I.

0	1		0
0	1	0	7

Register	imo gas lam de	
Number		

SCIENCE (Theory) - Paper I (Physics and Chemistry)

Time Allowed : $2\frac{1}{2}$ Hours |

[Maximum Marks : 100

Instruction: Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately,

(PHYSICS)

(Marks : 50)

SECTION - A

	Answer all	the questi	ions.	
Cho	ose the correct answers :	· O	01 lemmg's Right-Hand, H.	× 1 = 10
1.	1000 watt is equal to			
	a) 746 HP	b)	74600 HP	
	c) 1·34 HP	d)	3.6×10 ³ HP.	
2.	A cone balanced on its tip is an	example f	for aver edge (6	
	a) stable equilibrium	b)	unstable equilibrium	
	c) neutral equilibrium	d)	none of these.	
3.	The centre of gravity of the disp	placed liqu	id is called	
	a) centre of gravity	b)	centre of buoyancy	
	c) centroid	d)	metacentre.	
4.	The S.I. unit for heat is		The unit for frequency is	
	a) joule	. b)	C und office control out	
	c) °F	d)	K. of mont spends off	

	5.	Th	e fixed tempera	ture at which a	a liquic	l changes into vapour is called
		a)	melting point		b)	boiling point
		c)	evaporation		d)	condensation.
•	6.	Pre	esbiopia can be	connected usin	ıg	
		a)	convex lens		b)	concave lens
		c)	bifocal lens		d)	cylindrical lens.
7	7.	The	dip at the equa	itor is		. 0.
		a)	0°		b)	45°
		c)	60°		d)	90°.
8	•	The	pipe instrumen	t without reed	is	
		a)	clarinet		b)	trumpet
		c)	organ		d)	harmonium.
9.		Flen	ning's Right Han	d Rule is used	in	
		a)	motor	0,	b)	dynamo
		c)	transformer	A DOME	d)	microphone.
10). '	The	radiations not de	eflected by elec	etrical	and magnetic fields are
			alpha rays		b)	beta rays
	0		cathode rays		d)	X-rays.
I. Co	mp	lete	the following us	ing appropriate	e word	/ words / expressions : $5 \times 1 = 5$
11.	. 1	The n	nathematical exp	pression for Jo	ule's L	aw of Heating
12.	I	n Tai	mil Nadu the nu	clear power pl	ant is	situated in
13.	Т	he i	init for frequenc	ey is		The S.L. unit for heal is-
14.	Т	he ci	ritical angle for g	glass is		q. The S.I unti for heat is
15.	T	he cl		solid state to		seous state directly on heating is

SECTION - B

Answer any five of the following in one or two sentences each:

 $5 \times 2 = 10$

- 16. State the law of conservation of energy.
- 17. Define metacentre.
- 18. Compare open organ pipe and closed organ pipe.
- 19. Mention the element of earth's magnetic field.Give the reasons for the following:
- 20. A fuse is used in electrical appliances.
- 21. Water should be continuously circulated around the anode of an X-ray tube.

 Give two uses or practical applications of the following:
- 22. IR rays.
- 23. Specific heat.

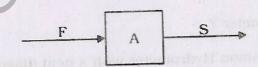
SECTION - C

Answer any five of the following, choosing at least one question from each Part:

 $5 \times 5 = 25$

PART - I

24.



In the diagram F is the force acting on a body A and S is the displacement.

a) What is the work done?

7

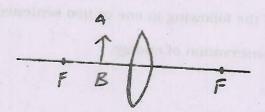
b) Give the S.I. unit of work.

c) If the body does not move, what is the work done?

1

d) If the mass of the body is 10 kg, and the distance moved by it is 20 ms, calculate the work done.

25.



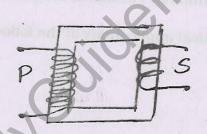
Name the optical instrument. a)

b) What is the nature of the image?

Complete the ray diagram. c)

Mention any one of its uses. d)

26.



1

1

	a)	Name the device. Why is it called so?
	b)	Name the principle on which it works.
¥k.	c)	Mention one of its uses.
	d)	What is turns ratio?
		PART - II
27.	a) 4	What is a Lactometer?
	b)	Describe the common Hydrometer with a neat diagram. 2+1
	c)	Mention any one use of Hydrometer.
28.	Des	cribe an experiment to determine the melting point of naphthalene.

