



# NARAYANA

## IIT-JEE / NEET / FOUNDATIONS

### NSAT-2021

Class X Moving to Class XI (PCB)

MAT, PHYSICS, CHEMISTRY & BIOLOGY

NARAYANA SCHOLASTIC APTITUDE TEST (NSAT)

Time: 1:00 Hr.

Date : 28-11-21

Maximum marks: 140

### NSAT – SET-1

#### IMPORTANT INSTRUCTIONS:

1. The test Booklet consists of 35 questions. The maximum marks are 140.
2. There are four parts in the question paper of MAT, Physics, Chemistry & Biology having 35 questions. Each question is allotted 4 (four) marks for each correct response.
3. No Negative Marking.
4. Mark only one correct answer out of four alternatives.
5. Use Blue/Black Ball Point Pen only for writing particulars/markings.
6. Use of Calculator is not allowed.
7. Dark the circle in the space provided only.
8. Use of white fluid or any other material which damage the answer sheet, is not permissible on the Answer Sheet.

#### TO BE FILLED IN CAPITAL LETTERS

NAME OF THE STUDENT : \_\_\_\_\_

FATHER'S NAME : \_\_\_\_\_

CONTACT NUMBERS: \_\_\_\_\_ SCHOOL NAME : \_\_\_\_\_

ROLL NO. : \_\_\_\_\_ TEST CENTRE : \_\_\_\_\_

I have read all the instructions and shall abide by them

.....

Signature of the Candidate

I have verified all the information filled in by the Candidate

.....

Signature of the Invigilator



## EDUCATION IS INTEGRAL FOR GROWTH AND DEVELOPMENT

**E**ducation is integral for the growth and development of an individual. The expectation from an educational institute is always about making the society better for all and to bring out one's true Potential in the service of mankind.

At Narayana, we believe that a student's education is complete only when we are able to contribute towards his/her overall development besides imparting knowledge based and career oriented training.

With an aim to provide top of the league training to students to excel in every sphere of their lives, Narayana Group has been focusing on result oriented inputs.

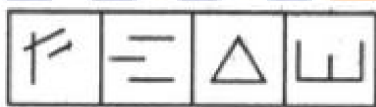
Narayana's courses have been designed to cater to all the needs of the aspirants to help them excel in various competitive as well as Board examinations. Innovative strategies and techniques adopted in our centres keep our students abreast of the ever-changing pattern of top level Engineering/Medical Entrance Exams. As a result, Narayana's time-tested learning formulae are percolating to far-flung corners of India to benefit students from all backgrounds.

"Footprints on the sands of time are not made by sitting down". Today we rededicate the last 4 decades of our success to your dreams. I wish all our students a very successful academic year ahead.

**Dr. P. NARAYANA**  
Founder, Narayana Group

# MAT

1. Find out the alternative having similar relation as in the first group:-  
Ornithologist: Bird :: Archaeologist: ?  
(A) Islands (B) Mediators (C) Archaeology (D) Aquatic
2. Find out the alternative having similar relation as in the first group:-  
BEGK : ADFJ :: PSVY : ?  
(A) ROUX (B) ORUX (C) LOUT (D) LOOT
3. Choose the word which is different from the rest.  
(A) Calendar (B) Year (C) Date (D) Month
4. Choose the correct alternative that will continue the same pattern and replace the question mark in the given series.  
125,80,45,20,?  
(A) 5 (B) 8 (C) 10 (D) 12
5. Choose the figure which is different from the rest.

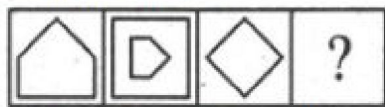


(1) (2) (3) (4)

(A) 1 (B) 2 (C) 3 (D) 4

6. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:



(P) (Q) (R) (S)

(A) 1 (B) 2

Answer Figures:

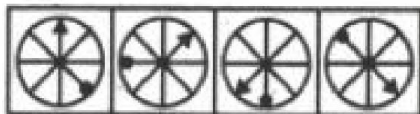


(1) (2) (3) (4)

(C) 3 (D) 4

*Space for rough work*

7. Choose the figure which is different from the rest.



(1) (2) (3) (4)

