NATA Aptitude Section - Mock Test 2

Student Name :	
Center Name :	
Total Marks: 80	**Total Time: 50 mins**

#	Question and Answer Options

1. Reema opens the door of her shop every morning, enters her shop and looks right to see the sun rising through the window. For lunch, she leaves her shop to the assistant and goes to her favorite restaurant. After exiting her shop, she makes 7 right turns, 5 U-turns and 2 left turns to enter the door of her favorite restaurant. Which direction does the restaurant door face?

a) North	b) South	c) East	d) West

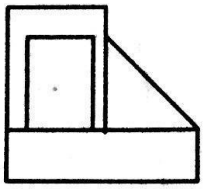
2. On a tree there are green, red and brown leaves. Half of the leaves are completely green and 300 leaves are completely brown. Red leaves also have at least one other colour. 10% of the leaves have all 3 colours. The number of leaves that have 2 colours is double that of those which have 3 colors. The number of leaves that are red and brown is 1/3rd that of the leaves which are of 1 colour but not green. 200 leaves are red and green.
What is the total number of leaves on the tree?

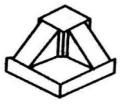
a) 1500	b) 1600	c) 1700	d) 1800

3. A, B and C are 3 finite sets such that n(A) = 500,
n(B) = 420 n(A **U** B) = 800 n(A **U** C) = 600 n(B **U** C) = 500
n(A ∩ C) = 550
n(C) = 80
What is n(A ∩ B ∩ C)?

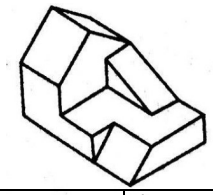
a) 40	b) 30	c) 20	d) 0

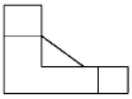
4. Identify the correct 3D figure from amongst the answer figures, which has the same elevation as given in the problem figure.



a) 	b) 	c) 	d) 

5. 3D problem figure shows the view of an object. Identify the correct top view from amongst the answer figures.



a) 	b) 	c) 	d) 

6. A shopkeeper gets a profit of 35% on his cost price. If his average monthly sale is Rs. 27000, what is his annual profit?

a) 84000	b) 113400	c) 76000	d) 94000

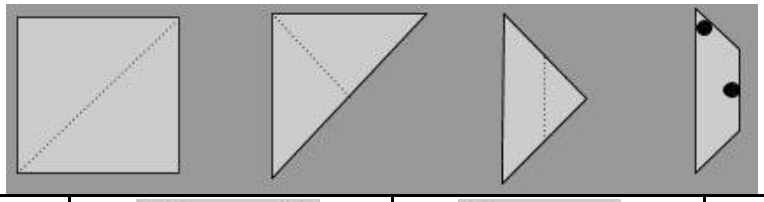
7. 9 squares of side 1cm each and 4 squares of side 2cm each are arranged to make 1 big square. Which of the following options is closest to the length of the diagonal of the big square?

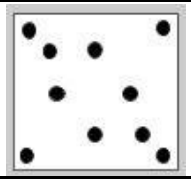
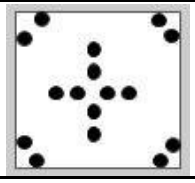
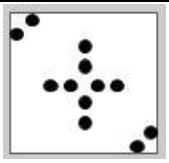
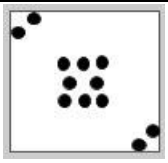
a) 6.25	b) 4.90	c) 7.07	d) 6.96

8. A cone of radius 5cm and height 10 cm is cut out from a solid cube of side 10 cm. What is the volume of the remaining cube in cu.cm.?

