**SSC CGL Mathematics**

**SET-1**

**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: Stock and shares**

**Concept Field: Shares and stock**

The capital stock of a toy company is Rs.3,00,000 and is dividend into 3,000 equity shares. If the company pays a dividend of Rs.63,000 what amount will a person receive for 43 shares.

1. 800
2. 903
3. 1020
4. 745

Answer: B

Solution:

Dividend for 3,000 shares =Rs.63,000

Dividend for 1 share = = Rs21

Dividend for 43 shares = Rs.21×43=Rs.903

So the person receive amount of Rs.903 for 43 shares.

**Q2.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Algebra**

**Sub- Concept: Algebraic expression**

**Concept Field: range and domain**

While drilling world’s deepest hole in Mariana trench, we found that the temperature T in degree Celsius is x km below the surface of the earth which was given by the formula.

T=32+27(x-3), 3≤x≤15

Find the range of x by which at what depth you expect to find temperature between 200֯ C and 300֯ C.

1. 9.2<x<12.9
2. 9.8<x<12.8
3. 10<x<13
4. 8.5<x<11.8

Answer: A

Solution:

The temperature given in the question is between 200֯ C and 300֯ C.

200< 32+ 27 (x-3) < 300

200-32< 27(x-3) < 300- 32

168<27(x-3) < 268

168/27 < (x-3) < 268/27

6.2<(x-3) < 9.9

6.2+3<x<9.9+3

9.2<x<12.9

So the given range for the temperature between 200֯ C and 300֯ C is 9.2<x<12.9.

**Q3.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Algebra**

**Sub- Concept: Algebraic expression**

**Concept Field:**

If one of the root of the quadratic equation is 3x2 – px-4=0 is 4, then find the value of p.

1. 13
2. 11
3. 41
4. 12

Answer: (B)

Solution:

According to the question,

3x2–px-4=0

Not we will substitute the value of one root with x to find value of p

3(4)2-p(4)-4=0

316-4p-4=0

44=4p

P=11

So value of P is 11.

**Q4.**

**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: Proportion**

**Concept Field: compound ratio**

An employer of Tata motor company reduce the number of employees of his firm in the ratio 12:8 and increases their wages in the ratio 10:13. In what ratio the wages bill is decreased.

1. 15:13
2. 13:11
3. 12:8
4. 9:5

Answer: (A)

Solution:

Let the number of employees initially and at present be 12x and 8x and the wages per employees initially and at present be Rs.10y and Rs.13y

Initially the total wages bill = Rs.(10y×12x)

=Rs.120xy

At present total wages bill=Rs.(13y×8x)

=Rs.104xy

The ratio of the wages bill=

=

**Q5.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Number system**

**Sub- Concept: Airthmetic progression**

**Concept Field:**

Which of the following term of the Airthmetic progression series 21,42,63,84,……is 315.

1. 12
2. 15
3. 20
4. 18

Answer: (B)

Solution:

From the question we find that

a=21, common difference=42-21=21

We know from the formula of A.P

n==15

So, 15th term of A.P is 315.

**Q6.**

**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 stream**

**Concept Field: Important facts and formula**

The ratio of speed of boat in still water to that of stream of water is 13:7. The boat travels towards stream in 4 hours 30 minutes. Find the time taken by boat to come back to its point.

1. 12hrs
2. 15hrs
3. 19hrs
4. 23hrs

Answer: B

Solution:

Let speed of boat in still water be 13x kmph and stream be 7x kmph

Distance = Speed Time = (13x + 7x) = km

Distance travel to get back to its position=13x-7x=6x

Required time taken to back to its initial point

= = = 15 hours

**Q7.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Advanced math**

**Sub- Concept: coordinate geometry**

**Concept Field: position of a point with respect to line**

If A (0,1) and B(2,0) be two points . If p be a point on the line 4x+3y+12=0. Find the co-ordinates of p such that |PA-PB| is maximum.

1. (-6,4)
2. (-2,4)
3. (3,4)
4. (2,6)

Answer: A

Solution:

Equation of AB in two points form is

Solving (1) and (2)

**Q8.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Advance Maths**

**Concept: Geometry**

**Sub- Concept: fundamental properties of triangle**

**Concept Field:**

Which type of triangle is formed by sides 32 cm, 60cm and 68cm.

