### Q1: Given an A.P. whose terms are all positive integers. The sum of its first nine terms is greater than 200 and less than 220. If the second term in it is 12, then its 4th term is:

A 20  
B 16  
C 8  
D 24  
Correct Ans: A

### Q2: The curved surface area of a cylindrical pillar is 264 $m^2$ and its volume is 924 $m^3$. Find the ratio of its diameter to its height

A 3 : 7  
B 7 : 3  
C 6 : 7  
D 7 : 6  
Correct Ans: B

### Q3: A hall is 15 m long and 12 m broad. If the sum of the areas of the floor and the ceiling is equal to the sum of the areas of four walls, the volume of the hall is:

A 720  
B 900  
C 1200  
D 1800  
Correct Ans: C

### Q4: If a sphere has a radius of 4.5 cm what would its total surface area come to?

A 350.15  
B 246  
C 254.47  
D 128.06  
Correct Ans: C

### Q5: Area and perimeter of a rectangular field are 2000 sq.m. and 180 m respectively. What is the length and breadth?

A $l = 12$, $b = 40$  
B $l = 20$, $b = 15$
### Q6: The difference of two positive integers is 3 and the sum of their squares is 117. What are the numbers?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2,0</td>
</tr>
<tr>
<td>B</td>
<td>2/3,1</td>
</tr>
<tr>
<td>C</td>
<td>1,-2</td>
</tr>
<tr>
<td>D</td>
<td>6,9</td>
</tr>
</tbody>
</table>

Correct Ans: D

### Q7: If \( \tan^{-1}(\sin x) = \frac{\pi}{4} \), then the value of x is:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>( \frac{\pi}{2} )</td>
</tr>
<tr>
<td>B</td>
<td>( \frac{\pi}{6} )</td>
</tr>
<tr>
<td>C</td>
<td>( \frac{\pi}{3} )</td>
</tr>
<tr>
<td>D</td>
<td>( \frac{\pi}{8} )</td>
</tr>
</tbody>
</table>

Correct Ans: A

### Q8: If \( \cos 2 \theta + \sin \theta = \sqrt{2} \cos \theta \). Then \( \cos \theta - \sin \theta = ? \)

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<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>( \sqrt{2} \cos \theta )</td>
</tr>
<tr>
<td>B</td>
<td>( 2 \sin \theta )</td>
</tr>
<tr>
<td>C</td>
<td>( \sqrt{2} \sin \theta )</td>
</tr>
<tr>
<td>D</td>
<td>( 2 \cos \theta )</td>
</tr>
</tbody>
</table>

Correct Ans: C

### Q9: If \( \int_{0}^{a} 3x^2 \, dx = 8 \) find the value of a.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
</tr>
<tr>
<td>D</td>
<td>8</td>
</tr>
</tbody>
</table>

Correct Ans: D
Q10: If \( \log_8 x + \log_4 x + \log_2 x = 11 \), \( x = ? \)

A 11  
B 8  
C 12  
D 64

Correct Ans: D

Q11: You have a 9 x 9 x 9 cm box. How many cubes of side 5 cm will you be able to fit inside it?

A 2  
B 1  
C None  
D 5

Correct Ans: B

Q12: \( x = t, y = \frac{1}{t} \) then \( \frac{dy}{dx} \) is equal to:

A \( \frac{y}{x} \)  
B \( \frac{x}{y} \)  
C \( -\frac{x}{y} \)  
D \( -\frac{y}{x} \)

Correct Ans: D

Q13: \( \log(\sin 1^\circ) \times \log(\sin 2^\circ) \times \ldots \times \log(\sin 90^\circ) \) is

A positive  
B negative  
C zero  
D lies between 1 and 180

Correct Ans: C
Q14: Area bounded by $y=x^3$, $y=8$ and $x=0$ is

A 2 sq. units
B 14 sq. units
C 12 sq. units
D 6 sq. units
Correct Ans: C

Q15: The average age of 20 students in a class is 15 years. If the teacher’s age is including, the average increases by 1. What is the teacher’s age?