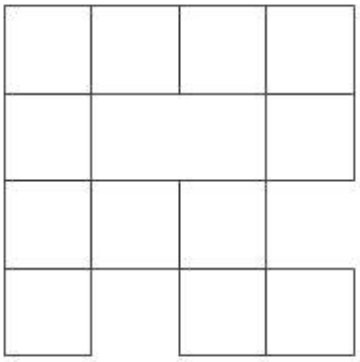
a) 945.22	b) 738.16	c) 514.5	d) 614.5

9. A square piece of paper is folded along the dotted lines as shown and then the black portion is cut as shown. Choose the option that shows the correct cut when the paper is unfolded



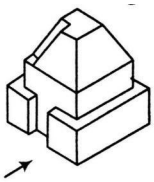
a) 	b) 	c) 	d) 

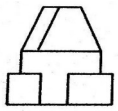
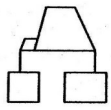
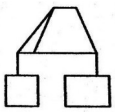
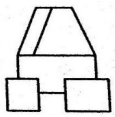
10. Count the number of squares in the figure given below.



a) 12	b) 13	c) 144	d) 15

11. 3D problem figure shows the view of an object. Identify the correct elevation from amongst the answer figures looking in the direction of the arrow.



a) 	b) 	c) 	d) 

12. A molecule is electrically _____?

a) Positive	b) Negative	c) Both A & B	d) Neutral

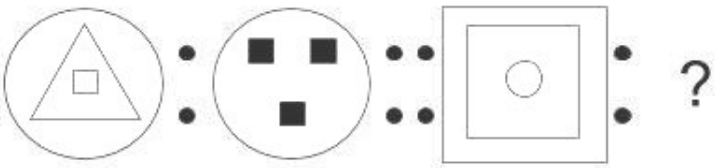
13. The maximum number of steps in a flight should generally be restricted to _____.

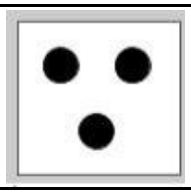
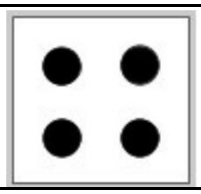
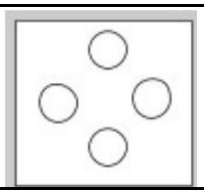
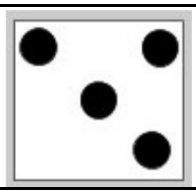
a) 10	b) 12	c) 14	d) 15

14. Which is the year of completion of Lotus Temple?

a) 1980	b) 1985	c) 1986	d) 1984

15. Find the correct option who relation to the 3rd image is the same as the relation of the second image to the first image.



a) 	b) 	c) 	d) 

16. Which one of the following metal is generally used in exterior cladding of high rise building?

a) Cast iron	b) Steel	c) Aluminium	d) Zinc

17. Which is the smallest state in India in terms of area?

a) Sikkim	b) Tripura	c) Goa	d) Meghalaya

18. Cement concrete is a mixture of _____.

a) water, cement, sand and aggregate (gravel)	b) water, cement and aggregate (gravel)
c) water, cement and sand	d) cement, sand and aggregate (gravel)

19. A platform projecting out from the building enclosed with railing or bullstrade is called_____.

a) balcony	b) chajja	c) porch	d) base

20. What is B.B.C?

a) Bat brick coba	b) Burnt Brick Coba
c) Brick Bat Coba	d) None of the above

21. 6 identical machines complete a task in 18 hours. If 4 new machines are added and the efficiency of each machine is doubled, how much time is required to complete 5 such tasks

a) 24 hours	b) 27 hours	c) 35 hours	d) 45 hours

22. Find the odd one out from the options given below.

a) 02-2008	b) 02-2010	c) 02-2012	d) 02-2016

23. Ajay put his clock face up on the floor in such a way that at 4pm, the minute hand points to South. In which direction will the hour hand Point at 9am. ?

a) North	b) South	c) East	d) West

24. There is a question below and two statements numbered 1 and 2 given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

(A) If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question

(B) If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question

(C) If the data either in statement I alone or in statement II alone are sufficient to answer the question

(D) If the data given in both statements I and II together are not sufficient to answer the question

Question: What is the total annual profit of the company ?

