**SSC CGL Mathematics**

**SET-2**

**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:**

A shopkeeper sold 5 shirts and 8 jeans. The cost price of 1 jeans is 93.75% of that of 1 shirt. He marked up the price of each shirt and each jeans by 25% and 20% respectively. If he gives 10% discount on the total bill and receives Rs.2196, then find cost price of 1 shirt?

1. Rs.244
2. Rs.251
3. Rs.160
4. Rs.145

**Answer:** c

**Solution:**

Let the cost price of 1 shirt = x

So, the cost price of 1 jeans =

The marked price of 1 shirt

The marked price of 5 shirts =

The marked price of 1 jeans

The marked price of 8 jeans = 9x

According to the question:

So, the cost price of 1 shirt = Rs.160

**Q2.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: cone**

**Sub- Concept: Volume**

**Concept Field:**

Find the curved surface area of a cone whose height is given 15cm and radius of the cone is 8cm?

1. 425cm2
2. 427.42cm2
3. 356.2cm2
4. 532.43cm2

**Answer: b**

**Solution:**

We know the formula to find curved surface area of cone is

Now to find slant height we use pythagorous theorem

Slant height=

=17cm

Now C.S.A of cone=22/7×8×17=427.42cm2 (approx.)

**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:**

**Q23.** Find the value of a if (x-a) is factor of p(x)=x6-ax5+x4-ax3+3x-a+2?

1. a=-1
2. a=-3
3. a=-2
4. a=4

**Answer: a**

**Solution:**

According to the question,

p(x)=x6-ax5+x4-ax3+3x-a+2

p(a)=0

=a6-a.a5+a4-a.a3+3a-a+2=0

=2a+2=0

So a=-1

**Q4.**

**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: Relation between efficiency**

**Concept Field:**

If person B is 1.5 times more efficient that person A who can finish the work alone is 10.5 days, then in how many days three persons A, B and C can finish the work if C alone can finish that work in 7 days?

1. 2.5 days
2. 3.5 days
3. 2.8 days
4. 2.1 days

**Answer:** D

**Solution:**

Ratio of efficiency of A to B

Ratio of time taken by A to B = 5: 2

Time taken by B alone to finish the work days

Time taken by A, B and C together to finish the work

**Q5.**

**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:**

Four student weight p, q, r and s is given. The average weight of ‘r’ and ‘s’ is 6 more than that of ‘p’ and ‘q’. If ‘s’ weight is 150% of ‘p’ and ‘q’ weight is 3 more than ‘r’, then find the average weight of ‘p’ and ‘s’?

1. 36.5
2. 35.5
3. 32.5
4. 37.5

**Answer:** d

**Solution:**

Given that weight of s,

And,

According to the question:

From equations (1) and (2):

Required average weight

**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: concept based on trains**

**Concept Field:**

Rajdhani express starts from Delhi at 7:00 AM with speed 105 km and reaches Lucknow and stops there for 45 minutes. While returning from Lucknow it decreases its speed by 20% and reaches Delhi at 5:12 PM on the same day, then what is the distance between Delhi and Lucknow?

1. 484 km
2. 441 km
3. 400 km
4. 381 km

**Answer:** b

**Solution:**

Let the distance between Delhi and Lucknow = D

Total time of the journey including stoppage time at Lucknow = 10 hours 12 minutes

Total time of the journey excluding stoppage time at Lucknow = 9 hours 27 minutes = 9.45 hours

Decreased speed = 80% of 105 = 84 km/h

According to the question:

**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 P (3,4) and Q(2,6) be two points . If r be a point on the line 2x+3y=12. Find the co-ordinates of r such that |rP-rQ| is maximum.

1. (1,4.5)
2. (-2,4.3)
3. (3,4)
4. (2,6)

Answer: a

Solution:

Equation of line PQ in two points form is

It is given in question,

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**

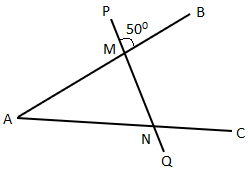
**Concept Field:**

**12:** AB and AC are two line and a line PQ cut AB and AC at points M and N respectively. If ∠PMB = 50° and ∠MAN < ∠ANM, then what can be the measure of ∠MAN?

1. 68°
2. 62°
3. 70°
4. 72°

**Answer:** b

**Solution:**



∠AMN = ∠PMB = 50° (Opposite angles)

Let ∠MAN = ∠ANM = x°

In ΔAMN,

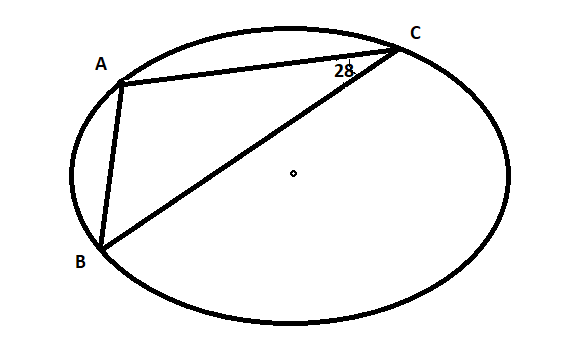
∠MAN + ∠ANM + ∠MAN = 180°

x° + 50° + x° = 180°

x = 65°

Hence,

∠MAN should be less than 65°.