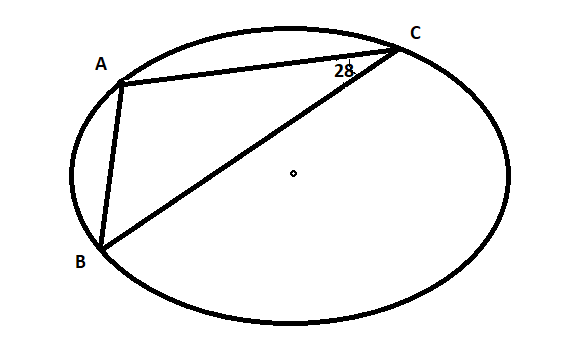
1. Isosceles right angle triangle
2. Right triangle
3. Equilateral triangle
4. Scalene triangle

Answer: B

Solution:

Since 32+60>68(triangle is possible)

Hence, its show the property of right angled triangle.

**Q9.**

**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 circle is given in which AC and AB are two chords given. In triangle ABC . Find the angle made by AB chord at centre?

1. 70֯
2. 80֯
3. 110֯
4. ֯

Answer: D

Solution:

We know by the property of triangle that the angle made by chord onn circumference is always half the angle made by it on centre of a circle.

So, by this property

**Q10.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: Mensuration**

**Sub- Concept: Cube**

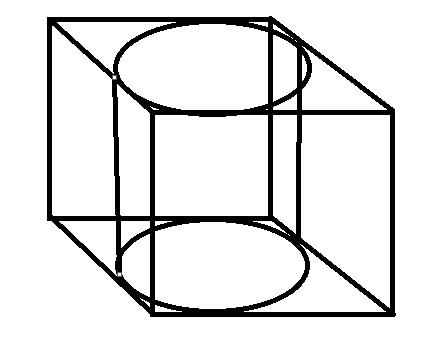
**Concept Field: volume**

Find the volume of right circular cylinder that can be cut out of a cube whose edge is 10cm.

1. 785.7 cm3
2. 201.23 cm3
3. 762.92 cm3
4. 834.92 cm3

Answer: A

Solution:

The base of the largest circular cylinder will be the circle inscribed in a face of the cube and its height will be equal to an edge of the cube.

r=radius of the base of the cylinder

r= cm

r=5cm

Height of the cylinder is equal to edge of the cube

So h=10cm

Volume of cylinderr2h

cm3 (approx.)

**Q11.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Average**

**Sub- Concept: properties of average**

**Concept Field:**

In a university exam the average marks of first five student is positive numbers is 142. The average marks of the first two student is 122 and the average marks of the last two students is 116. Find the marks of the third student?

1. 123
2. 174
3. 156
4. 167

**Answer:** B

**Solution:**

The Sum of total marks of five student of positive numbers is=5×142=710

The Sum of the marks of student of 1st two positive numbers=2×122=244

The Sum of the marks of the last two digit numbers=2×116=232

Therefore, 3rd number

**Q12.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Age related problems**

**Sub- Concept: Age related problems**

**Concept Field:**

5 years ago, the ratio of of Rakhi’s age at that time and 3 times of Ram’s age at that time was 2:3. 8 years hence, of Rakhi’s age at that time will be less than Ram’s age at that time by 3 years. What is the Ram’s present age?

1. 23 years
2. 8.4 years
3. 13 years
4. 5.4 years

**Answer:** B

**Solution:**

Let Rakhi’s present age be ‘x’ years

And Ram’s present age be ‘y’ years

Now,

And,

………………………….II

Multiply by 3 in equation II we eliminate the value of x.

Now, by solving equation I and II we get the value of x and y

y=8.4 and x=32.2

Therefore, Ram’s present age is=8 years and 4 month.

**Q13.**

**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: Profit or gain**

**Concept Field:**

A Shopkeeper buy some articles and sold them at a loss of 10%. If the shopkeeper had sold that article for Rs 40 more then he would have get profit of 30 %. Find the cost of that article.

1. 124
2. 546
3. 100
4. 300

**Answer:** C

**Solution:**

Method 1:

Let the C.P be Rs x.

Then S.P at loss of 10% =

If he sold it at 40 more then new S.P =

Then, Profit=30% of x=

According to question,

9x-10x+400=3x

4x=400

x=100, Therefore, Cost price of article=Rs100.

