**SSC CGL Mathematics**

**SET-3**

**Q1.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Profit and loss**

**Sub- Concept: Cost price**

**Concept Field:**

Shyam sold a motorbike at a profit of 20%.Had he sold it for Rs 1600 more, he would have made a profit of 25%. Find the cost price of the motorbike.

1. Rs 32,000
2. Rs 42,000
3. Rs 35000
4. Rs 45000

Answer: (A)

Solution:

Let the Cost price of the laptop = Rs x

Motor bike sold at 20% profit so, Selling Price

Selling Price if he sold it for 1600 more

Hence, the CP of motorbike was

**Q2.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Profit and loss**

**Sub- Concept: tax**

**Concept Field:**

If the tax on sale be reduced from 4% to 2%, then what difference does it make to a person who want to purchase a bike whose marked price is Rs.40,000?

1. 234
2. 553
3. 366
4. 800

**Answer: D**

**Explanation:**

Initial sale tax = 4% and Final sale tax = 2%

Difference in % of tax = 4% - 2% = 2%

Required difference which effect the purchase on the person

= 2% 40,000 =

So Rs.800 difference will be occurred.

**Q3.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Number series**

**Sub- Concept: Airthmetic progression**

**Concept Field:**

There are three numbers which constitute an AP series whose sum is 24 and the sum of their squares is 354. Find the largest number of the given AP series?

1. 12
2. 13
3. 41
4. 17

Answer: (D)

Solution:

Let the numbers be

According to the question the sum of AP

So,

The sum of their squares

Putting value of a=8 in the equation we get,

so, the largest number

**Q4.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Simplification**

**Sub- Concept: Comparison of fraction**

**Concept Field:**

Solve the given equation for the value of x

Answer: (A)

Solution:

So, the value of

**Q5.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: Geometry**

**Sub- Concept: Triangle**

**Concept Field:**

If ABC be the triangle in the circle and O be the centre of the circle, find the unknown angle x.

1. 30°
2. 60°
3. 130°
4. 70°

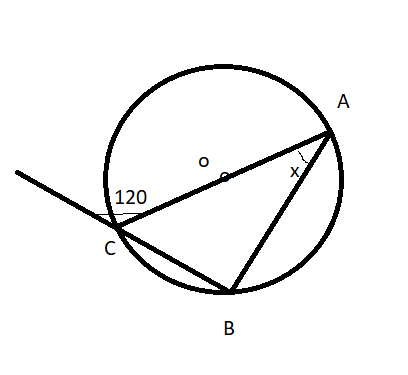
Answer: (A)

Solution:

We know that the ∠A+∠B+∠C=180o

(exterior angle is equal to sum of interior opposite angle)

Ac is the diameter so (∠B=90o)



SO, **o**

**Q6.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: hemisphere**

**Sub- Concept: volume**

**Concept Field:**

How many litres of water can a hemispherical cup of diameter 12 cm hold.

1. 0.453 L
2. 0.423L

C) 0.543L

D) 0.763L

Answer: (A)

Solution:

Volume of hemispherical cup

So, it can hold water upto capacity of

**Q7.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: Geometry**

**Sub- Concept: circle**

**Concept Field:**

A wire is bent in the form of a square which encloses a region having area 484 square cm. If the same wire is bent into the form of a circle, then find the circumference of circle?

1. 144
2. 245
3. 531
4. 616

**Answer: D**

**Solution:**

Side of square =   
Length of the wire = 4 × side = 88 cm  
Now the wire is bent into the form of a circle.  
If the radius of the circle be r cm. then,

Area of circle

**Q8.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Advance Maths**

**Concept: coordinate Geometry**

**Sub- Concept: Equation of any line passing through the point of intersections of two given lines**

**Concept Field:**

If A(4,6), B(6,-4)and C(-4,-2) are the vertices of a triangle ABC. Then the equation of the median through C is.

