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**SSC CGL 2020 EXAM PAPER : Held on 06-March-2020  
Shift-1 (Mathematics)**

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**Q1. If  $[2\sin A + \operatorname{cosec} A] = 2\sqrt{2}$ ,  $0^\circ < A < 90^\circ$ , then the value of  $2[\sin^4 A + \cos^4 A]$  is:**

- a. 4
- b. 0
- c. 1
- d. 2

**Correct Answer: 1**

**Q2. A metallic sphere of diameter 40 cm is melted into smaller spheres of radius 0.5 cm. How many such small balls can be made?**

- a. 32,000
- b. 64,000
- c. 3200
- d. 6400

**Correct Answer:** 64,000

**Q3.** If '+' means '-', '-' means '+', 'x' means '÷' and '÷' means 'x', then the value of  $[(30 \times 5) + (84 \times 6)] \div 5 / [2/3 \div 18] - [4 \div 2]$  is:

- a. 2
- b. -2
- c. -1
- d. 1

**Correct Answer:** -2

**Q4.** If  $a + b + c = 9$  and  $ab + bc + ca = -22$ , then the value of  $a^3 + b^3 + c^3 - 3abc$  is:

- a. 487
- b. 1571
- c. 1323
- d. 783

**Correct Answer:** 1323

**Q5.** If the number  $678x29$  is divisible by 9, then the value of  $2x$  is:

- a. 4
- b. 3
- c. 8
- d. 2

**Correct Answer:** 8

**Q6.** Solve the following:  $\sin 40^\circ / \cos 50^\circ + \operatorname{cosec} 50^\circ / \sec 40^\circ - 4 \cos 50^\circ \operatorname{cosec} 40^\circ$

- a. -1
- b. -2
- c. 1
- d. 2

**Correct Answer:** -2

**Q7. ABC is an equilateral triangle. P, Q and R are the midpoints of sides AB, BC and CA, respectively. If the length of the side of the triangle ABC is 8 cm, then the area of  $\triangle PQR$  is:**

- a.  $8\sqrt{3} \text{ cm}^2$
- b.  $4\sqrt{3} \text{ cm}^2$
- c.  $\sqrt{3}/3 \text{ cm}^2$
- d.  $\sqrt{3}/4 \text{ cm}^2$

**Correct Answer:**  $4\sqrt{3} \text{ cm}^2$

**Q8. Two tangents PA and PB are drawn to a circle with centre O from an external point P. If  $\angle OAB = 30^\circ$ , then  $\angle APB$  is:**

- a.  $120^\circ$
- b.  $15^\circ$
- c.  $30^\circ$
- d.  $60^\circ$

**Correct Answer:**  $60^\circ$

**Q9. If the value of  $(a + b - 2)^2 + (b + c - 5)^2 + (c + a - 5)^2 = 0$ , then the value of  $\sqrt{(b + c)^a + (c + a)^b} - 1$  is:**

- a. 0
- b. 1
- c. 2
- d. 3

**Correct Answer:** 3

**Q10. A, B and C can individually complete a task in 24 days, 20 days and 18 days, respectively. B and C start the task, and they work for 6 days and leave. The number of days required by A alone to finish the remaining task, is:**

- a.  $47/3$  days
- b. 10 days

- c.  $44/5$  days
- d.  $25/2$  days

**Correct Answer:**  $44/5$

**Q11.** The population of a city increased by 30% in the first year and decreased by 15% in the next year. If the present population is 11050 then the population 2 years ago was:

- a. 10000
- b. 99000
- c. 10500
- d. 99500

**Correct Answer:** 10000

**Q12.** A student takes 1.25 hours to travel from home to school at a speed of 4km/hr. By what percentage should he increase his speed to reduce the time by 25% to cover the same distance from school to home?