- State the laws of transverse vibrations of a stretched string and hence derive an equation for frequency.
- 30. Describe the construction and working of a dip cicle.
- 31. Describe the Coolidge tube and the production of X-rays.

(CHEMISTRY)

(Marks: 50)

SECTION - A

Answer all the questions.

Cho	ose th	ne correct answers :			10 ×	1 = 10
1.	The	ratio by weight of hydrogen and ox	ygen i	n water is		
	a)	1:8	b)	8:1 as medical		1
	c)	2:1	d)	1:2.	0	
2.	The	molar volume is liti	es.	. 0)	
	a)	2.24	b)	22.4		
*	c)	224	d)	none of these.		
3.		is an electrovalent comp	ound.	(C)		
	a)	HCl	b)	NaCl		
	c)	NH ₃	d)	CH ₄		
4.		can be stopped by a thi	ick sh	eet of lead.		
	a)	Alpha	b)	Beta		
	c)	Gamma	d)	All of these.		
5.		is used in dating ancie	nt sp	ecimens.		
	a)	Na ²³	b)	Na ²⁴		
	c)	C ¹²	d)	C^{14} .		
6.	Tyn	idall effect is exhibited by				
	a)	true solution	b)	colloidal solution		
	c)	suspension	d)	all of these.		

				O			
7	• •••		is the most	stable for	m of	phosphorus.	
	a)	Scarlet			b)	Violet	
	c)	White			d)	Red.	
8	• • • • • • • • • • • • • • • • • • • •	••••••	is used to net	utralize aci	dity	in the stomach.	
	a)	Sodium	hydroxide		b)	Sodium chloride	
	c)	Sodium	carbonate		d)	Sodium bicarbonat	е.
9.	The	e functiona	l group R-OH is	3	6		
	a)	acid	*		b)	alcohol	
	c)	ether	- M- 2E A	90.	d)	ester.	
10)		does not dec	olourise all	kalin	ne potassium perman	ganate.
	a)	Methane	.,(0	00001200004	b)	Ethene	
	c)	Ethyne	93	(d)	None of these.	
. Co	mplete	e the follow	ing, using appro	opriate wor	d/w	ords/expressions:	5 × 1 = 5
11.			is a liquid nor	n-metal.			
12.	The	promoter u	ised in the cont	act tower is	· ·		
13.					J		
13.	Gain	or electron	ns is	•••••			
14.	Dete	rgents are	salts of			ema	
15.	Carb	on combin	ing with itself to	o form long	cha	nins is called	
				TION - B			
Λns	wer ar	ny sive ques	stions in one or	two senten	ices	each :	$5 \times 2 = 10$
16.	What	is radioact	tivity ?				

17. What are metalloids?

Complete and balance :

- 18. $Fe_2O_3 + CO \rightarrow$
- 19. $Ag+H_2SO_4 \rightarrow$

Give reasons:

- 20. White phosphorus is banned in the match industry.
- 21. Methanol is more poisonous than ethanol.

 Give two practical applications:
- 22. Aluminium.
- 23. Ethylene.

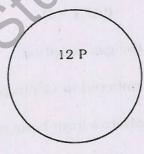
SECTION - C

Answer any five of the following, choosing at least one question from each Part:

 $5 \times 5 = 25$

PART - I

24. Study the following diagram and answer:



a) What is the atomic number?

1

b) What is the mass number?

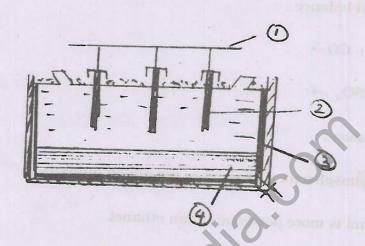
1

c) Name the element.

d) Complete the structure.

2

a)



- Why is charcoal added? b) Write the Electrode reactions. c) 26. You are provided with a conical flask, delivery tubes, thistle funnel, trough gas jar and beehive shelf : How will you set up the apparatus for the preparation of acetylene? 3 Why is sand added? b) Mention one of its uses. c) PART - II 3 + 2
- State the gas laws and derive the gas equation.
- What are the points to be remembered in electroplating? 28.
- 29. Explain the extraction of phosphorus from bone ash.
- 30. Give any five differences between organic and inorganic compounds.
- 31. Explain the manufacture of soap by hot process.

Label the parts.