A 30 years
B 21 years
C 42 years
D 36 years
Correct Ans: D

Q16: The number of straight lines that can be formed by joining 20 points of which 4 points are collinear is

A 183
B 186
C 185
D 190
Correct Ans: C

Q17: A determinant is chosen at random from the set of order 2 with elements 0 or 1 only. The probability that the determinant chosen non zero is

A $\frac{3}{8}$
B $\frac{3}{16}$
C $\frac{1}{4}$
D $\frac{1}{8}$
Correct Ans: A

Q18: The probability that a leap year will have 53 Fridays or 53 Saturday is

A $\frac{2}{7}$
B $\frac{3}{7}$
C $\frac{4}{7}$
D $\frac{1}{7}$
Correct Ans: B

Q19: A complete cycle of a traffic light takes 60 seconds. During each cycle the light is green for 25 sec, yellow for 5 sec and red for 30 sec. At a randomly
chosen time, the probability that the light will not be green is

A  1/3
B  1/4
C  1/12
D  7/12
Correct Ans: D

Q20: Let the following system of equations
\[
\begin{align*}
kx + y + z &= 1 \\
x + ky + z &= k \\
x + y + kz &= k^2
\end{align*}
\]
Has no solution. Find \(|k|\).

A  0
B  1
C  2
D  3
Correct Ans: C

Q21: A supporting element on a curved opening is called as

A  Lintel
B  Arch
C  Lancet
D  Awning
Correct Ans: B

Q22: Tanagrams are a set of puzzle originated in which country

A  Turkey
B  China
C  India
D  Tanzania
Correct Ans: B

Q23: Identify the answer

\[\text{figure} \quad + \quad \text{figure} = \text{figure} \]
Q24: ‘RERA’ refers to Regulatory Authority in
A Architecture Education
B Road Construction
C Real Estate
D Regional Environment and Rivers
Correct Ans: C

Q25 Following is a quarter part of a famous logo, identify the correct option to complete the logo

1 2 3 4
Q26 Flipped along their horizontal axis, how many of them would look the same?

A 3
B 6
C 8
D 4

Correct Ans: B
Q27: Shown on the left is a composition of squares of different sizes, how many times the square of the right is repeated in the composition.

A 8  
B 3  
C 6  
D 10  
Correct Ans: D

Q28: In Coastal region which material should be used for making truss  
A Mild Steel  
B Glass  
C Aluminum  
D Cast Iron  
Correct Ans: C

Q29: Vertical elements in building are  
A Column, Lintel, Wall  
B Lintel, Beam, Arch.  
C Column, Pier, Post  
D Floor, Column, Arch  
Correct Ans: C

Q30: A square of 3 cm. side was cut from a rectangle of 6cm x 5cm as shown in the figure, what is the area of the shaded portion.
Q31: In a row of boys, If A who is 10th from the left and B who is 9th from the right interchange their positions, A becomes 15th from the left. How many boys are there in the row?

A 23
B 31
C 27
D 28
Correct Ans: A

Q32: Which of the given alternatives shows the top view of the given 3-D figure?
Q33: Which of the following 3D objects, when cut to make a net, will look like the given figure?

Correct Ans: C
### Q34: The Petronas Twin Towers are located in

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>China</td>
</tr>
<tr>
<td>B</td>
<td>Malaysia</td>
</tr>
<tr>
<td>C</td>
<td>South Africa</td>
</tr>
<tr>
<td>D</td>
<td>U. S. A.</td>
</tr>
</tbody>
</table>

Correct Ans: **B**

### Q35: Guggenheim museum in Newyork is designed by

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Louis Khan</td>
</tr>
<tr>
<td>B</td>
<td>Frank Llyod Wright</td>
</tr>
<tr>
<td>C</td>
<td>B.V. Doshi</td>
</tr>
<tr>
<td>D</td>
<td>Frank Gerry</td>
</tr>
</tbody>
</table>

Correct Ans: **B**

### Q36: Which of the following shapes will you get on slicing a rectangular pyramid horizontally parallel to its base?

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Rectangle</td>
</tr>
<tr>
<td>B</td>
<td>Triangle</td>
</tr>
<tr>
<td>C</td>
<td>Hexagon</td>
</tr>
<tr>
<td>D</td>
<td>Square</td>
</tr>
</tbody>
</table>

