NATA 2018
Original Paper
Solved From

National Aptitude Test in Architecture (NATA) 2018

Q.1 An angle which is greater than $180°$ but less than $360°$ is known as

Ans
- ✗ 1 a right angle
- ✓ 2 a reflex angle
- ✗ 3 an alternate angle
- ✗ 4 an adjacent angle

Q.2 The equation of the plane passing through the point (1, -1, 2) and parallel to the plane $3x + 4y - 5z = 0$ is

Ans
- ✗ 1 $3x + 4y - 5z - 11 = 0$
- ✓ 2 $3x + 4y - 5z + 11 = 0$
- ✗ 3 $3x + 4y - 5z + 1 = 0$
- ✗ 4 $3x + 4y - 5z - 1 = 0$

Q.3 In a circle of radius 17cm, two parallel chords are drawn on opposite side of a diameter. The distance between the chords is 23cm. If the length of one chord is 16cm, then the length of the other chord is

Ans
- ✗ 1 23cm
- ✗ 2 15cm
- ✗ 3 34cm
- ✓ 4 30cm

Q.4 Three vertices of $\triangle ABC$ are A(1, 4), B(-2, 2) and C(3, 2). Then the area of $\triangle ABC$ is

Ans
- ✗ 1 7 sq. units
- ✗ 2 15 sq. units
- ✗ 3 6 sq. units
- ✓ 4 5 sq. units

Q.5 The equation of the normal to the circle $x^2 + y^2 = 2x$ which is parallel to the straight line $x + 2y = 3$ is given by

Ans
- ✗ 1 $x - 2y + 1 = 0$
- ✗ 2 $2x - y + 1 = 0$
- ✓ 3 $x + 2y - 1 = 0$
- ✗ 4 $x + 2y + 1 = 0$

Q.6 The tangents of two points A and B on the circle with centre O intersect at a point P. If, in quadrilateral PAOB, $\angle AOB : \angle APB = 5 : 1$, then the measure of $\angle APB$ is given by

Ans
- ✗ 1 $45°$
- ✓ 2 $30°$
- ✗ 3 $15°$
- ✗ 4 $60°$

Q.7 If $\tan A = 1$ and $\tan B = \sqrt{3}$, then $\cos(A+B)$ is equal to

Ans

✓ 1. $\dfrac{1-\sqrt{3}}{2\sqrt{2}}$

✗ 2. $\dfrac{1+\sqrt{3}}{2\sqrt{2}}$

✗ 3. $\dfrac{\sqrt{3}}{2\sqrt{2}}$

✗ 4. 1

Q.8 $\lim\limits_{x \to \infty} \left(\sqrt{x + \sqrt{x + \sqrt{x}}} - \sqrt{x} \right)$ is equal to

Ans

✗ 1. $\log_e(2)$

✗ 2. 0

✗ 3. 2

✓ 4. 0.5

Q.9 The number of common tangents that can be drawn to two given circles is at the most

Ans

✗ 1. one

✓ 2. two

✗ 3. three

✗ 4. four

Q.10 The distance between two parallel lines $5x - 12y + 2 = 0$ and $5x - 12y - 3 = 0$ is given by

Ans

✗ 1. 1/13

✓ 2. 5/13

✗ 3. 5/14

✗ 4. 1/17

Q.11 If a, b, c are in A.P., as well as in G.P., then

Ans

✓ 1. $a = b = c$

✗ 2. $a = b \ne c$

✗ 3. $a \ne b = c$

✗ 4. $a \ne b \ne c$

Q.12 A straight highway leads to the foot of a 50m tall tower. From the top of the tower the angle of depression of the two cars on the highway are $30°$ and $60°$. Then the distance between the two cars is

Ans

✗ 1. $\sqrt{3}/10 \, m$

✗ 2. $100/\sqrt{3} \, m$

✓ 3. $100\sqrt{3} \, m$

✗ 4. $10\sqrt{3} \, m$

2.13 If $\tan(A - B) = \dfrac{1}{\sqrt{3}}$ and $\tan(A + B) = \sqrt{3}$, then the values of A and B are

respectively

Ans ✗ 1. $30°,30°$

✗ 2. $30°,60°$

✗ 3. $40°,20°$

✔ 4. $45°,15°$

Q.14 The sum of the 24 terms of the series $\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} + \ldots$ is