- a.  $100/3$  %
- b. 25 %
- c. 50 %
- d. 45 %

**Correct Answer:**  $100/3$  %

**Q13.** If  $3^a = 27^b = 81^c$  and  $abc = 144$ , then the value of  $12[1/a + 1/2b + 1/5c]$  is:

- a.  $18/120$
- b.  $33/10$
- c.  $17/120$
- d.  $18/10$

**Correct Answer:**  $33/10$

**Q14. If the following table, the production of various crops is given from 2015 to 2019. Study the table and answer the questions that follow.**

Year	Rice	Wheat	Sugarcane	Barley	Maize
2015	415	2500	1000	975	490
2016	520	4218	1120	825	520
2017	585	3482	1250	700	610
2018	625	4500	1325	625	725
2019	600	3300	1450	775	840

**The average production of wheat in the period given in the table is:**

- a. 3600
- b. 3482
- c. 3300
- d. 4218

**Correct Answer: 3600**

**Q15. What will be the difference in compound interest on a sum of 7800 at 8% for 1 year, when the interest is paid yearly and half yearly?**

- a. 29.18
- b. 12.48
- c. 24.72
- d. 19.46

**Correct Answer: 12.48**

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**Q16. If a sum of Rs. 1180 is to be divided among A, B and C, such that 2 times A's share, 5 times B's share and 7 times C's share, are equal, then A's share is:**

- a. 700
- b. 500
- c. 750
- d. 650

**Correct Answer: 700**

**Q17. If  $x\cos A - y\sin A = 1$  and  $x\sin A + y\cos A = 4$ , then the value of  $17x^2 + 17y^2$  is:**

- a. 7
- b. 289
- c. 60
- d. 90

**Correct Answer: 289**

**Q18. If the following table, the production of various crops is given from 2015 to 2019. Study the table and answer the questions that follow.**

Year	Rice	Wheat	Sugarcane	Barley	Maize
2015	415	2500	1000	975	490
2016	520	4218	1120	825	520
2017	585	3482	1250	700	610
2018	625	4500	1325	625	725
2019	600	3300	1450	775	840

**The difference between the average production of barley and average production of rice is:**

- a. 231
- b. 780
- c. 471
- d. 549

**Correct Answer:** 231

**Q19.** If the following table, the production of various crops is given from 2015 to 2019. Study the table and answer the questions that follow.

Year	Rice	Wheat	Sugarcane	Barley	Maize
2015	415	2500	1000	975	490
2016	520	4218	1120	825	520
2017	585	3482	1250	700	610
2018	625	4500	1325	625	725
2019	600	3300	1450	775	840

The highest growth of sugarcane production over its previous year is recorded in the year:

- a. 2017
- b. 2019
- c. 2016
- d. 2018

**Correct Answer:** 2016

**Q20.** If the area of an equilateral triangle is  $36\sqrt{3}$  cm<sup>2</sup>, then the perimeter of the triangle is:

- a. 36 cm
- b.  $36\sqrt{3}$  cm
- c.  $18\sqrt{3}$  cm
- d. 12 cm



**Correct Answer:** 36 cm

**Q21.** If the following table, the production of various crops is given from 2015 to 2019. Study the table and answer the questions that follow.

Year	Rice	Wheat	Sugarcane	Barley	Maize
2015	415	2500	1000	975	490
2016	520	4218	1120	825	520
2017	585	3482	1250	700	610
2018	625	4500	1325	625	725
2019	600	3300	1450	775	840

The percentage growth of maize in the year 2019 over the year 2015 is:

- a. 71.43%
- b. 60.28%
- c. 77.77%
- d. 65.12%

**Correct Answer:** 71.43%

**Q22.** A circular disc of area  $0.64\pi \text{ m}^2$  rolls down a length of 1.408 km. The number of revolutions it makes is:

- a. 140
- b. 360
- c. 280
- d. 180

**Correct Answer:** 280

**Q23.** The average of the marks of 30 boys is 88, and when the top two scores were excluded, the average marks

reduced to 87.5. If the top two scores differ by 2, then the highest mark is:

- a. 90
- b. 96
- c. 94
- d. 92

**Correct Answer: 96**

**Q24. A shopkeeper marks the price of an article in such a way that after allowing a discount of 22%, he get a gain of 11%. If the marked price is Rs. 888, then the cost price of the article is:**

- a. 600
- b. 630
- c. 550
- d. 624

**Correct Answer: 624**

**Q25. An article was sold at a gain of 18%. If it had been sold for Rs. 49 more, then the gain would have been 25%. The cost price of the article is:**

- a. 650
- b. 570
- c. 700
- d. 890

**Correct Answer: 700**



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