# SET - III

# ENGLISH

1.	On	e who hates men is calle	ed	•
	a)	misogynist	b)	misogamist
	c)	misanthrope	d)	misandrist
2.	Th	e synonym of "mercuria	al" is:	
	a)	unpredictable	b)	tolerant
	c)	beneficial	d)	skeptic
3.	Sh	e has lodged	FIR agains	t the culprits.
	a)	a	b)	an
	c)	the	d)	none
4.	Ea	ch boy and each girl	th	e exam.
	a)	has passed	b)	is passed
	c)	have passed	d)	none
5.	I tl	nink she has little money	у,	?
	a)	don't I	b)	hasn't she
	c)	do I	d)	has she
6.	Ra	dha is still unmarried. I	Oo you kno	wmarried?
	a)	when will she get	b)	when will she be
	c)	when she will get	d)	none
7.	La	st year, he went home _		_Christmas Day.
	a)	at	b)	to
	c)	in	d)	on
8.		, please give	e me a call.	
	a)	If he came	b)	Should he come
	c)	If he come	d)	None of them
9.	Th	e college requires that a	ll its studer	nts seriously.
	a)	study	b)	studies
	c)	should study	d)	should have studied



10.	The passive of the sentence -	"Don't let people see you." is	;:
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- a) People should not be let to see you.
- b) Don't let yourself to be seen.
- c) Don't let yourself be seen.
- d) You shouldn't be seen by people.

### PHYSICS

11.	Which	is th	e following	relation	is	incorrect?	(Symbols	have	their
	usual n	neani	ngs)						

a)  $F = m \times a$ 

b)  $P = F \times d$ 

c)  $W = F \times d$ 

d)  $P = F \times v$ 

### 12. Which of the following statement is incorrect?

- a) Speed and velocity have same unit.
- b) Slope of velocity-time graph gives acceleration of a body.
- c) Momentum is the product of mass and acceleration.
- d) Newton's 2<sup>nd</sup> law is quantitative law.

13. How much work is done when 10 kg mass is lifted to a height of 10m?

a) 10 J

b) 100 J

c) 1.000 J

d) 10,000 J

14. Which of the following is not the effect of gravity?

- a) Atmosphere in planet
- b) Tides in sea
- c) Existence of solar system
- d) Inertia

15. What fraction of a wooden raft of density 0.8 gcm<sup>-3</sup> will be inside the sea water of density 1.2 gcm<sup>-3</sup>?

a)  $\frac{2}{3}$ 

b)  $\frac{1}{2}$ 

c)  $\frac{2}{5}$ 

d)  $\frac{1}{3}$ 

16. The range of mercury thermometer is

a)  $-39^{\circ}$ C to  $357^{\circ}$ C

b) 0°C to 100°C

c) -117°C to 78°C

d)  $-39^{\circ}$ C to  $100^{\circ}$ C

17. Specific heat capacity of substance depends on

- a) Amount of heat supplied
- b) Mass of given substance
- c) Nature of substance
- d) All of above

<b>18.</b>	If t	If the power of lens is +5D, what is value of focal length?								
	a)	10 cm, convex	b)	10 cm, concave						
	c)	20 cm, convex	d)	20 cm, concave						
19.		_	•	and 2400 secondary turns. I						
	the	e primary supply voltag	e is 220V, the	en secondary voltage is						
	a)	176 V	b)	1760 V						
	c)	17600 V	d)	800 V						
20.	Ec	ho is based upon								
	a)	Refraction of sound	b)	Reflection of sound						
	c)	Interference of sound	d)	Diffraction of sound						
		CH	EMISTR	$\mathbf{Y}$						
21.	Th	ne first attempt for the c	lassification (	of element was done by:						
	a)	Lother Meyer	b)	Mendeleev						
	c)	Newland	d)	Dobereiner						
22.	$\mathbf{W}$	hich of the following alv	vays affects t	he rate of reaction						
	a)	Catalyst	b)	Temperature						
	c)	Pressure	d)	Light						
23.	Th	ne solubility of salt is 25	at 30°C. Wha	at amount of water should b						
	required at that temperature to prepare 200 gram of saturated									
	sol	ution of salt?								
	a)	40	b)	160						
	c)	50	d)	100						
24.	$\mathbf{W}$	hich of the following is a	icid salt							
	a)	CuSO <sub>4</sub>	b)	$NaNO_3$						
	c)	NaHSO <sub>4</sub>	d)	Na <sub>2</sub> CO <sub>3</sub>						
25.	$\mathbf{W}$	hich of the following is r	not ore,							
	a)	Hematite	b)	Bauxite						
	c)	Horn silver	d)	Copper pyrite						
26.	Pla	aster of paris is								
	a)	CaSO <sub>4</sub> .2H <sub>2</sub> O	b)	CaSO <sub>4</sub> .H <sub>2</sub> O						
	c)	CaSO <sub>4</sub> .5H <sub>2</sub> O	<b>d</b> )	$CaSO_4.\frac{1}{2}H_2O$						
	٠,	- 32 0 4.0 1120	۵,	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2						