1. x-3y-2=0
2. x+3y-2=0

C) x-3y+2=0

D) x+3y+2=0

Answer: (A)

Solution:

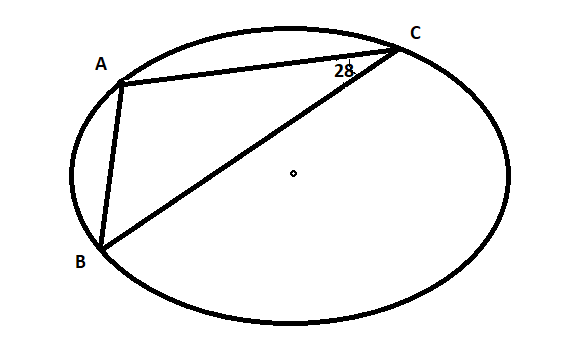
Mid point of AB is,

Coordinate of mid point M(5,1)

Slope of CM

Equation of line CM,

So the equation of the median through C=

**Q9.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: basic Math**

**Concept: Time, speed and distance**

**Sub- Concept: Boat and streams**

**Concept Field:**

The difference between the time taken by a ship to cover a distance upstream and downstream is 6 hour. Then what will be the time taken by a cycle to cover the same distance with speed 25 km/h. The speed of a ship in still water is 13 km/h and speed of stream is 5 km/h.

1. 1.2 hours
2. 1.45 hours
3. 3.456 hours
4. 1.12 hours

**Answer: C**

**Solution:**  
According to the question,

Required time taken by cycle to cover the distance with speed of 25km/hr

**Q10.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Mixture and alligation**

**Sub- Concept: Mixture**

**Concept Field:**

A mixture of 720 liter contains of milk and water in the ratio of 15: 9. How much more water is to be added to get a mixture containing milk and water in the ratio of 3:2?

1. 15
2. 35
3. 17
4. 30

**Answer: D**

**Solution:**  
The total quantity of milk and water

Now, the water to be added to get the mixture in the ratio 3:2

So 30L water is added

**Q11.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: Trignometry**

**Sub- Concept: Values of T-ratio**

**Concept Field:**

Q: Find the value of

1. 2
2. 1
3. 0
4. 3

Answer: (A)

Solution:

We know that

Put these value in the given equation we get,

**Q12.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Airthmetic**

**Sub- Concept: mean**

**Concept Field:**

Calculate the arithmetic mean of the given series between 5.3, 2.4, 7.3, 6.4, 7.8?

1. 5.84
2. 5.73

C) 5.60

D) 5.28

Answer: (A)

Solution:

We know the formula to find mean

So, the mean of the series is=5.84

**Q13.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Average**

**Sub- Concept: Basic formula**

**Concept Field:**

Find the mean of 30 given numbers when the mean of 15 of them is 50 and the mean of the remaining numbers is 45.

1. 43.5
2. 47.5

C) 50.7

D) 65.5

Answer: (B)

Solution:

**Q14.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: ratio and proportion**

**Sub- Concept: Variation**

**Concept Field:**

Boyle’s law state that at a constant temperature, pressure of a definite mass of gas is inversely proportional to the volume. If the pressure applied on it can reduced by 28%. Find the change occur in its volume?

1. Increase by 34%
2. Increase by 38.88%
3. decrease by 13%
4. decrease by 34%

**Answer: B**

**Solution:**

Let p be the pressure and v be the volume

We know the formula that p=k/v

Where K is constant term

The value of p is reduced by

Then V is increased by 7/18, it means

**Q15.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Time and work**

**Sub- Concept: Pipe and cistern**

**Concept Field:**

There are two pipes in a house which connect with a tank Pipe A (inlet) and pipe B (outlet) together can fill the tank completely in 20 hours while pipe B (outlet) and pipe C (inlet) together can empty that tank in 10 hours. If pipes A and C together can fill the tank in (20/7) hours, then How much time is taken by pipe C alone to fill the tank?

1. 3
2. 5
3. 7
4. 9

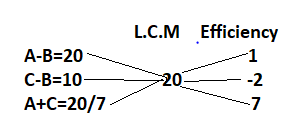
**Answer: A**

**Solution:**  
According to the question,

A-B=20

C-B=10

A+C=20/7

By taking L.C.M

So, A-B+C=6

C=2

10/2=5

So, the time taken by C alone to fill the tank=5hrs

**Q16.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: Mensuration**

**Sub- Concept: cylinder**

**Concept Field: Volume**

The diameter of the base of the pillar is 36 cm and its height is 14 cm. the volume of the pillar is

Answer: (A)

Solution:

Given, the diameter of the pillar is 36cm then R=18cm, and h=14cm

Volume of the pillar

cm3

**Q17.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: Trigonometry**

**Sub- Concept: Basic identities**

**Concept Field: Important formula**

If , then find the value of ?

