}$			
	(3) $1.32 \times 10^{-35} \mathrm{m}$ (4) $6.6 \times 10^{-28} \mathrm{m}$			

Question No.	Questions			
51.	Which of the following is not a target molecule for drug function in body?			
	(1)	Carbohydrates	(2)	Lipids
	(3)	Vitamins	(4)	Proteins
52.	55755556777755567	pollutants released by j called	et aeropla:	ne in the atmosphere as fluorocarbons
	(1)	Photochemical oxidan	ts	
	(2)	Photochemical reduct	ants	
	(3)	Aerosols		*
	(4)	Physical pollutants		
53.	Wh	ich of the following pai	rs has the	same size ?
	(1)	Zn <sup>2+</sup> , Hf <sup>4+</sup>	(2)	Fe <sup>2+</sup> , Ni <sup>2+</sup>
	(3)	Zr <sup>4+</sup> , Ti <sup>4+</sup>	(4)	Zr <sup>4+</sup> , Hf <sup>4+</sup>
54.		coordination number a respectively	and oxidat	ion state number of $Cr$ in $K_3Cr(C_2O_4)_3$
	(1)	3 and + 3	(2)	3 and 0
	(3)	6 and + 3	(4)	4 and + 2
55.	Ion	ic solids, with Schottky	y defects,	contain in their structure
	(1)	Cation vacancies only	7	
	(2)	Cation vacancies and	interstiti	al cations
	(3)	Equal number of cati	on and an	ion vacancies
	(4)	Anion vacancies and	interstitia	l anions

Question No.		Questions		
56.	Ele	ectrolytic reduction of nitrobenzene in weakly acidic medium gives :		
	(1)	Aniline	(2)	Nitosobenzene
	(3)	N-phenylhydroxylamine	(4)	p-hydroxyaniline
57.	The	efficiency of fuel cell is give	en by	
	(1)	$\frac{\Delta G}{\Delta S}$	(2)	$\frac{\Delta G}{\Delta H}$
	(3)	$\frac{\Delta S}{\Delta G}$	(4)	$\frac{\Delta H}{\Delta G}$
58.	Thy	mine is :		
	(1)	5-methyluracil	(2)	4-methyluracil
	(3)	3-methyluracil	(4)	1-methyluracil
59.	If the rate of the reaction is equal to the rate constant, the order of the reaction is			to the rate constant, the order of the
	(1)	0	(2)	1
	(3)	2	(4)	3
60.		ich of the following polymonomer unit?  H <sub>2</sub> C  H <sub>2</sub> C  H <sub>2</sub> C  C	er ca	n be formed by using the following
	(1)	Nylon 6, 6	(2)	Nylon 2-nylon 6
	(3)	Melamine polymer	(4)	Nylon-6

Question No.	Q	uest	stions
61.	Ortho and para hydrogen differ	in	
	(1) atomic number		(2) mass number
	(3) electron spin in two atoms		(4) nuclear spin in two atoms
62.	Which of the following carbonate	es is	s least stable
	(1) MgCO <sub>3</sub>	(2)	Na <sub>2</sub> CO <sub>3</sub>
	(3) K <sub>2</sub> CO <sub>3</sub>	(4)	$\mathrm{Rb_2CO_3}$
63.	The IUPAC name of the		
	Me Me Me Me		
	Structure is:		
	(1) 2,4,5-triethyl-3-nonene	(2)	5,6-diethyl-3-methyl-4-decene
	(3) 2,4,6-triethyl-3-octene	(4)	3-ethyl-5-methyl-3-heptene
64.	The strongest base among the f	ollov	wing is:
	(1) N	(2)	
	(3) N	(4)	NH <sub>2</sub>
65.	The number of σ-and Π-bonds	ores	sent in pent-4-ene-1-yne is:
	(1) 10, 3	(2)	) 4,9
	(3) 3, 10	(4)	9, 4
		_	