Statements:

1. The average monthly expense of the company is Rs. 12000 and the average monthly revenue is Rs. 36000

2. The company earned a profit of 23.5 % on total revenue.

a) A	b) B	c) C	d) D

25. Read the conclusion and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

Statements: All mobile phones are smart. Some washing machines are also smart. All vacuum cleaners are washing machines.

Conclusions:

1. Smart vacuum cleaners are mobile phones.
2. Some smart are vacuum cleaners.

a) Only 1 Follows	b) Only 2 follows
c) Both 1 and 2 follow	d) Neither 1 nor 2 follows

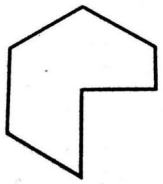
26. A paper is cut into the shape of a regular hexagon of side 1cm. The paper is folded and exactly 1/3rd of the folded paper is cut off. What is the area of the remaining paper when it is unfolded in sq.cm?

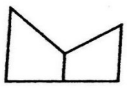
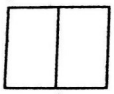
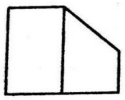
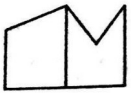
a) 2.43	b) 2.15	c) 1.72	d) 1.65

27. A tank is completely filled with water. If a solid iron cube of side 10cm and a solid iron ball of radius 10cm are immersed in the tank, how many litres of water will overflow?

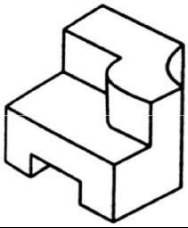
a) 5.19	b) 4.19	c) 4.66	d) 6.35

28. The problem figure shows the top view of the object. Identify the elevation from amongst the answer figures.



a) 	b) 	c) 	d) 

29. Find out the total number of surfaces of the object given below in the problem figure.

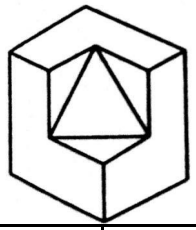


a) 13	b) 14	c) 15	d) 12

30. Rashi puts 1 coin in her piggy bank on every odd date. If she starts on the 1st of January 2016, how many coins will she have in her piggy bank at the end of the year.?

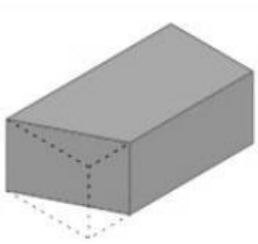
a) 185	b) 186	c) 187	d) 188

31. Find out the total number of surfaces of the object given below in the problem figure



a) 10	b) 12	c) 14	d) 8

32. Identify the following brick type?



a) Bevelled Closer	b) King Closer	c) Mitred Closer	d) Bevelled Bat

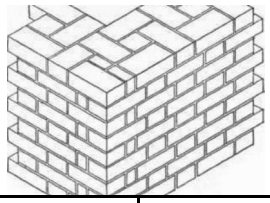
33. Find the coordinate of the point which will divide the line joining the point (1,1) and (7,9) into 2 equal parts?

a) (4,5)	b) (4,6)	c) (5,4)	d) (5,7)

34. Analogous colors _____.

a) may help to create a colour harmony	b) are hue without a common parent
c) are next to each other on the colour wheel	d) both A and C

