SET-II

SUMMATIVE ASSESSMENT - I - 2016-2017
MATHEMATICS - Paper - II
(English Version)
PART - A & B

Class : X **Max. Marks : 40** **Time : 2:45Hrs.**

Marks : 30 **Part - A**

Instructions:

1. **15 minutes of time is alloted for reading the question paper.**
2. **Answer ALL questions.**
3. **Answer for questions under Part-A should be written in a separate answer book.**
4. **There is internal choice for questions in Section-III, Part-A.**

SECTION - I

Note:

(i) Answer all questions.

(ii) Each question carries 1 mark. **4 x 1 = 4 Marks**

1. In ΔABC, DE // BC and $\frac{AD}{DB} = \frac{3}{5}$. If AE = 2.1 cm, then find AC

2. What can you say about the ratio of areas of two similar triangless?

3. The mean of '$x + y$' observations is '$x - y$'. Find the sum of all the observations.

4. Evaluate: $\log_4 (1+\tan^2 45°)^2$.

SECTION - II

Note:

(i) Answer all questions.

(ii) Each question carries 2 marks. **5 x 2 = 10 Marks**

5. A girl of height 90 cm is walking away from the base of a lamp post at a speed of 1.2 m/sec. If the lamp post is 3.6 m above the ground, find the length of her shadow after 4 seconds.

6. The hypotenuse of a right triangle is 6 m more than twise the shortest side. If the third side is 2 m less than the hypotenuse, find the sides of the triangle.

7. Is it true to say that
Cos $(60^\circ + 30^\circ)$ = Cos 60° Cos 30° + Sin 60° Sin 30°? Justify your answer.

8. Find the median and mode of the following observations.
12, 5, 9, 6, 14, 9 and 8.

9 Write the formula for calculating 'Arithmetic Mean' in step deviation method and explain each letter in it.

SECTION - III

Note:

1. **Answer all the questions.**
2. **Choose any one from each question.**
3. **Each question carries 4 marks.** **4 x 4 = 16 Marks**

10. (a) In Δ ABC, $\angle C = 90^\circ$. If BC + CA = 17 cm, BC - CA = 7 cm, find
(i) Sin A (ii) Sin B

(OR)

(b) ABC is a triangle. PQ is a stright line meeting AB in P and AC in Q. If AP = 1 cm, BP = 3 cm, AQ = 1.5 cm and CQ = 4.5 cm, find area of Δ APQ : area of Δ ABC.

11. (a) For the following data, if the median of 60 observations is 28.5, find the values of x and y.

Class Interval	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
Frequency	5	x	20	15	y	5

(OR)

(b) Find the value of $\cos^2 1° + \cos^2 2° + \cos^2 3° + ... + \cos^2 90°$.

12. (a) If $\operatorname{Cosec}\theta + \cot\theta = k$ then prove that.

$$\cos\theta = \frac{k^2 - 1}{k^2 + 1}$$

(OR)

(b) O is any point inside a rectangle ABCD.
Prove that $OB^2 + OD^2 = OA^2 + OC^2$

13. (a) Construct an isosceles triangle whose base is 8 cm and attitude is 4 cm. Then, draw another similar triangle whose side are 1 $\frac{1}{2}$ times the corresponding sides of the isosceles triangle.

(OR)

(b) The following distribution gives the daily income of 50 workers of a factory. Draw it's less than type Ogive Curve.

Dialy Incom (in Rupees)	350 - 400	400 - 450	450 - 500	500 - 550	550 - 600
Number of workers	10	16	12	8	4

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SUMMATIVE ASSESSMENT - I - 2016-2017
MATHEMATICS -Paper - II
(English Version)
PART - B

Class : X **Marks : 10**

Name of the Student :..... Roll No: .....

	AS-1						AS-2			AS-3			AS-4				AS-5		Total	Grade
Q.No	1	5	8	10	11	14 - 19	7	12	20 - 23	2	9	24 - 25	3	4	6	26 - 29	13	30 - 33		
Marks																				
Total																				

Marks : 10 **Part - B**

Instructions:

1. **Answer all the questions in Part-B.**
2. **Each question has 4 options. Write the capital letter indicating the answer in the given brackets.**
3. **Marks are not awarded for over witing answers.**
4. **All questions carry equal marks.**

SECTION - IV

Instructions:

1. **Answer all the questions.**
2. **Each question carries ½ mark.** **20 x ½ = 10 Marks**

14. $\Delta ABC \sim \Delta DEF$. If $\angle C = 50^\circ$, $\angle D = 65^\circ$ then $\angle E$ = **[ ]**