(A) 1

(B) 2

(C) 3

(D) 4

## BIOLOGY

8. Which of the following statements is not true about compensation point?

- (A) At compensation point, net exchange of gases is zero
- (B) At compensation point, rate of respiration is equal to rate of photosynthesis
- (C) Compensation point can be observed during morning as well as evening time
- (D) Compensation point occurs when rate of transpiration is high

9. Which of the following statements is not true for digestion of food in human beings?

- (A) Digestion of fats is facilitated by components present in digestive juice secreted by largest gland of the body
- (B) Acidic chyme is made alkaline by hepatopancreatic secretions which are poured into the duodenum
- (C) Pancreatic juice secreted from endocrine part of pancreas is a complete digestive juice as it contains enzymes for digestion of all principal dietary components
- (D) Digestion of carbohydrates, proteins and lipids starts in oral cavity, stomach and intestine respectively and completes in small intestine

*Space for rough work*

10. In the following questions, a statement of assertion (A) is followed by a statement of reason (R).

(A) If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (A).

(B) If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (B).

(C) If Assertion is true statement but Reason is false, then mark (C).

(D) If both Assertion and Reason are false statements, then mark (D).

A :  $\text{CO}_2$ , ethyl alcohol and lactic acid are the products of anaerobic respiration.

R : Anaerobic respiration cannot continue for long in higher organism.

11. Match the following :

**Column-I**

a. Amphibians

b. Pyruvate

c. Fish

d. Diastolic pressure

e. Systolic pressure

(A) a(ii), b(iii), c(v), d(i), e(iv)

(C) a(iii), b(ii), c(v), d(i), e(iv)

**Column-II**

(i) 80 mm of Hg

(ii) 3-chambered heart

(iii) 3-carbon molecule

(iv) 120 mm of Hg

(v) 2-chambered heart

(B) a(ii), b(iii), c(iv), d(i), e(v)

(D) a(i), b(iii), c(v), d(ii), e(iv)

12. Diploid cells have

(A) Two chromosomes

(B) One set of chromosomes

(C) Two pairs of homologous chromosomes

(D) Two sets of chromosomes

*Space for rough work*

13. To maintain the life of an individual organism, which of the following mentioned life processes is not necessary?

(A) Nutrition (B) Respiration  
(C) Excretion (D) Reproduction

14. Match the following :

Column-1

Column-II

a. *Paramecium*

(i) Root

b. *Plasmodium*

(ii) Shoot

c. Plumule

(iii) Multiple fission

d. Radicle

(iv) Binary fission

(A) a(iv), b(iii), c(ii), d(i)

(B) a(iii), b(iv), c(i), d(ii)

(C) a(iv), b(iii), c(i), d(ii)

(D) a(iii), b(iv), c(ii), d(i)

15. Match the following :

Column-1

Column-II

a. Gonorrhoea, syphilis, AIDS

(i) IUD

b. Copper-T

(ii) Saheli

c. Non-steroidal pill

(iii) MTP

d. Female foeticides

(iv) STDs

(A) a(iii), b(i), c(iv), d(ii)

(B) a(iv), b(i), c(ii), d(iii)

(C) a(iv), b(iii), c(ii), d(i)

(D) a(iv), b(i), c(iii), d(ii)

*Space for rough work*

16. A man with blood group 'A' marries a woman with blood group 'AB'. Which of the following types of blood group will not be found in their offsprings?
- (A) AB                      (B) A                      (C) B                      (D) O
17. In an experiment, Mendel bred a homozygous tall pea plant with a heterozygous tall pea plant. The plants produced in F1 generation will be
- (A) 50% heterozygous tall                      (B) 75% homozygous tall  
(C) 25% heterozygous tall                      (D) 75% heterozygous tall

## PHYSICS

18. Which of the following charge is not possible
- (A)  $-1.6 \times 10^{-19} \text{C}$       (B)  $1.6 \times 10^{-19} \text{C}$       (C)  $1.6 \times 10^{-20} \text{C}$       (D) None of these
19. A soap bubble is given negative charge. Its radius will
- (A) Increase                      (B) Decrease  
(C) Remain unchanged                      (D) Fluctuate
20. Number of electrons in one micro coulomb of charge will be
- (A)  $5.46 \times 10^{29}$       (B)  $6.25 \times 10^{12}$       (C)  $1.6 \times 10^{19}$       (D)  $9 \times 10^{11}$
21. If a body is positively charged, then it has
- (A) excess of electron                      (B) excess of protons  
(C) deficiency of electron                      (D) deficiency of protons