**Q9.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

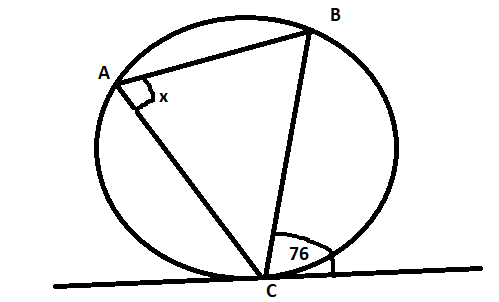
**Topic: Advance Math**

**Concept: Geometry**

**Sub- Concept: Circle**

**Concept Field:**

A circle is given in which AC and AB and BC are three chords given which construct a triangle. A tangent made of angle with the circumference of circle Find the angle x?



1. 70֯
2. 80֯

AYour text here

1. 110֯
2. ֯

Answer: D

Solution:

We know by the property of triangle that the angle made by tangent to the circle is same as the opposite alternate angle of the triangle.

So, by this property

So angle

**Q10.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Advance Math**

**Concept: Geometry**

**Sub- Concept: Square**

**Concept Field:**

The hypotaneous of a square is given 8cm. find the area of circle which is inscribed in it?

1. 150.85 cm3
2. 201.23 cm3
3. 345 cm3
4. 134.211 cm3

Answer: a

Solution:

Hypotaneous of square=8cm

So, we know that

a=8

a=8

Side of square a=8

Radius of the circle is half the side of square=

Area of circle=

=

cm2

**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:**

The average monthly rainfall of a year in the first three month are 131mm, 141mm. 153mm and the monthly rainfall for the next 4 months are 143mm, 245mm, 312mm, 321mm. find the difference of the average of the monthly rainfall of first three month and next four month?

1. 123mm
2. 174mm
3. 114mm
4. 167mm

**Answer:** c

**Solution:**

Average of first 3 month rainfall

Average of next four month rainfall

So the required difference

**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:**

The average of the present ages of A and C is 3 less than the present age of B. If the present age of B is 60% more than that of A and the present age of C is 12 years more than that of A, then find the average of the present ages of A, B and C?

1. 12 years
2. 42 years
3. 22 years
4. 46 years

**Answer:** c

**Solution:**

Given that,

And

C = A + 12 ---- (3)

From equations (1), (2) and (3):

Required average years

**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:**

Plag: A greengrocer purchase vegetables and sold two vegetables ‘R’ and ‘T’ to person A for a total of Rs.5000. Person A sold vegetables ‘R’ at 10% loss and vegetables ‘T’ at 40% profit to person B. If person B purchased both the vegetables for a total of Rs.5600, then what will be the cost price of both the vegetables for person A?

1. Rs.2400, Rs.1500
2. Rs.2100, Rs.3400
3. Rs.700, Rs.1330
4. Rs.1800, Rs.3200

**Answer:** d

**Solution:**

Let the cost price of vegetable ‘R’ for person A = r

And the cost price of vegetable ‘T’ for person A = t

From the question:

r + t = 5000 ----(1)

When person A sold both the vegetable to person B-

The cost price of vegetables ‘R’ for person B

The cost price of vegetables ‘T’ for person B

Again from the question:

Multiply by 10 on both side

By equation (2) – equation (1) × 8

The cost price of vegetable ‘X’ for person A = 5000 – 3200 = Rs.1800

The cost price of vegetable ‘Y’ for person A = Rs.3200

**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**

Amar, Akbar, Anthony enter into a partnership with a capital of with Amar from the starting of the month with 3000, Akbar join after two month with 2000 and Anthony joined after 6 month with capital 5000. If the total profit earned in the year is 25000. How much Anthony get from the share?

1. 13411
2. 12551
3. 12400
4. **12500**

**Answer: d**

**Solution:**

Amar capital=3000

Akbar capital=2000

Anthony capital=5000

Ratio of their capital= 3000:2000:5000

=3:2:5

So the total profit earned will divide in their capital ratio

So the share of profit of Anthony is 12500

**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 ratio of the circumference of circle to its area as the radius of circle is given 49cm.

1. 134:2243
2. 154:3773
3. 532:1324
4. 184:2345

Answer: b

Solution:

Circumference of circle=

308cm

Area of circle

=7546cm2

So the required ratio is= 308:7546

=154:3773

**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**

The ratio between the curved surface area and the total surface area of a circular base cone is 5: 7. If the radius of the circular base of the cone is 14 cm, then find the height of the cone?

1. 32 cm
2. 26 cm
3. 34 cm
4. 24 cm

**Answer:** a

**Solution:**

Given that,

The radius of the circular base of the cone = 14 cm

Now, the curved surface area of the cone = πrl

And the total surface area of the cone = πr (l + r)

According to the question:

So, the height of the cone = cm (approx.)

**Q17.**

**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: Important formula**

ABC is a triangle, where B is acute angle triangle of 30. AB=14cm and BC=13cm. find the area of triangle?

