

PINNAACLE CLASSES

ADMISSION TEST

CLASS: IX - X

TEST ID : 201

Time: 3 Hours

Date:

Max Marks: 400

IMPORTANT INSTRUCTIONS:

- 1. The test is of 3 hours duration.
- 2. The Test Booklet consists of 100 questions. The maximum marks are 400.
- 3. There are FIVE parts in the question paper Physics, Chemistry, Mathematics, Biology and Mental Ability having 20 questions in each part of equal weightage. Each question is allotted 4 (four) marks for correct response.
- 4. Candidates will be awarded marks as stated above in instruction No. 3 for correct response of each question. -1(minus one) marks will be deducted for indicating incorrect response of each question. No deduction from the total score will be made if no response is indicated for an item in the answer sheet.
- 5. There is only one correct response for each question. Filling up more than one response in any question will be treated as wrong response and marks for wrong response will be deducted accordingly as per instruction 4 above.
- 6. Do not open the seal before starting the examination.



PHYSICS

- 1. Why are nails made with sharp tip?
 - a) by sharp tip Nail can apply more force

b) by sharp tip Nail can apply more pressure

- c) No specific use of sharp tip
- d) Force applied by Nail is distributed
- 2. Two blocks are connected by rope and aforce is applied on m_2 as shown in figure then acceleration of block m_1 is



10. Two blocks are connected to each other as shown then tension in string is



- 11. A body is projected vertically upwards with a speed of 30 m/s at what distance from topmost point its speed is 10 m/s
 - a) 5 m b) 40 m c) 20 m d) 25 m
- 12. A ball **A** is dropped from height of 80 m at the same time some other body **B** is projected vertically upwards with 40 m/s from bottom as shown at what time after projection they will meet



13. A body of mass m = 10 kgis placed on rough horizontal and A force of 40 N is applied on it then its acceleration is 3 m/s^2 . What is friction force acting on body?

		F = 40 N	m=10 kg	
	a) 20 N	b) 30 N	c) 10 N	d) 40 N
14	. Swimming is possible or	n account of		
	a) First Law of motionc) Third Law of motion		b) Second law of motd) Law of gravitation	ion
15	. If the resultant external f	force on a particle is ze	ro, then	
	a) Its momentum is zeroc) its change in velocity i	s zero	b) its velocity is zerod) its change in displate	acement is zero
16	. A constant force acts on to (initially body is at res	a body. Then the dista t)	nce travelled by the bo	dy in the time 't' is proportional
	a) $t^{\frac{3}{2}}$	b) $t^{\frac{1}{2}}$	c) t ²	d) t
17	Angle made by $\overline{A} = \hat{i} + \hat{j}$	ĵ with x-axis is		
	a) 90°	b) 45°	c) 60°	d) 30°

18.	. Angle between vectors \overline{a} and b is						K D
	a) 30° ł	o) 60°	c) 120°	d) eith	er 60° or 120°		60°
19.	9. A thief stole a box full of valuable articles of weight W and while carrying on his head jumped down from the wall of height 'h', before he reached the ground, he experience load of,					a , he experienced a	
	a) 2W	b) W		c) W/	2	d) zero	
20.	Two bodies of mas for which the force	ss 5 kg and 2 must act to	0 kg at rest an produce the s	re acted up ame impul	oon by the sam	e force. The ra	atio of the times
	a) 1 : 1	b) 1 :	4		c) 4 : 1	d) 1	: 16
			CH	IEMISTR	XY		
21.	The maximum nur	nber of elect	rons that can	be accom	modated in M	shell is:	
	a) 2	b) 8			c) 18		d) 32
22.	2. Two elements X and Y have the same atomic mass but their atomic numbers are 20 and 21 respectively. X and Y are:) and 21	
	a) Isobars	b) isc	tones		c) isomers		d) isotopes
23.	In an atom, the ma a) nucleons	ss number o b) pro	f an atom is e otons	qual to the	e number of c) electrons		d) neutrons
24.	An α –particle is _						
	a) a Hydrogen nucl	eus	b) a Heliun	n nucleus	c) a p	roton	d) an electron
25.	25. Rutherford's gold foil experiment showed that most of the α –particles passed through the gold foil without any deflection. It indicates that						
	a) the nucleus is coc) there is lot of em	ncentrated a pty space in	the centre atom		b) the nucleu d) the nucleu	s carries positi s carries the m	ive charge nost of the mass
26.	Canal rays are						
	a) Negative chargedc) beam of neutrons	d particles			b) positive ch d) gamma rac	harged particle	S
27.	Energy of an electr	ron in orbit i	s proportiona	l to			
	a) Distance between shellsc) distance between two nuclei			b) distance from nucleusd) positive charge inside nucleus			
28.	Electron revolves a	around nucle	us in orbits w	hich have			
	a) Variable energy	b) fix	ed energy		c) infinite en	ergy	d) Zero energy
29.	The number of electron	ctrons in the	outermost sh	ell in the a	tom of an iner	t element is	
	a) 0	b) 1			c) 2	d) 8	

