## SAMPLE QUESTIONS IN MATHEMATICS.

- 1. If (A) r then which of the following is correct?
  - (a) All the minors of order r which do not vanish
  - (b) A has atleast one minor of r which does not vanish
  - (c) A has at least one (r+1) order minor which vanishes
  - (d) All (r+1) and higher order minors should not vanish
- 2. In echelon form, which of the following is incorrect?
  - (a) Every row of A which has all its entries O occurs below every row which has a non-zero entry
  - (b) The first non-zero entry in each non-zero row is 1
  - (c) The number of zeros before the first non-zero element in a row is less than the number of such zeros in the next row
  - (d) Two rows can have same number of zeros before the first non-zero entry.
- 3. In the homogeneous system If (A) the number of unknowns then the system has
  - (a) Only trivial solution
  - (b) Trivial solution and infinitely many non-trivial solutions
  - (c) Only non-trivial solutions
  - (d) No solution
- 4. Which of the following statements is correct regarding homogeneous system
  - (a) Always inconsistent
  - (b) Has only trivial solution
  - (c) Has only non-trivial solutions
  - (d) Has only trivial solution if rank of the coefficient matrix is equal to the number of unknowns

- The centre and radius of the sphere  $|\vec{r} (2\vec{i} \vec{j} + 4\vec{k})| = 5$  are 5.
  - (a) (2,-1,4) and 5
- (b) (2,1,4) and 5
- (c) [-2,1,4] and 6
- (d) (2,1,-4) and 5
- Chord AB is a diameter of the sphere  $|\vec{r} (2\vec{i} + \vec{j} 6\vec{k})| = \sqrt{18}$  with coordinates of A as 6. (3,2,-2) the coordinates of B is
  - (a) (1,0,10)

(b) (-1,0,-10)

[c] [-1,0,10]

[d] [1,0,-10]

nts whose

- The non- parametric vector equation of a plane passing through three points whose P. Vs are  $\overline{a}, \overline{b}, \overline{c}$  is
  - (a)  $\left[ \overline{r} \overline{a} \ \overline{b} \overline{a} \ \overline{c} \overline{a} \right] = 0$  (b)  $\left[ \overline{r}, \overline{a}, \overline{b} \right] = 0$
  - (c)  $[\overline{r}, \overline{b}, \overline{c}] = 0$  (d)  $[\overline{a}, \overline{b}, \overline{c}] = 0$
- The vector equation of a sphere whose centre is origin and radius 'a' is 8.
  - (a)  $r = \overline{a}$
- (b)  $\overline{r} \overline{c} = \overline{a}$  (c)  $\overline{r} = \overline{a}$  (d)  $\overline{r} = a$

- The fourth roots of unity are 9.
  - (a)  $1 \pm i, -1 \pm i$
- (b)  $\pm i, 1 \pm i$  (c)  $\pm 1, \pm i$  (d) 1, -1

- 10. Polynomial equation P(x) = 0 admits conjugate pairs of roots only if the coefficients are
  - (a) Imaginary
- (b) Complex

Real (c)

(d) Either real or complex

## SAMPLE QUESTIONS IN PHYSICS.

(h) Infinite resistance

11.	A dip	oole is pl	laced in a u	niform elect	ric field wit	th its	axis parallel to th	ne fie	ld. It experiences	
	(a)	only a	net force			(b)	only a torque			
	(c) both a net force and torque			(d)	neither a net force nor a torque					
12.	The ι	unit of p	permittivity i	s						
	(a)	C2 N-	-1 m-2	(b) N m <sup>2</sup> (	<sub>)</sub> -2	(c)	H m-1	(d)	N C-2 m-2	
13.	A toa	aster ope	erating at 24	40V has a re	esistance of	f 120	. The power is			
	(a)	400 W	J	(b) 2 W		(c)	480 W	(d)	240 W	
1.4	т .1		C: 1 .	.1		1				
14.				s, as the ter	_		ases, resistivity			
	(a) Decreases (b) increases				3					
	(c)	remains	s constant	(d)	becomes	zero				
15.	A ch	arge of	60 C passes	s through ar	n electric la	ımp i	n 2 minutes. The	n the	current in the lamp is	
	(a)	30 A		(b) 1 A		(c)	0.5 A	(d)	5 A	
16.			erature of in	-			ction is 20 <b>°</b> C, the 500 <b>°</b> C		tral temperature is 270 <b>º</b> C. The	
17.	The t	torque o	n a rectang	ular coil pla	.ced in a ur	niforn	n magnetic field is	s larg	ge, when	
	(a)	The number of turns is large								
	(b)	The number of turns is less								
	(c)	The pl	lane of the c	oil is perpe	ndicular to	the	field			
	(d)	The a	rea of the co	oil is small						
18.	An id	leal volt	meter has							
	(e)	Zero r	resistance							
	(f)	Finite	resistance l	less than G	but greater	tha	n Zero			
	(g)	Resist	tance greate	r than G bu	t less than	infir	nity			