27.	Wł	nich is the first synthesized orga	anic	compound?				
	a)	Acetic acid	b)	Urea				
	c)	Marsh gas	d)	Ether				
28.	Wł	nich of the following is deterger	ıt:					
	a)	Sodium stearate	b)	Sodium lauryl sulphate				
	c)	Sodium palmitate	d)	sodium hydrogen phosphate				
29.	Wł	nich metallic oxide is used to m	ake	the green glass?				
	a)	Tin oxide	b)	Chromium oxide				
	c)	Nickel oxide	d)	Cuprous oxide				
30.	Co	mposition of water gas is:						
	a)	$H_2O + O_2$	b)	$CO + H_2$				
	c)	$CO + H_2O$	d)	$CO + N_2$				
		MATHEM	[ <b>A</b>	TTCC				
			A	nes				
31.	. After $p$ years, a man will be $q$ years old. How old was he before							
	•							
	a)	p+q+r	b)	q-p-r				
		1 1		1 1				
32. A triangle ABC can be uniquely constructed if we are gi								
				1				
	c)	$AB = 5 \text{ cm}, BC = 4 \text{ cm}, \angle C = 4 \text{ cm}$	45°					
	d)	$AB = 6 \text{ cm}, \angle B = 60^{\circ}, \angle C = 4.60^{\circ}$	5°					
33.		-	7 <i>x</i> ⊦	+k=0 are reciprocals of each				
	a)	5	b)	2				
	c)	$\frac{7}{10}$	d)	none of these				
34.	Wł	Which of the following is detergent:  (a) Sodium stearate (b) Sodium lauryl sulphate (c) Sodium palmitate (d) sodium hydrogen phosphate (c) Sodium palmitate (d) sodium hydrogen phosphate (c) Which metallic oxide is used to make the green glass? (e) Tin oxide (for position of water gas is: (for position of wa						
	MATHEMATICS  After $p$ years, a man will be $q$ years old. How old was he before years?  a) $p+q+r$ b) $q-p-r$ c) $p+q-r$ d) $q-p+r$ A triangle ABC can be uniquely constructed if we are given the measurements as  a) $\angle A = \angle B = \angle C = 60^{\circ}$ b) $AB = 4$ cm, $BC = 5$ cm, $CA = 9$ cm  c) $AB = 5$ cm, $BC = 4$ cm, $\angle C = 45^{\circ}$ d) $AB = 6$ cm, $\angle B = 60^{\circ}$ , $\angle C = 45^{\circ}$ If the roots of the equation $5x^2 - 7x + k = 0$ are reciprocals of each other, then value of $k$ is  a) $5$ b) $2$ c) $\frac{7}{10}$ d) none of these  Which one of the following conditions is not necessary for the existence of an inverse of a matrix $A$ ?							
	a)	A must be a square matrix	b)	A must be a non singular matrix				
	c)	All entries of <i>A</i> must be different	td)	None of these				

35.	If $\tan x + \tan 2x + \tan 3x = \tan x$ . $\tan 2x$ . $\tan 3x$ then the value of $x$
	is

a) 15°

b) 0°

c) 45°

d) 10°

# **36.** Difference of arithmetic mean and geometric mean of two numbers is 0.5. The possible numbers are

a) 3 and 12

b) 9 and 4

c) 10 and 3

d) 11 and 2

37. If 
$$f(x) = \frac{1}{1-x}$$
, then  $f[f(f(x))]$  is equal to

a)  $\frac{x-1}{x}$ 

b) **f**(*x*)

c) x

d) none of these

### 38. Where does the point (0, 9) lie with respect to the circle

$$x^2 + y^2 - 6x - 8y = 0$$
?

a) inside the circle

b) on circumference of the circle

c) outside the circle

d) can not be determined

39. 
$$\frac{(x-y)^3 + (y-z)^3 + (z-x)^3}{9(x-y)(y-z)(z-x)} = ?$$

a) 0

b)  $\frac{1}{9}$ 

c) 1

d)  $\frac{1}{3}$ 

#### 40. Which one of the following is an identity transformation?

- a) Reflection on X-axis followed by reflection on x = 0.
- b) Rotation about origin through  $180^{\circ}$  followed by reflection on y = -x.
- c) Translation by the vector  $\begin{pmatrix} 1 \\ 1 \end{pmatrix}$ .
- d) Enlargement with centre (0, 0) and scale factor 1.