Question No.	Questions				
66.	25 mL of a solution of $Ba(OH)_2$ on titration with 0.1 M solution of $HC\ell$ gave a titre value of 35 mL. The molarity of barium hydroxide solution was				
	(1) 0.07 (2) 0.14				
	(3) 0.28 (4) 0.35				
67.	Identify the least stable among the following:				
	(1) Li <sup>-</sup> (2) Be <sup>-</sup>				
	(3) B <sup>-</sup> (4) C <sup>-</sup>				
68.	The correct order of size among $C\ell$ , $C\ell^+$ and $C\ell^-$ is				
	(1) $C\ell^+ < C\ell^- < C\ell$ (2) $C\ell^+ > C\ell^- > C\ell$				
	(3) $C\ell^+ < C\ell < C\ell^-$ (4) $C\ell^- < C\ell < C\ell^+$				
69.	The geometry of $C\ell O_4^-$ ion is:				
	(1) Pyramidal (2) Tetrahedral				
	(3) Trigonal Planar (4) Trigonal bipyramidal				
70.	The number of orbitals in a subshell is equal to				
	(1) $2\ell-1$ (2) $2\ell$				
	(3) $\ell^2$ (4) $2\ell+1$				

Question No.	Questions				
	Part-C {Opt. (i)} (Mathematics)				
71.	The one which is the measure of central tendency is:				
Ì	(1) co-efficient of correlation (2) standard deviation				
	(3) mean deviation (4) mode				
72.	If S be a finite set containing n elements. The the total number of binary operations on S is :				
	(1) $n^n$ (2) $2^{n^2}$ (3) $n^2$ (4) $n^{n^2}$				
	(3) $n^2$ (4) $n^{n^2}$				
73.	The solution of the equation $tan^{-1}(1+x) + tan^{-1}(1-x) = \frac{\pi}{2}$ is:				
	(1) $x = 1$ (2) $x = -1$				
	(3) $x = 0$ (4) $x = \pi$				
74.	If $A = [a \ b]$ , $B = [-b \ -a]$ and $C = \begin{bmatrix} a \\ -a \end{bmatrix}$ , then the correct statement				
	is:				
	(1) $A = -B$ (2) $A + B = A - B$				
	(3) $AC = BC$ (4) $CA = CB$				
75.	The value of $\lambda$ and $\mu$ for which the system of equations $x + y + z = 6$ , $x + 2y + 3z = 10$ and $x + 2y + \lambda z = \mu$ have unique solution are:				
	(1) $\lambda \neq 3, \mu \in \mathbb{R}$ (2) $\lambda = 3, \mu = 10$				
	(3) $\lambda \neq 3, \ \mu = 10$ (4) $\lambda \neq 3, \ \mu \neq 10$				

Question No.	Questions		
76.	If H be the HM between a and b, then the value of $\frac{H}{a} + \frac{H}{b}$ is		
	$(1)  \frac{ab}{a+b}$	$(2)  \frac{a+b}{ab}$	
	(3) 2	(4) None of these	
77.	The straight lines $x + y = 0$ , which is:	3x + y - 4 = 0, $x + 3y - 4 = 0$ form a triangle	
	(1) right angled	(2) equilateral	
	(3) isosceles	(4) none of these	
78.	The circle $x^2 + y^2 + 4x - 7y$ length:	+ 12 = 0 cuts an intercept on y-axis is of	
	(1) 3	(2) 4	
	(3) 7	(4) 1	
79.	The value of $\lim_{x \to \infty} \left( \frac{x+3}{x-1} \right)^{x+3}$	is	
	(1) e	(2) e <sup>2</sup>	
	(3) e <sup>3</sup>	(4) e <sup>4</sup>	
80.	If there are 6 girls and 5 boys no two boys sit together is:	s who sit in a row, then the probability that	
	$(1)  \frac{6! \ 7!}{2! \ 11!}$	$(2)  \frac{5! \ 7!}{2! \ 11!}$	
	(3) $\frac{6! \ 6!}{2! \ 11!}$	(4) None of these	