Answer: (A)

Solution:

According to the question,

Then again squaring both side we get,

So

Hence,

**Q18.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Ratio and proportion**

**Sub- Concept: Ratio**

**Concept Field:**

If , then the value of

Answer: (A)

Solution:

It is given that

**Q19.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Permutation and combination**

**Sub- Concept: word formation**

**Concept Field:**

How many words in new form can we made from the word PERMUTATION?

1. 19,958,399
2. 32,454,133
3. 12,622,333
4. 19,242,242

Answer: (A)

Solution:

Total no. of letters which come once in the word

Total no. of word which come twice=T comes twice

So the total no. of words that can be formed

Total no. of new words that can be formed

**Q20.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Probability**

**Sub- Concept: Random experiment**

**Concept Field:**

An urn 10 blue, 8 white and 4 green balls respectively. If 2 balls are drawn random, find the probability that one of the drawn is blue?

Answer: (D)

Solution:

There are 8 white balls from which one white ball can be drawn in 8c1 ways. One ball from the remaining 14 balls can be drawn in 14c1 ways. Therefore, the two balls (one white and One from other ball) can be drawn in 8c1×14c1 ways.

So the favourable no. of cases

Now, there are total 22 balls in the bag out of which two balls are drawn at random in 22c2 ways

So, the probability of required no. is

**Q21.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Data interpretation**

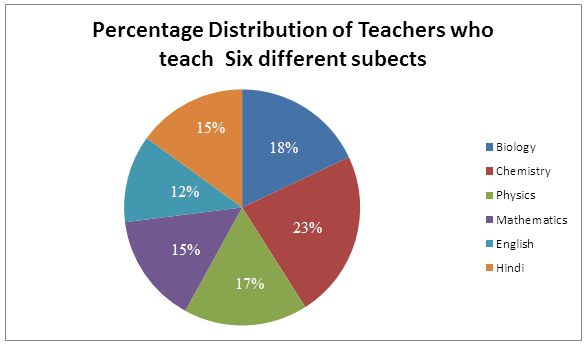
**Concept: Bar graph**

**Sub- Concept: Bar charts**

**Concept Field: percentage**

**Direction:**

Given below is the piechart based on the percentage distributions of teachers who teach six different subject in a school and total no. of teachers given is 5000. Study the pie chart carefully to answer to the questions that follow.



Find the difference between the total number of teachers who teach Biology, chemistry and physics together and the total number of teachers who teach Biology, mathematics, English and Hindi?

1. 23
2. 134
3. 178
4. 100

**Answer: D**

**Solution:**

Total no. of teacher who teach Biology, chemistry and physics

Total no. of teacher who teach Biology, Mathematics, English and Hindi

Required difference

**Q22.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Data interpretation**

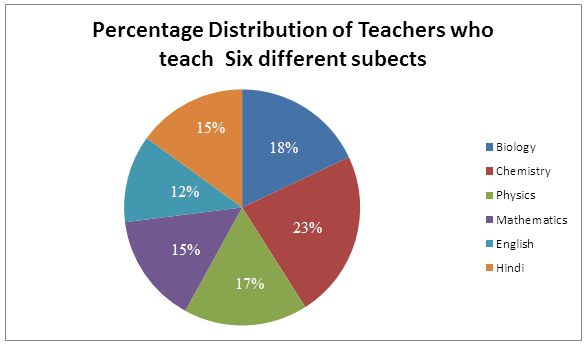
**Concept: Bar graph**

**Sub- Concept: Bar charts**

**Concept Field: average**

**Direction:**

Given below is the piechart based on the percentage distributions of teachers who teach six different subject in a school and total no. of teachers given is 5000. Study the pie chart carefully to answer to the questions that follow.



Find the average of the total no, of teacher who teach chemistry, physics and mathematics together?