Ans ✔ 1. $300\sqrt{2}$

✗ 2. $500\sqrt{2}$

✗ 3. $200\sqrt{2}$

✗ 4. $100\sqrt{2}$

Q.15 AB is a straight line and O is a point on the line AB. If one draws a line OC not coinciding with OA or OB, then the $\angle AOC$ and $\angle BOC$ are

Ans ✔ 1. supplementary

✗ 2. equal

✗ 3. complementary

✗ 4. together equal to $130°$

Q.16 If $A = \begin{pmatrix} 0 & -i \\ i & 0 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$ are matrices, then $AB + BA$ is

Ans ✗ 1. a unit matrix

✗ 2. an invertible matrix

✔ 3. a null matrix

✗ 4. a diagonal matrix

Q.17 The logarithm of $\dfrac{1}{256}$ to the base $2\sqrt{2}$ is

Ans ✔ 1. $\dfrac{-16}{3}$

✗ 2. $\dfrac{8}{3}$

✗ 3. $\dfrac{-8}{3}$

✗ 4. $\dfrac{-14}{3}$

2.18 If $\log_{\sqrt{5}}(x) + \log_{\sqrt[3]{5}}(x)\log_{\sqrt[4]{5}}(x) + \ldots$ up to 7 terms $= 35$, then the value of x is

Ans   ✗ 1. 75

✗ 2. 25

✓ 3. 5

✗ 4. 125

Q.19 If $A = \begin{pmatrix} 1 & 0 & 2 \\ 5 & 1 & x \\ 1 & 1 & 1 \end{pmatrix}$ is a singular matrix, then the value of x is

Ans   ✗ 1. -11

✓ 2. 9

✗ 3. 11

✗ 4. -9

Q.20 Two girls and four boys are to be seated in a row in such a way that the girls do not sit together. In how many different ways can it be done?

Ans   ✗ 1. 240

✗ 2. 360

✓ 3. 480

✗ 4. 720

Section : General Aptitude

Q.1 Let Z denote the set of all integers. If a relation R is defined on Z as follows: $(x, y) \in R$ if and only if x is multiple of y, then R is

Ans   ✓ 1. reflexive, transitive but not symmetric

✗ 2. neither reflexive nor transitive but symmetric

✗ 3. reflexive, symmetric but not transitive

✗ 4. symmetric, transitive but not reflexive

Q.2 Find the odd figure in the problem

A   B   C   D

Ans   ✓ 1. B

✗ 2. D

✗ 3. A

✗ 4. C

Q.3 Geodesic domes are strong and rigid due to its _____ structural elements.

Ans
✗ 1. Trapezoidal
✗ 2. Pentagonal
✓ 3. Triangular
✗ 4. Square

Q.4 The substitute for River sand in building construction is

Ans
✗ 1. Brick sand
✗ 2. Pit sand
✗ 3. Sea sand
✓ 4. Manufactured sand

Q.5 Which number replaces the question mark?

| 5 | 6 | 9 | 16 | ? |

Ans
✗ 1. 29
✗ 2. 27
✓ 3. 31
✗ 4. 32

Q.6 Which of the following compound propositions are tautologies?
(i) $(P \wedge \neg P) \rightarrow \neg P$
(ii) $(\neg Q \rightarrow P) \wedge Q$
(iii) $(Q \rightarrow P) \wedge (\neg P \wedge Q)$
(iv) $P \rightarrow (P \vee Q)$

Ans
✓ 1. (i) and (iv) but not (ii) and (i)
✗ 2. (ii) and (iv) but not (i) and (iii)
✗ 3. (i) and (ii) but not (iii) and (iv)
✗ 4. (ii) and (iii) but not (i) and (iv)

Q.7 Which of these is not a structural part of a building?