Question No.	Questions		
81.	The order of the differential equation whose solution is		
	$y = a \cos x + b \sin x + c e^{-x}$ is		
	(1) 2 (2) 1		
	(3) 3 (4) None of these		
82.	If $\vec{r} = x \hat{i} + y \hat{j} + z \hat{k}$ , then value of $(\vec{r} \cdot \hat{i}) \hat{i} + (\vec{r} \cdot \hat{j}) \hat{j} + (\vec{r} \cdot \hat{k}) \hat{k}$ is		
	(1) 0 (2) 3 r		
	(3) 8 <del>r</del> (4) <del>r</del>		
83.	The vectors $2\hat{i}+3\hat{j}-4\hat{k}$ and $a\hat{i}+b\hat{j}+c\hat{k}$ are perpendicular when:		
×	(1) $a = 2, b = 3, c = 4$ (2) $a = 4, b = 4, c = -2$ (3) $a = 5, b = 4, c = 4$ (4) $a = 4, b = 4, c = 5$		
	(3) $a = 5, b = 4, c = 4$ (4) $a = 4, b = 4, c = 5$		
84.	A fair coin is tossed 100 times. The probability of getting tails an odd number of times is:		
٠	(1) $\frac{3}{8}$ (2) $\frac{1}{2}$ (3) $\frac{1}{8}$ (4) None of these		
	(3) ½ (4) None of these		
85.	The equation $ \vec{r} ^2 - 2(\vec{r} \cdot \vec{a}) + \lambda = 0$ represents a		
	(1) plane (2) straight line		
	(3) sphere (4) none of these		

Question No.	Questions		
86.	Area of the triangle fo Argand plane is	rmed by 3 complex numbers $1 + i$ , $i - 1$ , $2i$ in the	
	(1) $\frac{1}{2}$	(2) 1	
	$(3)  \sqrt{2}$	(4) 2	
87.	If the equations $2x^2 + common$ , then the value	$kx - 5 = 0$ and $x^2 - 3x - 4 = 0$ have one root in set of k is:	
	(1) 3	(2) -3	
	(3) 4	(4) None of these	
88.	The solution of the equ	ation $1 +  x - 1  \ge 0$ is:	
	(1) $(-\infty, 0)$	(2) (-2,0)	
	(3) (0, ∞)	(4) (0, 2)	
89.	12 persons are to be as among them are not to is:	ranged to a round table. If two particular person be side by side, the total number of arrangement	
	(1) 9 (10!)	(2) 2 (10!)	
	(3) 2 (11!)	(4) 10!	
90.	The positive integer ju	st greater than $(1 + 0.0001)^{10000}$ is	
	(1) 3	(2) 4	
	(3) 5	(4) None of these	

Question No.	Questions				
91.	If A and B are any two sets, then $A - B \neq$				
	$(1)  B \cap A' \qquad \qquad (2)  A \cap B'$				
g. ()	(3) (A'∪B)' (4) None of these				
92.	Let R be the relation of the set R of all real numbers defined by aRb iff $ a-b  \le 1$ . Then R is				
	(1) reflexive and symmetric (2) symmetric only				
	(3) transitive only (4) anti-symmetric only				
93.	If $f(x) = \frac{x-1}{x+1}$ , then $f\left(\frac{1}{f(x)}\right)$ equals:				
	(1) 0 (2) 1				
	(3) $x$ (4) $\frac{1}{x}$				
94.	Which of the following is correct?				
	(1) $\sin 1^{\circ} > \sin 1$ (2) $\sin 1^{\circ} < \sin 1$				
	(3) $\sin 1^\circ = \sin 1$ (4) $\sin 1^\circ = \frac{\pi}{180} \sin 1$ .				
95.	The cube roots of unity lie on a circle				
	(1) $ z-1  = 1$ (2) $ z+1  = 1$ (3) $ z  = 1$ (4) None of these				
	z  = 1   (4)   None of these				