*Space for rough work*

22. Name the kind of the mirror used to obtain a virtual and diminished image
- (A) Concave (B) Convex  
(C) Plane (D) Both (B) and (C)
23. Two plane mirrors are inclined at an angle of  $60^\circ$  with each other (one is horizontal). A ray of light travelling horizontally is reflected first from one mirror and then from the other. The resultant deviation is
- (A)  $60^\circ$  (B)  $120^\circ$  (C)  $180^\circ$  (D)  $240^\circ$
24. An object is placed 40cm from a concave mirror of focal length 20cm. The image formed is
- (A) Real, inverted and same in size (B) Real, inverted and smaller  
(C) Virtual, erect and larger (D) Virtual, erect and smaller
25. To get three images of a single object, one should have two plane mirrors at an angle of
- (A)  $30^\circ$  (B)  $60^\circ$  (C)  $90^\circ$  (D)  $150^\circ$
26. Refractive index of a substance for which critical angle in air is  $45^\circ$  is
- (A)  $\sqrt{2}$  (B)  $\sqrt{3}$  (C) 1 (D)  $2\sqrt{2}$

*Space for rough work*

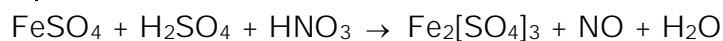


**CHEMISTRY**

27. In the decomposition of lead (II) nitrate to give lead (II) oxide, nitrogen dioxide and oxygen gas, the coefficient of nitrogen dioxide (in the balanced equation) is
- (A) 1                      (B) 2                      (C) 3                      (D) 4
28. Fatty foods become rancid due to the process of
- (A) oxidation              (B) corrosion              (C) reduction              (D) hydrogenation
29. Identify the wrong sequence of the elements in a group as per reactivity series
- (A)  $\text{Ca} > \text{Br} > \text{Ba}$     (B)  $\text{Cu} > \text{Ag} > \text{Au}$     (C)  $\text{Na} > \text{Mg} > \text{Fe}$     (D)  $\text{Zn} > \text{Cu} > \text{Pt}$
30. Which of the following equations is not balanced?
- (A)  $\text{NH}_4\text{Cl} \rightarrow \text{NH}_3 + \text{HCl}$                       (B)  $\text{N}_2 + 3\text{H}_2 \rightarrow 4\text{NH}_3$
- (C)  $3\text{Fe} + 4\text{N}_2\text{O} \rightarrow 4\text{N}_2 + \text{Fe}_3\text{O}_4$                       (D)  $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$

*Space for rough work*

31. Write the balance chemical equation.



- (A) 6,3,2,3,2,4      (B) 2,2,3,2,4,6      (C) 5,2,2,4,2,1      (D) 1,1,2,2,3,3

32. An alloy of Zn and Cu is dissolved in dil. HCl. Hydrogen gas is evolved. In this evolution of gas

- (A) only zinc reacts with dil. HCl
- (B) only copper reacts with dil. HCl
- (C) both zinc and copper react with dil. HCl
- (D) only copper reacts with water

33. A greenish coating develops on copper utensils due to formation of

- (A)  $\text{CuCO}_3$  (B)  $\text{Cu}(\text{OH})_2$   
(C)  $\text{Cu}(\text{OH})_2 \cdot \text{CuCO}_3$  (D)  $\text{CuO}$

*Space for rough work*

34. In the reaction,  $\text{Cl}_2 + \text{OH}^- \rightarrow \text{Cl}^- + \text{ClO}_3^- + \text{H}_2\text{O}$ , chlorine is :
- (A) Oxidised (B) Reduced  
(C) Oxidised as well as reduced (D) Neither oxidised nor reduced
35. There are 3 containers X, Y and Z. X contains 10ml of water and Z contains 10ml of milk. Y contains 5ml of milk (same as in container Z) mixed with 5 ml of water. All 3 containers have pH value of 6.5. P amount of Acetic acid is added to container X, Q amount to Y and R amount to Z. Such that the final pH value in each container is 5.5. Then which of the following is true
- (A)  $P < Q < R$  (B)  $P < R = Q$  (C)  $P = Q = R$  (D)  $P < R < Q$