Ans
✗ 1. Roof Framing structure
✗ 2. Foundation
✗ 3. Column & Beam
✓ 4. Doors and windows

Q.8 The internal angle formed by the edges of a cube in isometric projection is?

Ans
✗ 1. 90 degree
✗ 2. 60 degree
✓ 3. 120 degree
✗ 4. 45 degree

Q.9 A rectangular park 60m long and 40 m wide has two pathways of equal width running in the longitudinal and transverse direction and crossing each other at right angles in the middle of the park. The rest of the park is used as lawn. If the area of the lawn is 2109 sq.m, then what is the width of the pathway?

Ans   ✗ 1   4.5m

     ✗ 2   6m

     ✗ 3   2.5m

     ✔ 4   3m

Q.10 Answer the correct FRONT view for the given top view:

      A   B   C   D
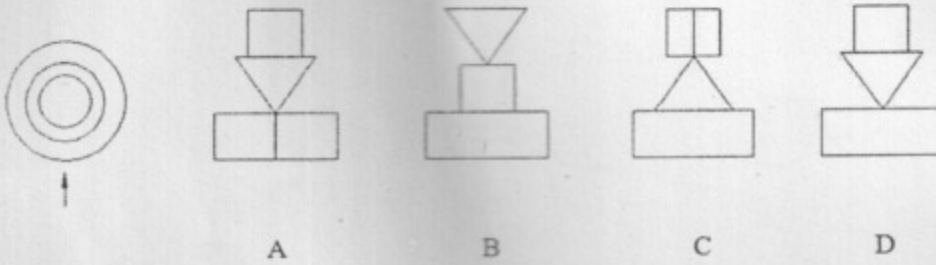
Ans   ✗ 1   B

     ✗ 2   A

     ✗ 3   C

     ✔ 4   D

Q.11 2018 Pritzker prize was awarded to which architect?

Ans   ✗ 1   Tadao Ando

     ✔ 2   B.V. Doshi

     ✗ 3   Philip Johnson

     ✗ 4   I.M.Pei

Q.12 The predominant material used in the construction of Eiffel tower is?

Ans   ✗ 1   Stainless steel

     ✔ 2   Wrought Iron

     ✗ 3   Cast Iron

     ✗ 4   Aluminium

Q.13 One of the following answer figure is hidden in the given problem figure, in the same size and direction. Select which one is correct?

      A   B   C   D
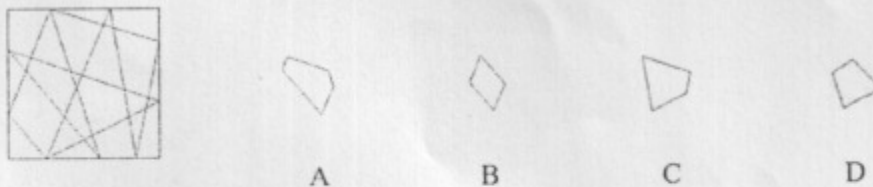
Ans   ✗ 1   B

     ✔ 2   A

     ✗ 3   C

     ✗ 4   D

Q.14 Adobe is associated with _____ construction.

Ans   ✗ 1   Masonry

     ✗ 2   Wooden

     ✗ 3   Metal

     ✔ 4   Earthern

Q.15 Paris Summit discusses which of the following issues?

Ans ✔ 1. Climate change

✗ 2. Built Heritage

✗ 3. Natural conservation

✗ 4. Migration

Q.16 Answer the correct TOP view for the given 3D object:
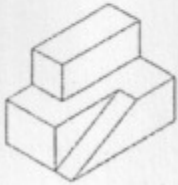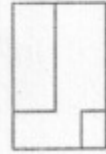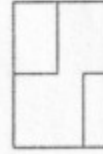
Ans ✗ 1. C

✔ 2. A

✗ 3. B

✗ 4. D

Q.17 Which picture cube does the unfolded shape make?
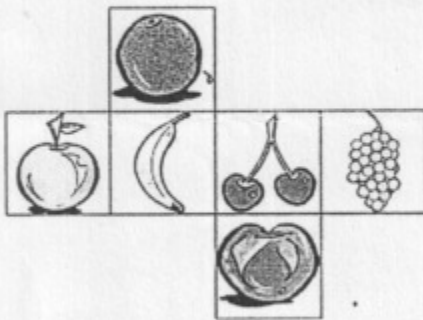
Ans ✗ 1. B

✗ 2. A

✔ 3. C

✗ 4. D

Q.18 Which Indian city ranks in UNESCO World Heritage list 2017 ?