35. Identify the following brick bond?



a) English bond	b) Stretcher bond	c) Header bond	d) Flemish bond

NATA Drawing Section

Q.1.	Imagine you are a helium gas balloon, which has just slipped away from the hands of a 10 year old child. The child and one of its parent is in a garden filled with other children and parents. The child's parent is trying hard to grab at the string attached to the balloon (i.e. you) by jumping and with a stick. At this moment, you are floating at the height of 10 feet from the ground. You can see the child, parent, other children, parents and other things you can see in a garden. Draw a pencil sketch. Do not color.	Marks: **55**	Time: 65 mins
Q.2.	Develop an interesting sculpture using the 3D forms of the elements used in Film Production e.g. Clip, Director Chair, Camera, Crane, Lights etc. You can scale each object to any size. You can use objects multiple times. There should be at least 3 different objects in your sculpture. Show the effect of light, shade and shadow in your presentation. Draw a pencil sketch. Do not color. Draw in a box of 5 inches x 5 inches.	Marks: 35	Time: 35 mins
Q.3.	Use the simple shapes of any 3 fruits and create an interesting composition. All 3 shapes must be used at least once in your design. Color your design appropriately in dry medium. Present your design in a box of 4 inches x 4 inches.	Marks: 35	Time: 35 mins

1. The solution of the differential equation $xy^2dy - (x^3 + y^3)\,dx = 0$ is

a)	$y^3 = 3x^3 + C$	b)	$y^3 = 3x^3\log(cx)$	c)	$y^3 = 3x^3 + \log(c\,x)$	d)	$y^3 = 3x^3 + (cx)$

2. The number of solutions of the system of equations $2x + y - z = 7$, $x - 3y + 2z = 1$, $x + 4y - 3z = 5$, is

a)	0	b)	1	c)	2	d)	3

3. If A = 35°, B = 15° and C = 40°, then tan A . tan B + tan B . tan C + tan C . tan A is equal to

a)	0	b)	1	c)	2	d)	3

4. The value of x, where $x > 0$ and $\left(sec^{-1}\left(\frac{1}{x}\right)\right) = \sin(\tan^{-1}2)$ is

a)	$\sqrt{5}$	b)	$\frac{\sqrt{5}}{3}$	c)	1	d)	$\frac{2}{3}$

5. In a triangle, if $r_1 = 2r_2 = 3r_3$, then $\frac{a}{b} + \frac{b}{c} + \frac{c}{a}$ is equal to

a)	$\frac{75}{60}$	b)	$\frac{155}{60}$	c)	$\frac{176}{60}$	d)	$\frac{191}{60}$

6. Which of the following subshell is NOT possible?

a)	6s	b)	5p	c)	3f	d)	4d

7. The numbers of elements in fifth period of the modern periodic table are _____.

a)	8	b)	32	c)	18	d)	16

8. Actinoids belongs to _____ type of elements.

a)	s – block	b)	d – block	c)	f – block	d)	p – block

9. If a neutral atoms is converted into a cation, then its

a)	atomic mass increases	b)	size increases
c)	atomic mass decreases	d)	size decreases

10. If the electron pair forming a bond between two atoms A and B is NOT in the centre, then the bond is

a)	Single bond	b)	Polar bond
c)	Non-polar bond	d)	π bond

11. A capacitor of capacitance 20μF is charged to 10 V. What will be the increase in its potential energy if the potential difference is increased from 10 V to 20 V ?

a)	$3\times10^{-4}\,\text{J}$	b)	$3\times10^{-3}\,\text{J}$	c)	$15\times10^{-3}\,\text{J}$	d)	$25\times10^{-4}\,\text{J}$

12. Which one of the following is known as an electrical energy tank ?

a)	resistor	b)	inductor	c)	capacitor	d)	transistor

13. If the distance between the plates of parallel plate capacitor is halved and the dielectric constant is doubled, then its capacity will ?

a)	increase by 2 times	b)	remain the same
c)	increase by 4 times	d)	increase by 16 times

14. A 220 volt, 1000 watt bulb is connected across a 100 volt mains supply. What is the power consumed in the circuit ?

a)	1000 watt	b)	250 watt	c)	750 watt	d)	500 watt

15. What is time taken by a 836 W heater to heat one litre of water from 10°C to 40°C ?

a)	100 s	b)	150 s	c)	200 s	d)	50 s