Correct Ans: **A**

### Q37: What is the area of the base of the given figure(cuboid), where the distance between 2 dots is 1 unit?

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Cuboid</td>
</tr>
<tr>
<td>B</td>
<td>Prism</td>
</tr>
<tr>
<td>C</td>
<td>Cone</td>
</tr>
<tr>
<td>D</td>
<td>Pyramid</td>
</tr>
</tbody>
</table>

Correct Ans: **D**

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**Diagram:**

A cuboid with a rectangular base, showing the cross-section produced by slicing horizontally parallel to its base.
Q38: If the form shown below were to be unfolded what would it look like?
Q39: What is the decimal equivalent of binary number 110011?
A 20
B 51
C 22
D 23
Correct Ans: B

Q40: Which tributary of the Ganges is also known as the 'Kalindi'?
A Bhagirathi
B Yamuna
C Alaknanda
D Ravi
Correct Ans: B

Q41: Mandovi' and 'Zuari' are two major rivers in which state?
A Goa
B Orissa
C Kerala
D Andhra Pradesh
Correct Ans: A

Q42: If you have to build on the seashore in Chennai, which rooms would have
the best view of the sea?

A Those facing north
B Those facing south
C Those facing east
D Those facing west

Correct Ans: C

Q43: Which of the following is associated with perspective?

A Representing 3D objects on a 2D surface
B Abstract art
C Process of designing interactive products
D The art of arranging type

Correct Ans: A

Q44: Which of the following term best describes a facade?

A A hemispherical part of a roof
B The support of a column
C Extension of a building
D The buildings face/front

Correct Ans: D

Q45: Which of the following structures does NOT have a dome?

A Hagia Sophia, Istanbul, Turkey
B The Taj Mahal, Agra, India
C The White House, Washington, D.C
D St. Paul's Cathedral, London

Correct Ans: C

Q46: Identify the below structure that blends modern architecture and Indian tradition.
Q47: How many circles appears in the below picture?

![Diagram of circles]

A 6
B 7
C 1
D 10
Correct Ans: C

Q48: The problem figure shows a 3 dimensional view of an object. Identify the correct 2 dimensional top view from among the answers based on the direction of the arrow.
Q49 Which hexagon below should replace the question mark?

\[
\begin{align*}
\text{Hexagon 1} + \text{Hexagon 2} &= \text{Hexagon 3} \\
\text{Hexagon 4} + \text{Hexagon 5} &= \text{?} \\
\text{Hexagon 6} + \text{Hexagon 7} &= \text{Hexagon 8}
\end{align*}
\]
Q50: A fruit seller had some apples. He sells 40% apples and still has 420 apples. Originally, he had:

A 588 apples  
B 600 apples  
C 672 apples  
D 700 apples  
Correct Ans: D

Q51: If South-East becomes North, North-East becomes West and so on. What will West become?

A North-East  
B North-West  
C South-East  
D South-West  
Correct Ans: C

Q52: It has been established that ____________________

P : Einstein was  
Q : although a great scientist  
R : weak in arithmetic  
S : right from his school days
The Proper sequence should be:

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<tr>
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</tr>
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<tbody>
<tr>
<td>A</td>
<td>SRPQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>QPRS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>QPSR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>RQPS</td>
<td></td>
<td></td>
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</tbody>
</table>

Correct Ans: B

Q53: Arrange the words given below in a meaningful sequence.

1-Wall 2- Clay 3-House 4-Room 5-Bricks

<p>| | | | | |</p>
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5, 2, 1, 4, 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>2, 5, 4, 1, 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>2, 5, 1, 4, 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>1, 2, 3, 4, 5</td>
<td></td>
<td></td>
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</tbody>
</table>

Correct Ans: C

Q54: GRIHA is associated with

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<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Historic and heritage conservation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Green building rating.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Seismic activity monitoring.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>National building codes.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Correct Ans: B

Q55: Identify the correct FRONT view for the given 3D object.