# BIOLOGY

41.	Th	e study of algae is called								
	a)	Phycology	b)	Mycology						
	c)	Dendrology	d)	virology						
42.	Sa	lt loving plants are called								
	a)	Heliophytes	b)	Halophytes						
	c)	Sciophytes	d)	None						
43.	Th	e step of mitosis in which chro	mosom	es line up along the equatorial						
	pla	plane of the cells								
	a)	Prophase	b)	Metaphase						
	c)	Anaphase	d)	Telophase						
44.	Pr	othallus of fern is								
	a)	Haploid	b)	Diploid						
	c)	Triploid	d)	Polyploid						
<b>45.</b>	Ph	otosynthesis is a proce	ess							
	a)	Metabolic	b)	catabolic						
	c)	anabolic	d)	all						
46.	Which organ is damaged as it breaks down alcohol?									
	a.	Brain	b.	Kidney						
	c.	Liver	d.	stomach						
47.	Stu	udy of ductless gland is called								
	a.	Embryology	b.	Endocrinology						
	c.	Exocrinology	d.	Entomology						
48.	Ar	nphibian adaptation is found i	in							
	a.	Rabbit	b.	Cobra						
	c.	Rana	d.	Fish						
49.	Ey	e is made up of 3 layers, which	h is not	a layer of eye?						
	a.	Retina	b.	Choroid						
	c.	Sclera	d.	Dermis						
50.	W	hich vitamin is essential for bl	ood clo	otting?						
	a.	Vit. A	b.	Vit. B						
	C.	Vit C	d	Vit. K						

### SET - III

1. d	2. a	3. b	4. a	5. d	6. c	7. d	8. b	9. a	10. c
11. b	12. c	13. c	14. d	15. a	16. a	17. c	18. c	19. b	20. b
21. d	22. b	23. b	24. c	25. с	26. d	27. b	28. b	29. b	30. b
31. b	32. d	33. a	34. c	35. b	36. b	37. с	38. с	39. d	40. d
41. a	42. b	43. b	44. a	45. с	46. с	47. b	48. c	49. d	50. d

### || PHYSICS ||

- 11. b)  $P = F \times d$ .
- 12. c) Momentum is the product of mass and velocity.
- 13. c) Work = Force  $\times$  distance

$$= mg \times d$$

$$=10\times10\times10$$

$$= 1.000 J.$$

- 14. d) Inertia is the tendency of any object to continue its state of rest or uniform motion unless it is acted by some external force.
- 15. a) Weight of wood = weight of water displaced

$$V_{wood} \times \rho_{wood} \times g = V_{water \; displaced} \times \sigma_{water} \times g$$

Since 
$$V_{water\ displaced} = V_{wood\ inside\ water}$$

$$V_{wood} \times \rho_{wood} = V_{wood \; inside \; water} \times \sigma_{water}$$

$$\frac{V_{wood\ inside\ water}}{V_{wood}} \,=\, \frac{\rho_{wood}}{\sigma_{water}} \,=\, \frac{2}{3}$$

16. a) For mercury thermometer range is  $-39^{\circ}$ C to  $357^{\circ}$ C and for alcohol thermometer range is  $-117^{\circ}$ C to  $78^{\circ}$ C.

- 17. c) Specific heat capacity of a body is defined as the amount of heat required to raise the temperature of unit mass of body by 1K / 1°C. Its value depends upon the nature of the material of the body.
- 18. c) Power,  $P = \frac{1}{f}$  when f is in meter.

or, 
$$5 = \frac{1}{f}$$

or, 
$$f = \frac{1}{5} m$$

or, 
$$f = \frac{100}{5}$$
 cm = 20 cm, convex

19. b) Here, 
$$N_p=300$$
,  $V_p=220V$  
$$N_s = 2400, \quad V_s=?$$

Now, we know,

$$\frac{V_s}{V_p} \ = \ \frac{N_s}{N_p}$$

or, 
$$V_s = \frac{N_s}{N_p} \times V_p = 1760 \text{ V}$$

20. b) Echo is based upon reflection of sound and minimum distance for echo is 17m and minimum time interval is 0.1 sec.