30.	An element X is tetravalent and another element Y is divalent. The compound formed by these two elements will be:					
	a) XY	b) XY ₂	c) X ₂ Y		d) XY ₄	
31.	1. The number of moles for 52g of He is:(Atomic Mass of He: 4u)					
	a) 6.022×10^{23}	b) 13	c) 52		d) 1	
32.	1 u or 1 amu means					
	 a) 1/12th mass of C-12 ato c) Mass O-16 atom 	oms	b) Mass of C- d) Mass of Hy	12 atom drogen molecu	ıle	
33.	The number of molecule	s in 4.25g of ammonia	a is approximate	ely		
	a) 1.0×10^{23}	b) 1.5×10^{23}	c) 2.0	$\times 10^{23}$	d) 3.5×10^{23}	
34.	Name the Indian philoso	pher who "the smalles	st indivisible par	rticles of matter	r" as Parmanu	
	a) Pakudha Katyayama	b) Maharishi	Kanad	c) Aryabhatt	d) Democritis	
35.	The molecular formula of	of potassium nitrate is				
	a) KNO	b) KNO ₃	c) KNO) ₂	d) KON	
36.	Which of the following s	statement is always co	rrect?			
	 a) An atom has equal number of electrons and protons b) An atom has equal number of electrons and neutrons c) An atom has equal number of protons and neutrons d) An atom has equal number of electrons, protons and neutrons 					
37.	Dalton's atomic theory s	uccessfully explained				
	i) Law of conservation of iii) Law of radioactivity	mass	ii) Law of con iv) Law of mu	stant composit	ion on	
	a) i, ii and iii	b) i, iii and iv	c) ii, i	ii and iv	d) i, ii and iv	
38.	Atomic mass of calcium	is 40. The mass of 2.5	gram atoms of	calcium is		
	a) 40 g	b) 2.5 g	c) 100	g	d) 80 g	
39.	9. In water, hydrogen and oxygen are present in the mass ratio of					
	a) 1 : 8	b) 2 : 12		c) 2 : 3	d) 1 : 2	
40.	40. The quantity of matter present in an object is called its					
	a) Mass	b) Volume	c) Density		d) Vapour pressure	
	MATHEMATICS					
41.	41. If $a + b + c = 9$ and $ab + bc + ca = 23$, then $a^2 + b^2 + c^2 =$					
	a) 35	b) 58	c) 127		d) none of these	

42. If $x^4 + \frac{1}{x^4} = 194$,	then $x^3 + \frac{1}{x^3} =$		
a) 76	b) 52	c) 64	d) none of these
43. If $\frac{x}{x^{1.5}} = 8x^{-1}$ and	d x > 0, then $x =$		
a) $\frac{\sqrt{2}}{4}$	b) 2√2	c) 4	d) 64
44. The square root o	f 64 divided by the cube roo	ot of 64 is	
a) 64	b) 2	c) $\frac{1}{2}$	d) 64 ^{2/3}
45. The value of $\frac{1}{(0.01)}$	$\frac{(0.013)^3 + (0.007)^3}{3)^2 - 0.013 \times 0.007 + (0.007)^2}$ is		
a) 0.006	b) 0.02	c) 0.0091	d) 0.00185
46. If both $x - 2$ and	$x - \frac{1}{2}$ are factors of $px^2 + 5$	bx + r, then	
a) p = r	b) $p + r = 0$	c) $2p + r = 0$	d) $p + 2r = 0$
47. If $x - a$ is a facto	$r of x^3 - 3x^2a + 2a^2x + b$	then the value of b is	
a) 0	b) 2	c) 1	d) 3
48. In the figure, if l_1 a) 90 + x c) 90 - $\frac{x}{2}$	∥ l ₂ and l ₃ ∥ l ₄ , what is y in b) 90 + 2x d) 90 − 2x	terms of x?	
49. In the figure, for v a) 37	which value of x is $l_1 \parallel l_2$? b) 43	78°	₿ ↓
c) 45	d) 47		de la companya de la comp
50 In the figure what	t is v in terms of x?	A 130	
a) $\frac{3}{2}x$	b) $\frac{4}{2}x$	8	A
c) x	d) $\frac{3}{4}x$	<u></u>	- Crr
51. In the figure ΔRST	, what is the value of x?		Å
a) 40	b) 90°		$\langle \cdot \rangle$
c) 80°	d) 100	A	140 h