![Front View](image)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
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</tbody>
</table>
**Q56:** Sill level refers to a

<p>| | | | |</p>
<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A window  
B Roof  
C Door  
D Pipe

Correct Ans: **A**

**Q57:** The word sciography is associated with which of the following

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Wind</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Shadow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Heat</td>
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</tbody>
</table>

Correct Ans: **B**

**Q58:** For the multi-view projection given below, select the correct corresponding isometric view in the row.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Correct Ans: **B**
<table>
<thead>
<tr>
<th>Q59: A Stupa is associated with</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Mughal architecture</td>
</tr>
<tr>
<td>B Greek architecture</td>
</tr>
</tbody>
</table>
C Gothic architecture
D Buddhist architecture
Correct Ans: D

**Q60:** Lets say you have three identical cubes which you then join together so that each cube is covering at least one face of another cube. How many faces of the three cubes are visible now?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>12</td>
</tr>
<tr>
<td>B</td>
<td>14</td>
</tr>
<tr>
<td>C</td>
<td>18</td>
</tr>
<tr>
<td>D</td>
<td>15</td>
</tr>
</tbody>
</table>

Correct Ans: B

**Q61:** 1. Draw a visually appealing composition using 3 squares, 2 rectangles, 1 triangle and 1 circle. Colour it using three colours in a medium of your choice. The Composition should denote one of the following:

   a. Swatch Bharat, b. Global Peace, c. Harmony

   (Write the theme title below your sketch)

**Q62:** Recollecting the most memorable holiday with your family draw any scene outdoors showing at least one member of your family. Your drawing should suggest to the viewer your location - for example showing a part of a well-known landmark/building or through natural location/trees etc.

Reference: admission.aglasem.com
<table>
<thead>
<tr>
<th>Q1</th>
<th>If ( a^2 - b^3 = 5 ) and ( a^4 = 2 ), find ( a^6 + b^5 ).</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6</td>
</tr>
<tr>
<td>B</td>
<td>8</td>
</tr>
<tr>
<td>C</td>
<td>72</td>
</tr>
<tr>
<td>D</td>
<td>64</td>
</tr>
<tr>
<td>Correct Ans: C</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q2</th>
<th>Find the value of ( \log_{10}(x) ) if ( \log_{10}(y^2) = 2 ).</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>12</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
</tr>
<tr>
<td>Correct Ans: A</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q3</th>
<th>How many terms are in the Arithmetic Progression 26, 26, 30, ..., 138, 140?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>24</td>
</tr>
<tr>
<td>B</td>
<td>25</td>
</tr>
<tr>
<td>C</td>
<td>26</td>
</tr>
<tr>
<td>D</td>
<td>26</td>
</tr>
<tr>
<td>Correct Ans: B</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q4</th>
<th>If ( \log_{10} a = 1, \log_{10} b = 2 ), what is the value of ( \log_{10} \frac{a}{b} )?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>15</td>
</tr>
<tr>
<td>C</td>
<td>30</td>
</tr>
<tr>
<td>D</td>
<td>60</td>
</tr>
<tr>
<td>Correct Ans: D</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q5</th>
<th>A and B together can do a piece of work in 10 days. A having worked for 12 days, B finishes the remaining work alone in 44 days. In how many days shall B finish the whole work alone?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>50 days</td>
</tr>
<tr>
<td>B</td>
<td>40 days</td>
</tr>
<tr>
<td>C</td>
<td>60 days</td>
</tr>
<tr>
<td>D</td>
<td>70 days</td>
</tr>
<tr>
<td>Correct Ans: C</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q6</th>
<th>If the side of a square increases by 25%, its area increases by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>50%</td>
</tr>
<tr>
<td>B</td>
<td>51%</td>
</tr>
<tr>
<td>C</td>
<td>30%</td>
</tr>
<tr>
<td>D</td>
<td>62.5%</td>
</tr>
<tr>
<td>Correct Ans: D</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Q7</th>
<th>A is two years older than B who is twice as old as C. If the total of the ages of A, B and C be 27, then how old is B?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6</td>
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<tr>
<td>B</td>
<td>10</td>
</tr>
<tr>
<td>C</td>
<td>7</td>
</tr>
<tr>
<td>D</td>
<td>5</td>
</tr>
<tr>
<td>Correct Ans: B</td>
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<table>
<thead>
<tr>
<th>Q8</th>
<th>Sarthak bought 7 new trading cards to add to his collection. The next day his dog ate half of his collection. There are now only 31 cards left. How many cards did Sarthak start with?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>38</td>
</tr>
<tr>
<td>B</td>
<td>55</td>
</tr>
<tr>
<td>C</td>
<td>35</td>
</tr>
<tr>
<td>D</td>
<td>62</td>
</tr>
<tr>
<td>Correct Ans: B</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q9</th>
<th>A salesman has a 70% chance to sell a product to any customer. The behavior of successive customers is independent. If two customers A and B enter, what is the probability that the salesman will sell the product to customer A or B?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.08</td>
</tr>
<tr>
<td>B</td>
<td>0.71</td>
</tr>
<tr>
<td>C</td>
<td>0.70</td>
</tr>
<tr>
<td>D</td>
<td>0.99</td>
</tr>
<tr>
<td>Correct Ans: B</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q10</th>
<th>If the points ((2a, a), (4, 2a)) and ((a, a)) enclose a triangle of area 18 square units. Then the centroid of the triangle is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>((4, 4))</td>
</tr>
<tr>
<td>B</td>
<td>((0, 0))</td>
</tr>
<tr>
<td>C</td>
<td>((4, 4))</td>
</tr>
<tr>
<td>D</td>
<td>((4/3, 4/3))</td>
</tr>
<tr>
<td>Correct Ans: B</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q11</th>
<th>The sum of odd integers from 1 to 2001 is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>((1001)^2)</td>
</tr>
<tr>
<td>B</td>
<td>((1101)^2)</td>
</tr>
<tr>
<td>C</td>
<td>((1001)^2)</td>
</tr>
<tr>
<td>D</td>
<td>((1001)^2)</td>
</tr>
<tr>
<td>Correct Ans: B</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q12</th>
<th>Everybody in a room shakes hands with everybody else. The total number of handshakes is 66. Then the total number of persons in the room is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>11</td>
</tr>
<tr>
<td>B</td>
<td>12</td>
</tr>
<tr>
<td>C</td>
<td>13</td>
</tr>
<tr>
<td>D</td>
<td>14</td>
</tr>
<tr>
<td>Correct Ans: B</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q13</th>
<th>A circle of maximum possible size is cut from a square sheet. Subsequently, a square of maximum possible size is cut from the resultant circle. What will be area of the final square?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>25% of the size of the original square</td>
</tr>
<tr>
<td>B</td>
<td>50% of the size of the original square</td>
</tr>
<tr>
<td>C</td>
<td>50% of the size of the original circle</td>
</tr>
<tr>
<td>D</td>
<td>Double the size of the original circle</td>
</tr>
<tr>
<td>Correct Ans: B</td>
<td></td>
</tr>
</tbody>
</table>
Q4: If \( \log x + \log(x+3) - \log(3x-5) = \log 3 \), the value of \( x \) is