1. 917
2. 332
3. 245
4. 135

**Answer:** A

**Solution:**

Total number of teachers who teach Chemistr

Total number of teachers who teach Physics

Total number of teachers who teach Mathematics

Required average

**Q23.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Data interpretation**

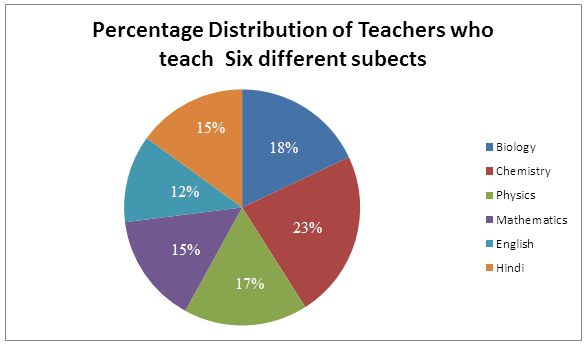
**Concept: Bar graph**

**Sub- Concept: Bar charts**

**Concept Field: percentage**

**Direction:**

Given below is the piechart based on the percentage distributions of teachers who teach six different subject in a school and total no. of teachers given is 5000. Study the pie chart carefully to answer to the questions that follow.



The percentage of mathematics and English teacher is how much less or more than the chemistry?

1. 546
2. 815
3. 869.56
4. 213

**Answer:** C

**Solution:**

Percentage of mathematics and English teacher

Percentage of Chemistry teacher

Required percentage

**Q24.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Data interpretation**

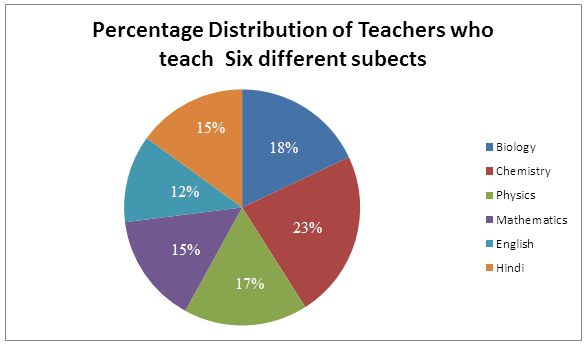
**Concept: Bar graph**

**Sub- Concept: Bar charts**

**Concept Field: Percentage**

**Direction:**

Given below is the pie chart based on the percentage distributions of teachers who teach six different subject in a school and total no. of teachers given is 5000. Study the pie chart carefully to answer to the questions that follow.



Which of the following pair of subjects can have more than 40% of the teacher?

1. Biology and Physics
2. Chemistry and physics
3. Biology and chemistry
4. Physics and Hindi

#Ans: 1

#Solution:

According to the question, chemistry and biology have more than 40% of the teacher.

Now, total percentage of biology and chemistry

Required percentage

**Q25.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

**Marking: (+2, -0.5)**

**Expected time to solve: 30 seconds**

**Topic: Data interpretation**

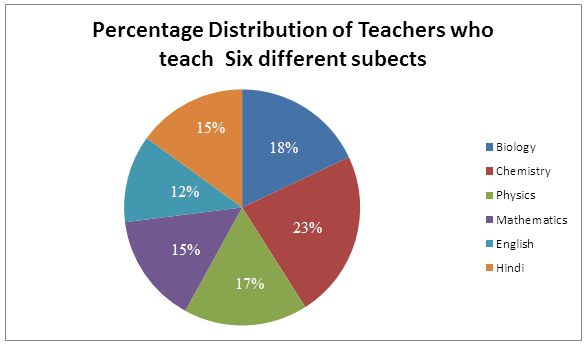
**Concept: Bar graph**

**Sub- Concept: Bar charts**

**Concept Field: ratio**

**Direction:**

Given below is the piechart based on the percentage distributions of teachers who teach six different subject in a school and total no. of teachers given is 5000. Study the pie chart carefully to answer to the questions that follow.



If the percentage of teacher who teach Biology in the class is increased by 60% and percentage of teachers who teach Hindi is decreased by 30%, then what will be the ratio of the total no. of teachers who teach Biology and Hindi?

1. 23:101
2. 288:105
3. 224:103
4. 29:102

**Answer:** B

**Solution:**

Total no. of teacher who teach biology

Total no. of teacher who teach Hindi

Total no. of teacher who teach biology increased by

Total no. of teacher who teach Hindi decreased by

Required Ratio