**Method 2:**

Let C.P be Rs 100

S.P at loss 10%=Rs90

New S.P at 30 % profit=Rs 130

Difference=130-90=40

40 units C.P 100

So according to question we want 40 unit price

40 units C.P =

**Q14.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Partnership**

**Sub- Concept: partnership**

**Concept Field: Simple partnership**

Ashish started a confectionary shop with investing Rs 10,000 as paid up capital and after some months, Bablu joined with investing Rs 12000. At the end of one year, total profit was Rs.20,00 and share of A is Rs.1000.After how many months did Bablu joined (approx.)?

1. 6
2. 4
3. 3
4. **2**

**Answer: D**

**Solution:**

Let Bablu joined for x months.

Ration of their share:

Ashish : Bablu

1210,000 x12000

120 : 12x

Now Share of B= Rs.(20,00-1000)=Rs1000

Alq,

24000x=120000+12000x

12000x=120000

x= 10 months, So, Bablu joined after 2 months.

**Q15.**

**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:**

Find the radius and area of a circle whose circumference given is 4961 cm.



Answer: C

Solution:

4961

cm

**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: Cone**

**Concept Field: Volume**

Find the volume of a cone whose height is 84 cm and radius is 14 cm.

1. 22425 cm3
2. 24452 cm3
3. 13463 cm3
4. 17248 cm3

Answer: D

Solution:

According to the question the height of cone=85cm

r=radius of the base of the cone

r

Volume of cone=r2h

**Q17.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: Trignometry**

**Sub- Concept: Trignometric identities**

**Concept Field: Important formula**

The value of

1. sinA
2. cosA
3. secA
4. tanA

Answer: A

Solution:

=

=

=

**Q18.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Average**

**Sub- Concept: Properties of average**

**Concept Field:**

In a test match the runs were scored by eleven players are 11,19,7,13,18,21,9,5,20,17,16. Find rhe mean of their runs when the run of each player is increased by 3.

1. 17.18
2. 12.38
3. 11.43
4. 12.76

Answer: A

Solution:

The sum of the runs of eleven players = 11+19+7+13+18+21+9+5+20+17+16=156

When the run of each player are increased by 3, then the sum of their runs increased by 11×3=33

The new sum of runs of all players=156+33=189

Mean

**Q19.**

**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: selling price**

**Concept Field:**

A trader allows two successive discounts of 45% and 30% on a pair of jeans. If its marked price is Rs 3800, find the selling price.

1. 1483
2. 1280
3. 1328
4. 1500

Answer: A

Solution:

**Q20.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Simple & compound interest**

**Sub- Concept: Compound interest**

**Concept Field: Important facts and formula**

Raju invested Rs 4,00,000 in a bank for 3 years, compounded annually ,the rate of interest being 6%p.a for first year , 7% p.a for the second year ,and 8%p.a for the third year find the compound interest after 3 years.

1. 89,974.40
2. 90,567.40
3. 34,546.40
4. 78,987.40

Answer: A

Solution:

So, the compound interest after 3 year is Rs.89,974.40.

**Q21.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: Geometry**

**Sub- Concept: Trapezium**

**Concept Field:**

The two parallel sides of a trapezium are in ratio 5:7 and the distance between them is 12cm, If the area of the trapezium is 288 cm2, find the length of the parallel sides.

1. 25,28
2. 20,28
3. 15,20
4. 12,24

Answer: B

Solution:

Let, Length of parallel sides be 5x, 7x.

Area

Area

Length of parallel sides be 5×4, 7×4

=20, 28

**Q22.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Data interpretation**

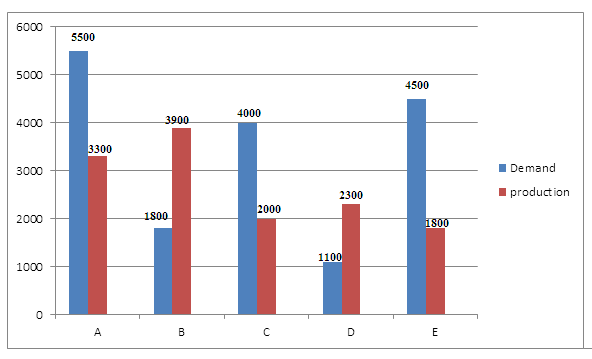
**Concept: Bar graph**

**Sub- Concept: Bar charts**

**Concept Field: Ratio**

Study the following bar graph carefully and answer the questions given below.