A. 2
B. 5
C. 3
D. \( \frac{3}{5} \)
Correct Ans: B

Q5: Evaluate the integral \( \int \frac{1}{2} x^4 dx \).

A. \( \frac{21}{5} \)
B. \( \frac{21}{3} \)
C. \( \frac{2}{5} \)
D. \( \frac{21}{3} \)
Correct Ans: A

Q6: The sum of the values of \( x \) satisfying \( \tan \left( \frac{\pi}{6} + x \right) + \tan \left( \frac{\pi}{6} - x \right) = 2 \) in the interval \([0, 2\pi]\) is:

A. \( \pi \)
B. \( 2\pi \)
C. \( 4\pi \)
D. \( 3\pi \)
Correct Ans: D

Q7: A class has \( n \) students, we have to form a team of the students including at least two students and also excluding at least two students. The number of ways of forming the team is

A. \( 2^n - 4n \)
B. \( 2^n - 2n - 4 \)
C. \( 2^n - 2n - 4 \)
D. \( 2^n - 2n - 6 \)
Correct Ans: B

Q8: If a, b, c are odd positive integers, the number of integral solutions of \( a + b + c = 13 \) is

A. 14
B. 21
C. 28
D. 56
Correct Ans: B

Q9: The function given by \( x^2 y^5 = (x + y)^{11} \) is:

A. strictly increasing
B. strictly decreasing
C. constant
D. neither increasing nor decreasing
Correct Ans: A

Q10: The differential equation of all non-vertical lines in a plane is:

A. \( \frac{dy}{dx} = 0 \)
B. \( \frac{dy}{dx} = \frac{1}{0} \)
C. \( \frac{dy}{dx} = 0 \)
D. \( \frac{dy}{dx} + x = 0 \)
Correct Ans: A

Q11: Which of the following film was directed by Satyajit Ray?