1001

Question	Questions
No.	
96.	The largest value of a third order determinant whose elements are 0 or 1
	is:
	(1) 3 (2) 2
	(3) 1 (4) 0
97.	The set of all points, where the function $f(x) = \frac{x}{1+ x }$ is differentiable
	is:
	(1) $(0, \infty)$ (2) $(-\infty, \infty)$ (3) $(-\infty, 0) \cup (0, \infty)$ (4) None of these
	(3) $(-\infty, 0) \cup (0, \infty)$ (4) None of these
98.	The function f (x) is defined by
	$f(x) = \begin{cases} \frac{ x+2 }{\tan^{-1}(x+2)}, & x \neq -2 \\ 2, & x = -2 \end{cases}, \text{ then}$
	f (x) is:
	(1) continuous at $x = -2$
	(2) differentiable at $x = -2$
	(3) not continuous at $x = -2$
	(4) continuous but not derivable at $x = -2$
99.	If $\int \frac{\cos 4x + 1}{\cot x - \tan x} dx = A \cos 4x + B$ , then
	(1) $A = -\frac{1}{8}$ (2) $A = -\frac{1}{4}$
	(3) $A =\frac{1}{2}$ (4) $-1$
100.	The area of the figure bounded by $y = \sin x$ , $y = \cos x$ in the first quadrant is:
	(1) $2(\sqrt{2}-1)$ (2) $\sqrt{3}+1$ (3) $2(\sqrt{3}-1)$ (4) None of these
Ì	(3) $2(\sqrt{3}-1)$ (4) None of these

## Code-D

Question No.	Questions				
	Part-C {Opt. (ii)} (Biology)				
101.	GIFT (Gamete intrafallopian transfer) mixes egg and sperm in the				
	(1)	Fallopian tube	(2)	Uterus	
	(3)	Vagina	(4)	Culture medium	
102.	An	example of merocrine gland	d is _		
	(1)	Sebaceous gland	(2)	Pineal gland	
	(3)	Salivary gland	(4)	Mammary gland	
103.	ATI	Pase enzyme needed for mu	iscle d	contraction is located in	
	(1)	Actinin	(2)	Troponin	
	(3)	Myosin	(4)	Actin	
104.	Cas	parian strips are present i	n the	of the root.	
	(1)	Pericycle	(2)	Cortex	
	(3)	Epiblema	(4)	Endodermis	
105.		inner, darker and harder duct water, in an older dicc		ion of secondary xylem that cannot n, is called	
	(1)	Bast	(2)	Alburnum	
	(3)	Duramen	(4)	Wood	

Question No.	Questions		
106.	The tendency of population to remain in genetic equilibrium may be disturbed by		
	(1) Random mating (2) Lack of migration		
	(3) Lack of mutation (4) Lack of random mating		
107.	If two pea plants having red (Dominant) colored flowers with unknown genotypes are crossed, 75% of the flowers are red and 25% are white. The genotypic constitution of the parents having red colored flowers will be		
	(1) Both heterozygous		
	(2) One homozygous and other heterozygous		
	(3) Both homozygous		
	(4) Both hemizygous		
108.	The deposition of lipids on the wall lining the lumen of large and medium sized arteries is referred to as		
	(1) Osteoarthritis (2) Osteoporosis		
	(3) Stokes-Adams Syndrome (4) Atherosclerosis		
109.	Which of the following matches correctly?		
	(1) Pulmonary artery - Carries deoxygenated blood to the lungs		
	(2) Superior vena cava – Receives deoxygenated blood from the lower body and organs		
	(3) Inferior vena cava – Receives deoxygenated blood from the head and body		
	(4) Hepatic artery - carries deoxygenated blood to the gut		