52. One angle is equal to three times its supplement. The measure of the angle is

a) 130° b) 135° c) 90° d) 120°

53.	53. If $\frac{a}{b} + \frac{b}{a} = -1$, then $a^3 - b^3 =$					
	a) 1	b) – 1	c) $\frac{1}{2}$	d) 0		
54.	If $x = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$ and $y = \frac{\sqrt{3}}{\sqrt{3}}$	$\frac{+\sqrt{2}}{-\sqrt{2}}$, then x ² + xy + y ² =				
	a) 101	b) 99	c) 98	d) 102		
55.	The simplest rationalisin	g factor of $\sqrt[3]{500}$ is				
	a) $\sqrt[3]{2}$	b) ³ √5	c) $\sqrt{3}$	d) none of these		
56.	$\mathrm{If}\sqrt{13-\mathrm{a}\sqrt{10}}=\sqrt{8}+$	$\sqrt{5}$, then a =				
	a) – 5	b) – 6	c) – 4	d) – 2		
57.	23. $\overline{43}$ when expressed in	n the form $\frac{p}{q}(p, q \text{ are integers})$	q ≠ 0), is			
	a) $\frac{8}{25}$	b) $\frac{29}{90}$	c) $\frac{32}{99}$	d) $\frac{32}{199}$		
58.	If $g = t^{2/3} + 4t^{-1/2}$, where	at is the value of g when = 64	4?			
	a) $\frac{31}{2}$	b) $\frac{33}{2}$	c) 16	d) $\frac{257}{16}$		
59.	In the figure, if CP DQ a) 130° c) 175°	, then the measure of x is b) 105° d) 125°	1 °	P		
	() 175	d) 125	B105	° C 25° A		
60.	50. Two straight lines AB and CD intersect one another at the point O. If $\angle AOC + \angle COB + \angle BOD = 274^\circ$, then $\angle AOD =$					
	a) 86°	b) 90°	c) 94°	d) 137°		
	BIOLOGY					
61.	The largest cell in the hu	man body is -				
	a) Nerve cell	b) Muscle cell	c) Liver cell	d) Lymphocytes		
62.	52. A plant cell differs from an animal cell in the absence of-					
	a) Endoplasmic reticulum	b) Mitochondria	c) Ribosome	d) Centrioles		
63.	63. Double membrane is absent in –					
	a) Mitochondrion	b) Chloroplasts	c) Nucleus	d) Lysosome		
64.	The membrane surround	ing the vacuole of a plant cell	is called			
	a) Tonoplast	b) Plasma membrane	c) Nuclear membrane	d) Cell wall		
65.	5. A plant cell becomes turgid due to					
	a) Plasmolysis	b) Exosmosis	c) Endosmosis	d) Electrolysis		

66.	. Plasmolysis occurs due to					
	a) Absorption	b) Endosmosis	c) Osmosis	d) Exosmosis		
67.	. Root hair absorbs water form soil through					
	a) Osmosis	b) Active transport	c) Diffusion	d) Endocytosis		
68.	Which cell organe	lle is not bounded by a m	embrane			
	a) Ribosome	b) Lysosome	c) Endo plasmic Reticulum	d) Nucleus		
69.	Plastids are presen	t in				
	a) Animal cell onlyc) Both animal cell	y Is and plant cells	b) plant cells only d) Neither animal no	b) plant cells onlyd) Neither animal nor plant cell		
70.	Cell wall of plant i	s chiefly composed of				
	a) Hemicellulose	b) Cellulose	c) Phospholipids	d) proteins		
71.	 Which muscles act involuntarily? (i) Striated muscles (ii) Visceral muscles (iii) Myocardium (iv) Skeletal muscles 					
	a) (i) and (ii)	b) (ii) and (iii)	c) (iii) and (iv)	d) (i) and (iv)		
72.	Cartilage is not fo	und in				
	a) Nose	b) ear	c) kidney	d) larynx		
73.	Contractile protein	ns are found in				
	a) Bones	b) blood	c) muscles	d) cartilage		
74.	4. Which of the following helps in repair of tissue and fills up the space inside the organ?					
	a) Tendon	b) Adipose tissue	c) Areolar	d) Cartilage		
75.	75. The muscular tissue which function throughout the life continuously without fatigue is					
	a) Skeletal muscle	b) cardiac muscle	c) smooth muscle	d) voluntary muscle		
76.	6. In desert plants, rate of water loss gets reduced due to the presence of					
	a) cuticle	b) stomata	c) lignin	d) suberin		
77.	7. A long tree has several branches. The tissue that helps in the sideways conduction of water in the branches is					
	a) collenchyma	b) xylem parenchyma	c) parenchyma	d) xylem vessels		
78.	8. A nail is inserted in the trunk of a tree at a height of 1 metre from the ground level. After 3 years th nail will					
	a) move downward	ds b) move upwards	c) remain at the same position	on d) move sideways		