A. Bhoomika
B. Sati
C. Drona
D. Antasthata
Correct Ans: B

Q12: How many surfaces does this model have?

A. 12
B. 13
C. 11
D. 14
Correct Ans: B

Q13: 'A' starts his walk in north and turns left, similarly 'B' starts his walk from the same point in east direction and then turns right goes straight and then turns left. A & B faces are

A. in the same direction
B. in opposite directions
C. perpendicular to each other
D. None of above
Correct Ans: B

Q14: Shown below are reflected images of a wall clock in mirror. Which one of the options shows 21:16 correctly?

A. [Image]
Q9: How many edges does a Tetrahedron have?
A 4  
B 6  
C 8  
D 12  
Correct Ans: D

Q10: Total number of circles in the given figure are
A 10  
B 1  
C 2  
D 9  
Correct Ans: D

Q11: If a tank of the shape shown on the left contains 10 units of liquid, how much units would the shape on right approximately contain.
A 20  
B 60  
C 150  
D 300  
Correct Ans: B

Q12: Ellora Temples in Maharashtra are executed.
A Left to Right  
B Top to Bottom  
C Bottom to Top  
D None of above  
Correct Ans: C

Q13: A regular hexagonal pyramid is sliced by a plane such that it passes through the centre of its base. How many additional edges shall be created.
A 12  
B 13  
C 9  
D 24  
Correct Ans: A

Q14: Find the number of triangles in the given figure.
A 6  
B 10  
C 12  
D 14  
Correct Ans: D

Q15: Find the minimum number of straight lines required to make the given figure.
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
</table>
| **Q1** | In a certain code language *COMPUTER* is written as *MFHPVGHPC*, how will *MEDICINE* be written in that code language? 
A. MFHPVGHPC 
B. GHPCMFHPV 
C. MFHPVGHPC 
D. GHPCMFHPV  
**Correct Ans:** D |
| **Q2** | Which of the given options represents the front view of the given 3-D figure of a house? 
A. 
B. 
C. 
D. Name of these  
**Correct Ans:** C |
| **Q3** | Which city is known as *IPIC CITY*? 
A. Delhi 
B. Harpur 
C. Allahpur 
D. Bhopur  
**Correct Ans:** B |
| **Q4** | Which of the following does not form a part of Reinforced Cement Concrete? 
A. Steel 
B. Cement 
C. Sand 
D. Lime  
**Correct Ans:** D |
| **Q5** | If South-East becomes North, North-East becomes West and so on. What will West become? 
A. North-East 
B. North-West 
C. South-East 
D. South-West  
**Correct Ans:** C |
| **Q6** | One morning after sunrise, Suresh was standing facing a pole. The shadow of the pole fell exactly to his right. To which direction was he facing? 
A. East 
B. West 
C. South 
D. Data is Insufficient  
**Correct Ans:** C |
| **Q7** | From the options provided, choose the 3-Dimensional drawing that best fits the side view shown below: 
A. 
B. 
C.  
**Correct Ans:** A |
Q9: which one is a truncated cone?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td>B</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>C</td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>D</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
</tbody>
</table>

Correct Ans: A

Q10: How many faces and edges does an octahedron have?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6 faces, 12 edges</td>
</tr>
<tr>
<td>B</td>
<td>12 faces, 8 edges</td>
</tr>
<tr>
<td>C</td>
<td>8 faces, 16 edges</td>
</tr>
<tr>
<td>D</td>
<td>8 faces, 12 edges</td>
</tr>
</tbody>
</table>

Correct Ans: D

Q11: On which river does DwarkadISH stand?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ganges</td>
</tr>
<tr>
<td>B</td>
<td>Godavari</td>
</tr>
<tr>
<td>C</td>
<td>Brindabaputra</td>
</tr>
<tr>
<td>D</td>
<td>Bisa</td>
</tr>
</tbody>
</table>

Correct Ans: C

Q12: How old is the town in the picture?