Question No.	Questions			
110.	The function of leghemoglobin in the root nodules of legumes is			
	(1) Oxygen removal			
	(2) Inhibition of nitrogenase activity			
	(3) Expression of nif gene			
	(4) Nodule differentiation			
111.	An action potential in the nerve fiber is produced when positive an negative charges on outside and the inside of the axon membrane ar reversed because			
	(1) All potassium ions leave the axon			
	(2) More potassium ions enter the axon as compared to sodium ions leaving it			
	(3) More sodium ions enter the axon as compared to potassium ions leaving it			
	(4) All soidum ions enter the axon			
112.	Sequence of taxonomic categories is			
	(1) Divison – Class – Order – Family – Tribe – Genus – Species			
	(2) Class – Phylum – Tribe – Order – Family – Genus – Species			
	(3) Phylum – Order – Class – Tribe – Family – Genus – Species			
	(4) Division – Class – Family – Tribe – Order – Genus – Species			

Question No.	Questions			
113.	In the five-kingdom system of classification, which single kingdom out of the following can include blue green algae, nitrogen-fixing bacteria and methanogenic archaebacteria?			
	(1) Protista (2) Fungi			
	(3) Monera (4) Plantae			
114.	Methanogens are			
	(1) Obligate anaerobic bacteria			
	(2) Aerobic fungi			
	(3) Aerobic bacteria			
	(4) Obligate anaerobic fungi			
115.	Noise is measured using sound meter and the unit is			
	(1) Hertz			
	(2) Decibel			
	(3) Joule			
	(4) Sound			
116.	Synapsis occurs between			
	(1) mRNA and ribosomes			
#B	(2) male and female gametes			
	(3) Two homologous chromosomes			
	(4) Spindle fibers and centromere			



# Code-D

Question No.	Questions				
117.	A nitrogen fixing microbe associated with Azolla in rice fields is				
	(1) Frankia	(2)	Tolypothrix		
	(3) Spirulina	(4)	Anabaena		
118.	A patient brought to a hospital with myocardial infarction is normally immediately given				
	(1) Cyclosporin-A	(2)	Statins		
	(3) Penicillin	(4)	Streptokinase		
119.	Rotenone is				
	(1) A bioherbicide	(2)	A natural insecticide		
	(3) An insect hormone	(4)	A natural herbicide		
120.	Variation in gene frequencies within populations can occur by charather than by natural selection. This is referred to as				
	(1) Genetic flow	(2)	Genetic drift		
	(3) Random mating	(4)	Genetic load		
121.	1. Genetic engineering is connected with				
	(1) Eugenics	(2)	) Euthenics		
	(3) Euphenics	(4	) All of these		

Question No.	Questions			
122.	Some people who have suffered from a disease may not be affected again during their life time; such immunity is called			
	(1) Natural immunity (2) Acquired immunity			
	(3) Innate immunity (4) Passive immunity			
123.	Raw cheese is known as			
	(1) Blue cheese (2) Cottage cheese			
	(3) Swiss cheese (4) None of these			
124.	Cell division cannot be stopped in which phase of the cell cycle?			
	(1) G <sub>1</sub> -Phase (2) G <sub>2</sub> -Phase			
	(3) S-Phase (4) Prophase			
125.	What type of plant is formed when colchicine is used in the process of development of Raphanobrassica?			
	(1) Autotetraploid (2) Haploid			
	(3) Triploid (4) Allotetraploid			
126.	Seed coat is not thin, membranous in			
	(1) Groundnut (2) Coconut			
	(3) Maize (4) Gram			

Question No.	Questions			
127.	Lent	ticels are involved in		
	(1)	Transportation	(2)	Gaseous exchange
	(3)	Food transport	(4)	Photosynthesis
128.	Insect mouthparts are adapted for different functions in different species.  Mouthparts of houseflies are used for			
	(1)	Siphoning		
	(2)	Piercing and sucking		
	(3)	Sponging and lapping		
	(4)	Biting and chewing		
129.	The first enzyme to be purified and crystalized was			
	(1)	Urease	(2)	Diastase
	(3)	Insulin	(4)	Zymase
130.	Many enzymes are secreted in inactive form to protect			
	(1)	Cell membrane	(2)	Mitochondria
	(3)	Cell proteins	(4)	Cell DNA
				*
				83