79. Flexibility in plants is due to a) collenchyma b) sclerenchyma c) parenchyma d) chlorenchyma 80. Oesophagus and the lining of the mouth are also covered with which tissues? a) Squamous epithelium b) Ciliated epithelium c) Areolar connective d) Striated muscle tissues MENTAL ABILITY TEST 81. Find the missing numbers 0, 9, 26, 65, 124, ? c) 216 a) 215 b) 214 d) 217 82. Find the wrong terms in the series 2, 6, 12, 24, 30, 42 b) 12 a) 6 c) 24 d) 30 83. Find the missing term in the given figures? 1 3 2 4 5 6 ? 15 27 a) 19 b) 20 d) 22 c) 21 84. If RAIN is coded as 37-3-19-29 the WATER will be coded as? a) 47-3-41-11-37 b) 23-1-20-5-18 c) 47-3-41-10-36 d) 41-39-37-11-3 85. If PIN =39, ABC=6 then NTSE will be equal to? a) 48 b) 58 c) 38 d) 225 86. If 30-20 = 40 and 20 - 15 = 20, then 50-30=?a) 60 b) 70 c) 80 d) 90 87. Vijay went to the movies nine days ago. She goes to the movies only on Thursday. What day of the week is today? a) Sunday b) Tuesday c) Friday d) Saturday 88. In a family of six persons, A is the grandfather of F. D and E are children of B and C. C and D are females. How is B related to C? a) Father b) Mother c) Husband d) Wife 89. A clock is so placed that at 12 noon, its minute hand points towards north-east. In which direction does its hour hand point at 1:30 p.m.? a) South East b) East c) North d) South

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- 90. A lady runs 14 km towards north, then 6 km towards south and then 6 km east, how far is she from her starting point and in which direction?
 - a) 8 km N b) 10 km N-E c) 10 km E d) 10 km S-W
- 91. A couple has five married sons and each one of them have four children. How many members are there in the family?
 - a) 11 b) 32 c) 31 d) 26
- 92. If red is called 'air', air is called 'black', black is called 'sky', sky is called 'blue', blue is called 'wind' and wind is called 'white', where do birds fly '?
 - a) Sky b) wind c) blue d) white
- **Direction (93-94):** From the five logical diagrams given below, select the one which best illustrates the relationship among the three given classes in the following questions.



- 93. Smart, Engineers, Women.
- 94. Doctors, Architect, Humans.
- **Directions:** (Q. 95 to 96): Select the alternative which correctly depicts how a paper will appear, when it is folded along the dotted line?

95.

96.



a) 4

a) 4

- 97. If A stand for '-', B stands for 'x ', C stands for '+' and D stand for '/' then what is the value of 21 D 3A 1B 8C 5?
 - a) 4 b) 2 c) 53 d) 32

98. Find the number of triangles in the figure below:



"In order to succeed, your desire for SUCCESS should be greater than your fear of failure".

ROUGH WORK



ROUGH WORK





ABOUT SPARK PROGRAMME

Three decades ago it was all right to start the preparation for IIT–JEE NEET just after class XI, and in late nineties students started preparing for IIT right from the beginning of class XI. But now the awareness among students and parents about IITs, NEET has risen steeply resulting in a keen competition. In addition, IITs have restricted the number of attempts for JEE Advanced to just two – the first one after the XII Standard Board Exams and the second one the immediately following year. Students must try to succeed in IIT–JEE Advanced in the first attempt itself to avoid unnecessary pressure that results from uncertainty and anxiety that the students are bound to face in the final attempt. Keeping in view the current scenario, it is wise, we thought, to start IIT–JEE preparation much earlier.