A | 100 years |
B | 200 years |
C | 1000 years |
D | 2000 years |

Correct Ans: A

Q13: Architect who designed the Assembly Hall and High Court buildings in Chandigarh

A | V. N. V. Doshi |
B | Le Corbusier |
C | E. D. Doshi |
D | A. N. Kalidas |

Correct Ans: A

Q14: Name the largest single religious building in the world.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Konark Sun Temple</td>
</tr>
<tr>
<td>B</td>
<td>Brihadishwara Temple</td>
</tr>
<tr>
<td>C</td>
<td>Angkor Wat</td>
</tr>
<tr>
<td>D</td>
<td>Vatican City</td>
</tr>
</tbody>
</table>

Correct Ans: B
Q46: What is a vertical load-bearing component of a building called?
A  Beam  
B  Column  
C  Lintel  
D  Sill  
Correct Ans. B

Q47: Granite is a ______ rock.
A  Igneous  
B  Sedimentary  
C  Calcareous  
D  Metamorphic  
Correct Ans. A

Q48: Identify the below (in picture) structure.
Q40: The development of lateral surfaces of a pentagonal pyramid is ________.

A: Five rectangles
B: Five squares
C: Five triangles
D: Five circles
Correct Ans: C

Q50: The figure shows a 3-dimensional view of an object. Identify the correct 2-dimensional top view from among the answers based on the direction of the arrow.

A
B
C
D
Correct Ans: A

Q55: The figure shows a 3-dimensional view of an object. Identify the correct 2-dimensional side view from among the answers based on the direction of the arrow.
A. Lotus Temple, Delhi, India
B. Sydney Opera House, Australia
C. Guggenheim Museum, Bilbao, Spain
D. St. Peter’s Basilica, Vatican City

Correct Answer: D

Q3: Sam ranked 9th from the top and 38th from the bottom in a class. How many students are there in the class?
A. 45
B. 47
C. 46
D. 48

Correct Answer: C

Q4: Which unit does NOT belong to the same category?
A.kg
B. ounce
C. feet
D. yard

Correct Answer: B

Q5: Identify the correct top view for the given 3D object.
A.
B.

Correct Answer: B
QN1: Function refers to which of the following?
A. Modern architecture
B. Historical architecture
C. Traditional architecture
D. Contemporary architecture
Correct Ans: C

QN2: Choose the alternative which resembles the water image of the given combination.
NUCLEAR

1. 2
2. 3
3. 4
4. 1
Correct Ans: B

QN3: The type of roof suitable for the region where the rainfall is heaviest is
A. Flat
B. Pitched and stepped
C. Dome
D. Vault
Correct Ans: B

QN4: What time of the day is represented by the location of the Sun on the diagram?
A. 6 AM
B. 9 AM
C. 12 PM
D. 3 PM
Correct Ans: C

QN5: Identify the below structure.
A. National War Memorial – Delhi
B. National Garden Memorial – Gwalior
C. Indira Gandhi – Ahmedabad
D. Anil Ambani Memorial – Mumbai
Correct Ans: A

QN6: It is raining and you are looking out of a window from your living room. The window is a wooden panel window with horizontal grills. You can see a playground with children playing with play equipment. Some children are playing in the rain and some kids are playing with paper boats in justify. Beyond the playground there is a few shops and a hospital. Draw the scene using your imagination.

QN7: Draw a composition with five geometric shapes such as circle, triangle, square, rectangle and hexagon. Each of the shapes is to be used at least once. The composition is to be coloured using a medium of your choice.

Reference: admission.aglasem.com
Imagine you are sitting on a chair in barber shop or a boutique. Barber or make up artist is cutting your hair. Draw what you see in the Mirror, which is in front of You.

Reference: www.recruitmenthunt.com
You are standing in your balcony and looking at a cricket match in your building compound or colony or a small ground. You can also see your friends in the their balconies on the other side cheering the players. Draw the entire scene in pencil including your friends in their balconies.

Reference: www.recruitmenthunt.com
SET D

Put together three candles, one square box and three glass prisms to create a stable arrangement. Also draw the shadows cast on the objects by lighting one of the candles.

Reference: www.recruitmenthunt.com
A shopkeeper has neatly stacked up plastic buckets and mugs for sale outside his shop. Draw the stacks, assuming the direction of light for rendering shades and shadows.