1. 42cm2
2. 24cm2
3. 53cm2
4. 45.5cm2

**Answer:** d

**Solution:**

We know that to find area of triangle with angle the formula is=

**Q18.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: percentage**

**Sub- Concept: concept of percentage**

**Concept Field:**

A man gives 25% of his monthly salary to his wife. He invests 45% of his remaining salary in a scheme and he saves 10/9 part of the remaining. If the average of the amounts, which he gives to his wife and which he saves, is Rs.7500, then find the amount which he saves?

1. Rs.8100
2. Rs.7200
3. Rs.9500
4. Rs.9000

**Answer:** d

**Solution:**

Let the monthly salary of the man = x

So, the amount, which he gives to his wife

The amount, which he invests in the scheme

And the amount, which he saves

According to the question:

So, the amount which he saves

**Q19.**

**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**

A certain sum amounts to Rs.26460 in 2 years and Rs.27783 in 3 years at x% rate of compound interest. What will be the difference between simple interest and compound interest on the same sum at the same rate of interest for 2 years?

1. Rs.80
2. Rs.50
3. Rs.60
4. Rs.70

**Answer:** c

**Solution:**

The rate of compound interest

Let the certain sum = x

Required difference

**Q20.**

**Question Type: MCQ**

**Question Difficulty Level: Medium**

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

**Expected time to solve: 30 seconds**

**Topic: Basic Math**

**Concept: Boat and stream**

**Sub- Concept:**

**Concept Field:**

The downstream speed of boat B is 70% of that of boat A and the upstream speed of boat A is 120% of that of boat B. If the speeds of streams, in which boat A and boat B are travelling, are 4 km/h and 2 km/h respectively, then find the ratio between the downstream speed of boat A and the upstream speed of boat B?

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

**Answer:** c

**Solution:**

Let the downstream speed of boat A = x

So, the downstream speed of boat B

Let the upstream speed of boat B = y

So, the upstream speed of boat A

According to the question:

And,

From equations (1) and (2):

Required ratio = x: y = 2: 1

**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: ratio**

**Direction:**

The Bar graph below shows the percentage of shares of five different manufacturer company A, B, C, D and E which make different types of car in 2005 in the market. The total money invested by all the car manufacturer company together is 20000.crore. Study the following bar graph carefully and answer the questions.

Find the ratio of the money invested by car manufactured company A and C during the year.

1. 2:5
2. 3:5
3. 2:3
4. 3:7

**Answer:** option d

**Solution:**

Car manufactured by company A

Car manufactured by company B

So the required ratio of company A and B

So the ratio of the money invested by company A and C is 2:3.

**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**

**Direction:** The Bar graph below shows the percentage of shares of five different manufacturer company A, B, C, D and E which make different types of car in the year 2005 in the market. The total money invested by all the car manufacturer company together is 20000.crore. Study the following bar graph carefully and answer the questions.

If the car manufactured company E invested a total sum of 7000 in 2006. Then how much it is more or less than the money invested by company E in 2005?

1. 200%
2. 133.3%
3. 500%
4. 40%

**Answer:** option b

**Solution:**

Percentage of money invested by company E in 2005=15%

Total sum of money invested= 20000

Share of money invested by

So the required percentage

**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: ratio**

**Direction:** The Bar graph below shows the percentage of shares of five different manufacturer company A, B, C, D and E which make different types of car in the market. The total money invested by all the car manufacturer company together is 20000.crore. Study the following bar graph carefully and answer the questions.

Find the ratio of the money invested by B and E if the combinedly invested 25% of the money in the year 2005?

1. 2:3
2. 5:7
3. 2:1
4. 3:7

**Answer:** c

**Solution:**

According to the question,

Money invested by B=30%

Money invested by E=15%

Money invested by both all-together=25%

We know by the rule of allegation

B E

So the required ratio is= 2:1

**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: ratio**

**Direction:** The Bar graph below shows the percentage of shares of five different manufacturer company A, B, C, D and E which make different types of car in the market. The total money invested by all the car manufacturer company together is 20000.crore. Study the following bar graph carefully and answer the questions.

Find the ratio of the average money invested by company A and C and the ratio of the average money invested by company B,D and E in the year 2005?

1. 23:12
2. 27:22
3. 19:21
4. 27:19

**Answer:** B

**Solution:**

Money invested by company A= 20/100×20000=4000

Money invested by company B= 30/100×20000=6000

Money invested by company

Money invested by company

Money invested by company

So, the average of the money invested by A and C

the average of the money invested by A and C

So the required ratio

**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:**

The Bar graph below shows the percentage of shares of five different manufacturer company A, B, C, D and E which make different types of car in the market. The total money invested by all the car manufacturer company together is 20000.crore. Study the following bar graph carefully and answer the questions.

Find the average of the money invested by company A, B and D taken together?

1. 4000
2. 2444
3. 5435
4. 2452

**Answer:** a

**Solution:**

Money invested by company

Money invested by company

Money invested by company

Average of money invested by three companies A, B and C

So the required average is 4000 of all three companies.