### || CHEMISTRY ||

- 21. d) Dobereiner Triad (1817 AD)
- 22. b) Temperature : Other factors may not be always affects the rate of reaction but temperature always affects the rate of reaction.
- 23. b) 160: Suppose amount of solvent = x

Amount of solution = 200 gram

Amount of solute = (200 - x) gram

Solubility = 25

From solubility relation,



Solubility = 
$$\frac{\text{Weight of solute}}{\text{Weight of solvent}} \times 100$$

$$25 \; = \; \frac{200 - X}{X} \, \times 100$$

X = 160 gram

- 24. c) NaHSO<sub>4</sub>: If polybasic acid is neutralize partially by a base, the salt formed is known as acid salt.
- 25. c) Horn silver: It is the minerals of silver but not ore. Silver can't be extracted economically from this mineral.
- 26. d) CaSO<sub>4</sub>. $\frac{1}{2}$  H<sub>2</sub>O
- 27. b) Urea: First synthesized organic compound is Urea and first synthesized organic compound from its constituent is acetic acid.
- 28. b) Sodium lauryl sulphate
- 29. b) Chromium oxide
- 30. b)  $CO + H_2$ : Water gas is prepared by passing steam over red hot coke or carbon.

$$H_2O + C \longrightarrow CO + H_2$$

Red hot Water gas

### || MATHEMATICS ||

- 31. b) now, he is q p years and after r years, he will be q p r.
- 32. d) SAA is the axiom of congruency, so it produces the unique triangle.
- 33. a) Here the product of roots = 1

$$\frac{K}{5} = 1 \Rightarrow K = 5$$

- 34. c) For the existence of a matrix, it is not necessary that A must have different entries.
- 35. b)  $\tan x + \tan 3x = -\tan 2x [1 \tan x. \tan 3x]$

$$\frac{\tan x + \tan 3x}{1 - \tan x \cdot \tan 3x} = -\tan 2x$$
$$\tan (x + 3x) = \tan (-2x)$$
$$x = 0$$

- 36. b) Check options
  - a) AM = 7.5, GM = 6, AM GM = 1.5 (wrong)
  - b) AM = 6.5, GM = 6, AM GM = 0.5 (correct)

37. c) 
$$f[f(x)] = \frac{1}{1 - \frac{1}{1 - x}} = \frac{x - 1}{x}$$

$$f[f\{f(x)\}] = f\left(\frac{x-1}{x}\right)$$

$$= \frac{1}{1 - \frac{x-1}{x}}$$

$$= \frac{x}{x - x + 1}$$

$$= x.$$

- 38. c) central form  $(x-3)^2 + (y-4)^2 = 5^2$ centre (3, 4), radius = 5 distance between (3, 4) and (0, 9) =  $\sqrt{34}$  which is greater than 5
- 39. a) Use the formula of  $a^3 + b^3 + c^3 = (a + b + c) (a^2 + b^2 + c^2 ab bc ca) + 3abc$
- 40. d) obvious

### || BIOLOGY ||

- 41. b) Phycology is the study of Algae.
  - Mycology is the study of Fungi.
  - -virology is the study of virus
- 42. b) Heliophytes: Sunlight loving plants. E.g. Sunflower



- Halophytes : Salt loving plants . E.g. Barley
- Sciophytes : Shade loving plants . E.g. Moss
- 43. b) Prophase- disappearance of nuclear membrane, chromatid threads become visible
  - Metaphase- chromosomes arranged in equatorial line
  - Anaphase- centromere breaks and moves towards their poles
  - Telophase- reappearance of nuclear membrane.
- 44. a) Prothallus is the monoecious stage (gametophytic stage) in life cycle of fern
- 45. c) In photosynthesis, glucose or carbohydrate is formed from carbon dioxide and water in presence of sunlight and chlorophyll.
  - Anabolic constructive phase
  - Catabolic destructive phase
- 46. c) Each time liver filters alcohol, some of the liver cells die.
- 47. b) embryology is study of embryo
  - Exocrinology is study of external secretions like pheromones.
  - Entomology is study of insects.
- 48. c) Rana is genus of frog, an amphibian.
- 49. d) The three layers of eye is Sclera, Choroid and Retina.
- 50. d) The body needs vitamin K to produce prothrombin, a protein and clotting factor