The graph below is showing the Demand and production of shoes of five companies for January 2020:



Find the ratio of the number of shoes companies having more demand than production to the number of companies having more production than demand?

1. 1:2
2. 2:3
3. 3:2
4. 4:5

Answer: 3

Solution:

Companies which have more demand than production = A, C and E, i.e. 3 companies.

Companies which have more production than demand = B, D i.e. 2 companies

∴so the required ratio is= 3:2

**Q23.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Data interpretation**

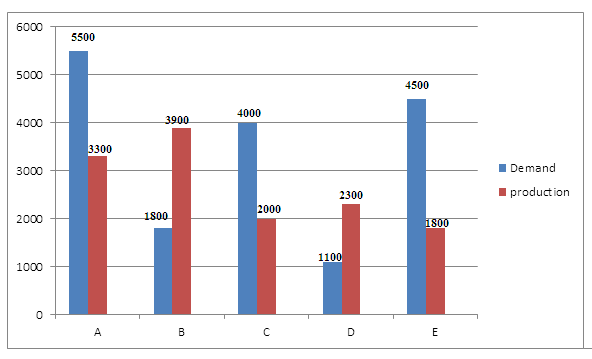
**Concept: Bar graph**

**Sub- Concept: Bar charts**

**Concept Field: average**

Study the following bar graph carefully and answer the questions given below.

The graph below is showing the Demand and production of shoes of five companies for January 2020:



Find the difference between the average demand of the first three shoes companies A, B, C and average production of the last three companies C, D and E?

1. 3466.6
2. 4663.3
3. 2344.3
4. 1733.3

Answer: 4

Solution:

Average of demand =

Similarly, average production

∴Required difference = 3766.6 – 2033.3 = 1733.3

**Q24.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Data interpretation**

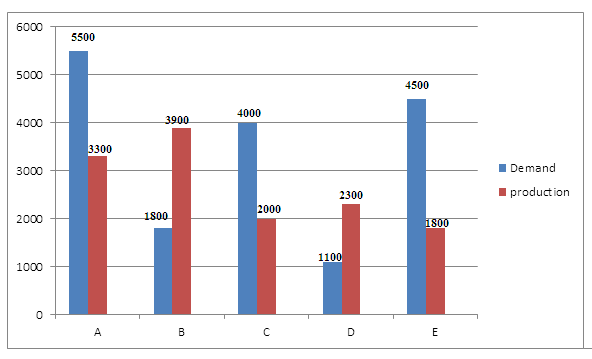
**Concept: Bar graph**

**Sub- Concept: Bar charts**

**Concept Field: percentage**

Study the following bar graph carefully and answer the questions given below.

The graph below is showing the Demand and production of shoes of five companies for January 2020:



The Demand of shoes company A is approximately what per cent of production of the shoes company D?

1. 123%
2. 256%
3. 239%
4. 873%

Answer: 3

Solution:

From the graph we get that

Demand of company A is = 5500

Production of company D is= 2300

∴ Required percentage =

= 239.13% = 239% (approx.)

**Q25.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Data interpretation**

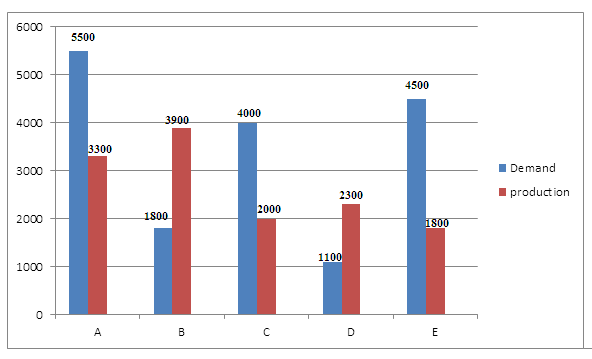
**Concept: Bar graph**

**Sub- Concept: Bar charts**

**Concept Field: ratio**

Study the following bar graph carefully and answer the questions given below.

The graph below is showing the Demand and production of shoes of five companies for January 2020:



Find the ratio of the average demand to the average production of shoes companies C and E?

1. 85:38
2. 38:13
3. 87:61
4. 53:27

Answer: 2

Solution:

From the question we know that

Demand of shoe in company C and E is

Production of shoe in company C and E is

∴Required ratio