A) 90° B) 50° C) 65° D) 55°

15. In a Rhombus ABCD, AB = 5 cm then $AC^2 + BD^2$ = **[ ]**

A) 25 B) 100 C) 50 D) 75

16. If $\sin\theta = \cos(\theta - 6^\circ)$ then θ = [ ]

A) 30° B) 24° C) 36° D) 48°

17. If $\sec\theta = \frac{X}{\cos\theta}$ then X = [ ]

A) $\frac{1}{2}$ B) 0 C) -1 D) 1

18. If the mode of $\frac{X}{4}, X, \frac{X}{5}, \frac{X}{6}, \frac{X}{4}$ $(X > 0)$ is 5 then X = [ ]

A) 20 B) 10 C) 15 D) 8

19. If 20 is removed from the data 20, 24, 25, 26, 27, 28, 29, 30 then the median is increased by [ ]

A) 1 B) 1.5 C) 0.5 D) 2

20. The sides of a triangle are 8 cm, 15 cm and 17 cm. The largest angle of the triangle is [ ]

A) right angle B) acute angle

C) obtuse angle D) striaght angle

21. Which of the following is not the value of $\sin\theta$? [ ]

A) 1 B) $\frac{3}{4}$ C) $\frac{4}{3}$ D) $\frac{1}{2}$

22. Which of the following is not correct? [ ]

A) $\cos 0^\circ = 0$ B) $\sin 90^\circ = 0$

C) $\tan 45^\circ = \cot 45^\circ$ D) Both A and B

23. Which of the following measure of central tendency is mostly effected by the extreme? [ ]

A) Mean B) Median C) Mode D) Range

24. Match the following [ ]

1. Mean of first 10 natural numbers [ ] (p) 4.5
2. Median of first 10 whole numbers [ ] (q) 5.5
3. Mode of first 10 natural numbers [ ] (r) does not exist

A) $1 \to r, 2 \to p, 3 \to q$ B) $1 \to q, 2 \to p, 3 \to r$

C) $1 \to p, 2 \to r, 3 \to q$ D) $1 \to q, 2 \to r, 3 \to p$

25. The middle most value of a data is called [ ]

A) Mean B) Mode C) Median D) Both B and C

26. If the ratio of corresponding sides of two similar triangles is 2 : 3 then the ratio of the corresponding attitudes is [ ]

A) 3 : 2 B) 9 : 4 C) 4 : 9 D) 2 : 3

27. (Sec A + tanA) (1 - Sin A) = [ ]

A) Sec A B) Sin A C) Cosec A D) Cos A

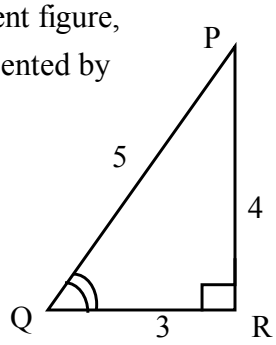
28. If Sec θ + tan θ = X then Cosec θ = [ ]

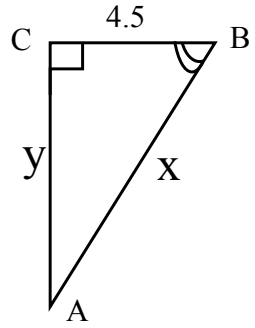
A) $\frac{X}{X+1}$ B) $\frac{X^2-1}{X^2+1}$ C) $\frac{X^2+1}{X^2-1}$ D) $\frac{1}{\sqrt{X^2+1}}$

29. If the mean of 4, X, 6, 9, y, 13 is 8 then the relation between X and y is [ ]

A) $X+y = 16$ B) $X-y = 16$ C) $Xy = 16$ D) $2X-3y = 16$

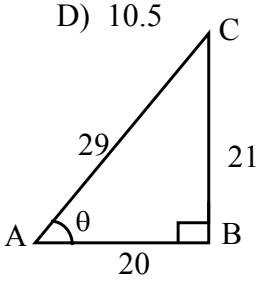
30. From the adjacent figure, the value represented by is ' $X+y$ ' [ ]





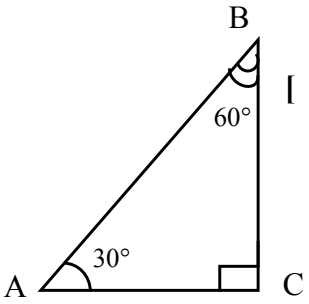
A) 13.5 B) 12.5 C) 14.5 D) 10.5

30. From the adjacent figure, $\frac{29}{21}$ represents [ ]



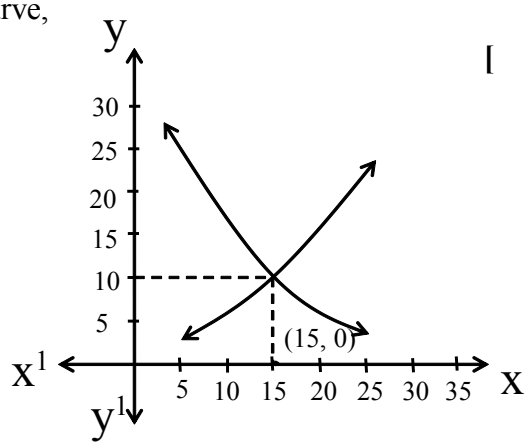
A) Cos θ B) Cosec θ C) Cot θ D) Sin θ

32. From the adjacent figure, value of '$Sin^2A + Sin^2B$' [ ]



A) $\frac{1}{\sqrt{2}}$ B) $\frac{1}{2}$ C) $\frac{\sqrt{3}}{2}$ D) 1

33. From the adjoining 'Ogive Curve, the value 15 represents [ ]



A) Mean B) Mode C) Median D) Range