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*Space for rough work*

## COURSES OFFERED FOR STUDENTS STUDYING IN:

Class 7 <sup>th</sup>	Class 8 <sup>th</sup>	Class 9 <sup>th</sup>	Class 10 <sup>th</sup>	Class 11 <sup>th</sup>	Class 12 <sup>th</sup>
7 <sup>th</sup> Moving to 8 <sup>th</sup>	8 <sup>th</sup> Moving to 9 <sup>th</sup>	9 <sup>th</sup> Moving to 10 <sup>th</sup>	10 <sup>th</sup> Moving to 11 <sup>th</sup>	11 <sup>th</sup> Moving to 12 <sup>th</sup>	Studying Students
1,3 & 5 Year Integrated Courses	1,2 & 4 Year Integrated Courses	1 & 3 Year Integrated Courses	2 Year Integrated Courses	1 Year Integrated Courses	1 Year Repeater Courses
School / Board Exams, NTSE, Olympiads, NEET / JEE (MAIN & ADVANCED FOUNDATION)			NEET / JEE (MAIN & ADVANCED)		

## SENSATIONAL SUCCESS in JEE ADVANCED-2021

ALL INDIA OPEN CATEGORY



## JEE MAIN 2021

ALL INDIA OPEN CATEGORY TOP 10 RANKS



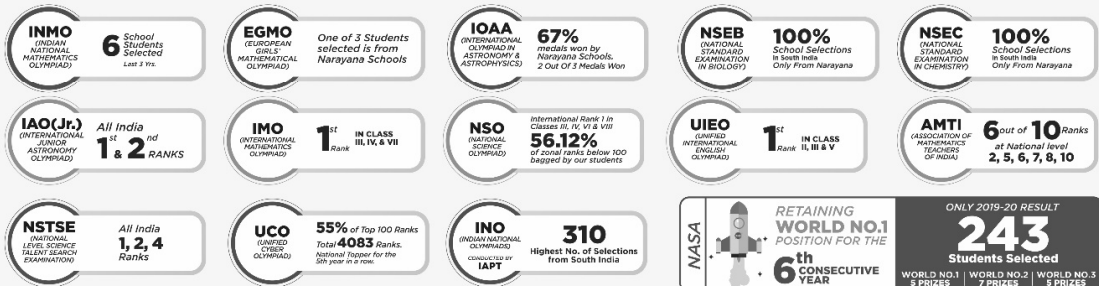
BELOW 100	25 RANKS	<b>NARAYANA STUDENTS WHO SECURED HIGHEST PERCENTILE IN MATHS, PHYSICS &amp; CHEMISTRY</b>	Percentile & Above	In Maths	In Physics	In Chemistry	<b>ALL CATEGORIES ALL INDIA RANKS BELOW 100</b> <b>109</b>
			100	70	48	21	
			99	719	532	610	
			98	1325	864	1030	<b>ALL CATEGORIES ALL INDIA RANKS BELOW 1000</b> <b>564</b>
			97	1848	1201	1392	
			96	2420	1490	1742	
			95	2969	1785	2095	
			94	3502	2076	2447	
			93	4035	2401	2807	
			92	4639	2746	3162	
			91	5223	3022	3539	
			90	5806	3364	3967	
			89	6389	3699	4307	
		88	6972	4034	4647		
		87	7555	4369	4987		
BELOW 1000	126 RANKS						
TOTAL QUALIFIED FOR JEE-ADV.	15146					<b>NARAYANA STUDENTS QUALIFIED FOR JEE-ADVANCED</b> <b>15146</b>	

## NEET- 2020



\*All Cut Below 10 **8** Ranks Below 100 **32** Ranks Below 200 **43** Ranks Below 300 **59** Ranks

**SOLID FOUNDATION GIVEN BY NARAYANA MAKES STUDENTS WORLD CHAMPIONS IN MATHS, PHYSICS, CHEMISTRY, BIOLOGY, ASTRONOMY, ENGLISH & CYBER OLYMPIADS**



**NARAYANA**  
**IIT-JEE / NEET / FOUNDATIONS**  
 (A Unit of NSPIRA Management Services Pvt. Ltd.)