Ans ✗ 1. Kolkata

✔ 2. Ahmedabad

✗ 3. Chandigarh

✗ 4. Kanchipuram

2.19 Which of the following best illustrates a colonnade?
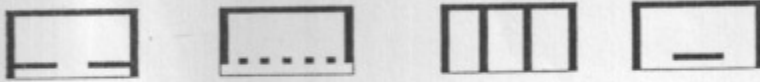
A   B   C   D

Ans ✗ 1. A
     ✗ 2. C
     ✔ 3. B
     ✗ 4. D

Q.20 Which of the following composition best fits Hierarchy?
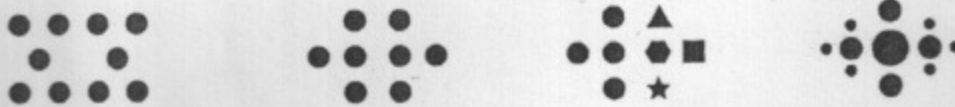
A   B   C   D

Ans ✗ 1. A
     ✔ 2. D
     ✗ 3. B
     ✗ 4. C

Q.21 Haveli's are traditional buildings found in

Ans ✗ 1. Tamil Nadu
     ✔ 2. Rajasthan
     ✗ 3. Karnataka
     ✗ 4. Andhra Pradesh

Q.22 Which of the following countries is below sea level

Ans ✗ 1. Costa Rica
     ✗ 2. Maldives
     ✔ 3. Netherlands
     ✗ 4. Spain

Q.23 Choose logical sequence which replaces the question mark.

?
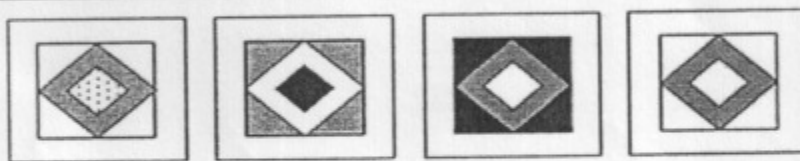
A   B   C   D

Ans ✔ 1. D
     ✗ 2. B
     ✗ 3. C
     ✗ 4. A

Q.24 Answer the correct FRONT view for the given top view:

A   B   C   D
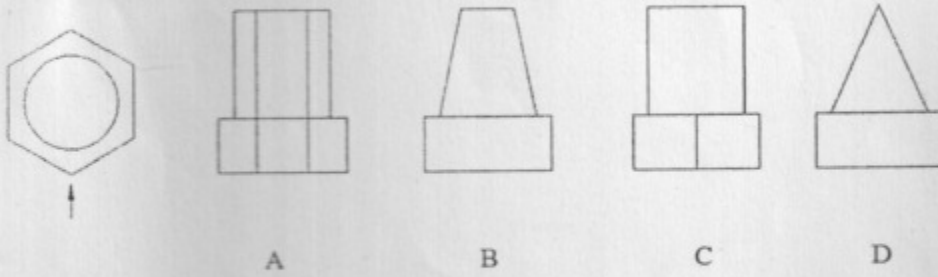
Ans ✗ 1. A
     ✗ 2. D
     ✓ 3. C
     ✗ 4. B

Q.25 Answer the correct TOP view for the given 3D object:

A   B   C   D
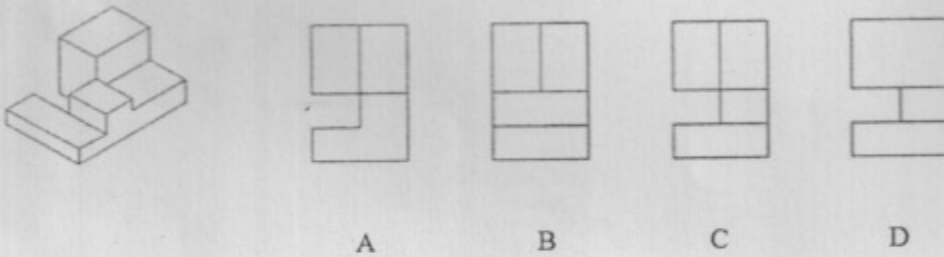
Ans ✗ 1. D
     ✗ 2. B
     ✗ 3. A
     ✓ 4. C

Q.26 When was the Earth Day 2018 celebrated?
Ans ✓ 1. 22nd April, 2018
     ✗ 2. 23nd February, 2018
     ✗ 3. 25nd March, 2018
     ✗ 4. 12th January, 2018

Q.27 Answer the correct 3D view for the given elevation:
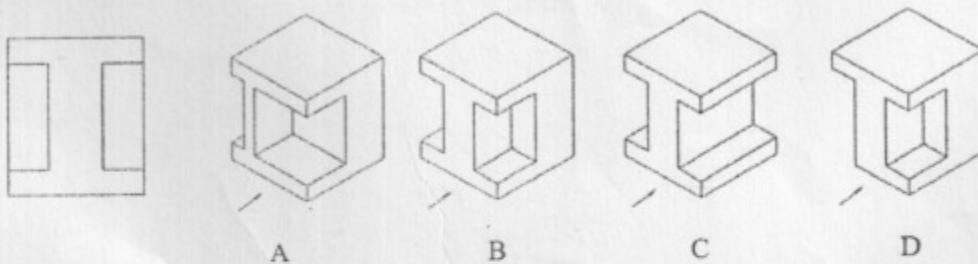
A   B   C   D

Ans ✗ 1. D
     ✓ 2. B
     ✗ 3. C
     ✗ 4. A

Q.28 Which of the following best represents wood?
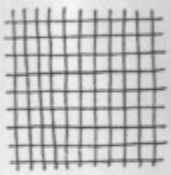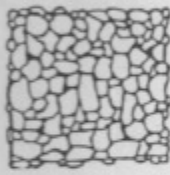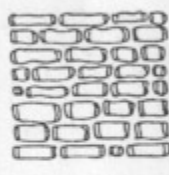
A   B   C   D

Ans ✗ 1. B

✗ 2. D

✗ 3. A

✓ 4. C

Q.29 Which letter replaces the question mark?
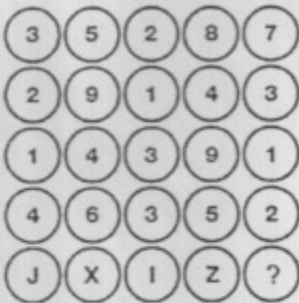
Ans ✗ 1. Y

✓ 2. M

✗ 3. K

✗ 4. N

Q.30 Ganesh is older than her cousin Malavika. Malavika's brother Bharat is older than Ganesh. When Malavika and Bharat are visiting with Ganesh, all three like to play a game of Monopoly. Malavika wins more often than Ganesh does.
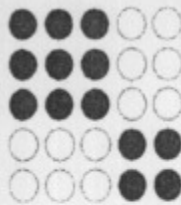
Ans ✗ 1. Of the three, Ganesh is the oldest.

✗ 2. When he plays Monopoly with Malavika and Ganesh, Bharat often loses.

✓ 3. Of the three, Malavika is the youngest.

✗ 4. Ganesh hates to lose at Monopoly.

Q.31
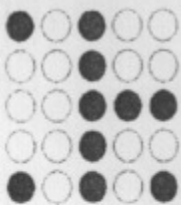
A   B   C   D
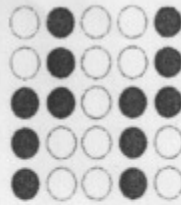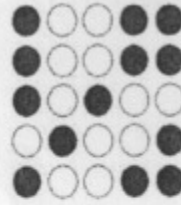
Ans 1. C

2. D

3. B

4. A

Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.