9. The uni	t henry can also	be written as							
(a) Vs	s A-1	(b) Wb A <b>-1</b>		(c)		S	(d) Al	1	
0. A DC of	5A produces th	ie same heating	g effec	et as an .	AC	of			
(a) 5	50 A rms curren	t	(b)	5 A pe	ak (	current			
, ,	5A rms current		(d)	None o					
SAMPLI	E QUESTIO	NS IN CHI	EMIS	STRY	•				
21. NH4	<b>,</b> OH is a weak b	ase because							
(a)	It has low va	pour pressure			(b)	It is or	aly parti	ially ionized	
(c)	It is complete	ely ionized			(d)	It has	low den	sity	
22. The	feasibility of a r	redox reaction o	can be	e predict	ed	with the	e help of	f	
(a)	Electronegati	vity			(b)	Electro	ochemic	al series	
(c)	Electron affir	nity			(d)	Equiva	alent cor	nductance.	
23. Who	en ethyl iodide i	s treated with o	lry sil	ver oxid	e it	forms.			
(a)	Ethyl alcohol	L			(b)	Diethy	l ether		
(c)	Silver ethoxic	de			(d)	Ethyl 1	methyl e	ether	
24. Toll	ens reagent is								
(a)	Ammoniacal	cuprous chlori	de		(b)	Ammo	niacal c	uprous oxide.	
(c) 25. The	Ammoniacal acid that canno		by Gri		(d) eag		niacal s	silver chloride.	
	Acetic acid	(b) Form	ic aci	d	(b)	Butyric	acid	(d) Benzoic	
26. Nitr	ation of nitrobe	nzene results ir	1						
(a	o-dinitro benz	zene			(b)	1, 3, 5	–trinitro	benzene	
(c)	m-dinitroben	zene			(d)	p-dinit	robenze	ene	
27. Whi	ch is not true a	bout amino aci	d?						
(a	Amino acid f	orms Zwitter io	n		(b)	Has is	oelectric	e point	
(c)	Dual behavio	ours			(d)	Amino	acid is ii	nsoluble in NaO	H solution

28. Lanthanides are extracted from									
	(a) I	Limonite	(b) Monazite	(c) N	Magnetite	(d)	Cassiterite		
29. V		_	ve colourless aqueous s	soluti	on?				
	(a) I	Vi <b>2+</b>	(b) Fe <sup>2+</sup>	(c) C	u <b>2</b> +	(d)	Cu <sup>+</sup>		
30. F	arad	ay's laws of electro	lysis are related to						
	(a)	Atomic number of	the cation	(b) Atomic number of the anion					
	(c)	Equivalent weight	of the electrolyte		(d) Speed of	the	cation		
The below section is only for candidates appearing entrance exam for B.Tech – Biotechnology and B.Tech – Cancer Biotechnology.									
•			y and B.Tech- Car HEMETICS QUES			ус	andidates		
SAI	MPL	E QUESTION	NS IN BIOLOGY	•					
1. Oı	ne gra	am of carbohydrate	e is capable of yielding	energ	gy equivalent of				
	(a)	5.1 calories		(b)	4.1 calories				
	(c)	4.9 calories		(d)	6.5 calories				
2. Rickets and osteomalacia are caused by deficiency of									
	(a)	Vitamin A		(b)	Vitamin A and C	C			
	(c)	Vitamin C		(d)	Vitamin D				
3. The enzymes of the stomach are									
	(a)	Pepsin and renni	n	(b)	Pepsinogen				
	(c)	Trypsin		(d)	Chymotrypsin				
4.	Den	tal caries starts fro	om						
	(a)	Dentine		(b)	Pulp cavity				

	(c)	Enamel	(d)	Teeth root					
5.	Rheumatic arthritis affecting the								
	(a) Connective tissues		(b)	Abdominal tissue					
	(c)	Brain tissue	(d)	Cardiovascular tissue					
6.	Bact	eriophages are							
	(a)	Bacteria	(b)	Virus					
	(c)	Fungi	(d)	None of the above					
7.	Thick filaments formed of the contractile protein is								
	(a)	Myosin	(b)	Actin					
	(c)	Tropomyosin	(d)	Troponin					
8.	Respiratory center in the brain is								
	(a)	Cerebrum	(b)	Cerebellum					
	(c)	Medulla oblongata	(d)	Phrenic nerves					
9.	Heart muscles cause rhythmic contraction and relaxation maintained by								
	(a) Sino-atrial node								
	(b) Atrio-ventricular node								
	(c )Bundle of His and Purkinje fibres								
	(d) A	all the above							
.0. Zo	onoti	c infections are							
	(a) Parasitic infections which man acquires from mammals								
	(b) Parasitic infections which man acquires from man								
	(c) Parasitic infections which man acquires from animals								
	(d)Pa	arasitic infections which man acquires fro	m pa	arasitizes					