Q.32 Which plantation helps in preventing erosion and protecting the coastal shoreline ?

Ans
- ✓ 1. Mangrove
- ✗ 2. Mango
- ✗ 3. Palm
- ✗ 4. Coconut

Q.33 Franco Indian architecture is found in which Indian city?

Ans
- ✓ 1. Pondicherry
- ✗ 2. New Delhi
- ✗ 3. Ahmednagar
- ✗ 4. Kolkata

Q.34 The Indian state which is called as "Bamboo Queen" is

Ans
- ✗ 1. West Bengal
- ✗ 2. Assam
- ✗ 3. Kerala
- ✓ 4. Mizoram

Q.35 Jodhpur is referred as

Ans
- ✗ 1. White city
- ✗ 2. Golden city
- ✗ 3. Pink city
- ✓ 4. Blue city

Q.36 On weekends, Mr. Sanjay spends many hours working in his vegetable and flower gardens.   Mrs. Sanjay spends her free time reading and listening to classical music. Both Mr. Sanjay and   Mrs. Sanjay like to cook.

Ans
- ✓ 1. Mr. Sanjay enjoys planting and growing vegetables.
- ✗ 2. Mrs. Sanjay cooks the vegetables that Mr. Sanjay grows.
- ✗ 3. Mr. Sanjay does not like classical music.
- ✗ 4. Mrs. Sanjay enjoys reading nineteenth century novels.

Q.37 Which of the following diagrams indicates the best relation between Paris, France, Italy and World?
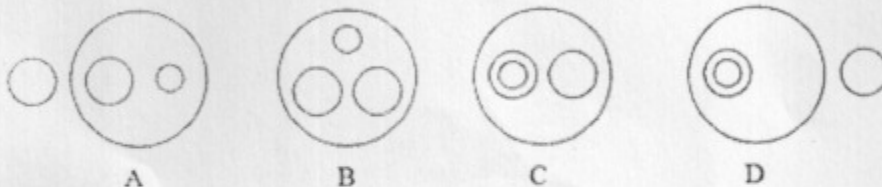
A   B   C   D

Ans
- ✗ 1. B
- ✓ 2. C
- ✗ 3. D
- ✗ 4. A

Answer the correct 3D view for the given elevation:

A   B   C   D

Ans

  ✔ 1 D

  ✗ 2 A

  ✗ 3 C

  ✗ 4 B
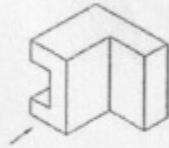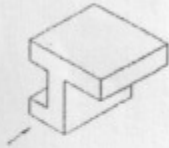
Which composition best fits variety?
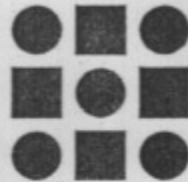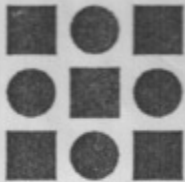
A   B   C   D

Ans

  ✗ 1 A

  ✗ 2 B

  ✔ 3 C

  ✗ 4 D

Find the odd figure in the problem

A   B   C   D

Ans

  ✔ 1 D

  ✗ 2 B

  ✗ 3 C

  ✗ 4 A

NATA-2018: Answer Key

Mathematics (Q. 1 – 20)		General Aptitude (Q. 21 – 60)			
Question No	Answer Key	Question No	Answer Key	Question No	Answer Key
1	B	1	A	21	B
2	B	2	A	22	C
3	D	3	C	23	A
4	D	4	D	24	C
5	C	5	C	25	D
6	B	6	A	26	A
7	A	7	D	27	B
8	D	8	C	28	D
9	B	9	D	29	B
10	B	10	D	30	C
11	A	11	2	31	-
12	C	12	B	32	A
13	D	13	B	33	A
14	A	14	D	34	4
15	A	15	A	35	4
16	C	16	B	36	A
17	A	17	C	37	B
18	C	18	B	38	A
19	B	19	C	39	C
20	C	20	B	40	A