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 $\triangle ABC$, DE // BC and $\dfrac{AD}{DB} = \dfrac{3}{5}$. 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 $(60° + 30°)$ = 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 $\triangle$ ABC, $\angle C = 90°$. 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
    $\triangle$ APQ : area of $\triangle$ 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 $\cos^2 1° + \cos^2 2° + \cos^2 3° + \ldots\ldots\ldots + \cos^2 90°$.

12. (a)   If $\csc \theta + \cot \theta = k$ 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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PART - B

Class : X   **Marks : 10**

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

Q.No	AS-1						AS-2				AS-3				AS-4				AS-5		Total	Grade
	1	5	8	10	11	14 - 19	7	12	20 - 23		2	9	24 - 25		3	4	6	26 - 29	13	30 - 33	Total	Grade
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. $\triangle$ ABC $\sim$ $\triangle$ DEF. If $\angle C = 50°$, $\angle D = 65°$ 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 θ = Cos (θ - 6°) then θ =   [   ]

A) 30°   B) 24°   C) 36°   D) 48°

17. If Sec θ = $\dfrac{X}{Cos\ \theta}$ then X =   [   ]

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

18. If the mode of $\dfrac{X}{4}$, X ,$\dfrac{X}{5}$,$\dfrac{X}{6}$,$\dfrac{X}{4}$ (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 θ?   [   ]

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

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

A) Cos 0° = 0   B) Sin 90° = 0

C) tan 45° = Cot 45°   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 → r, 2 → p, 3 → q   B) 1 → q, 2 → p, 3 → r

C) 1 → p, 2 → r, 3 → q   D) 1 → q, 2 → r, 3 → p

25. The middle most value of a data is called   [   ]
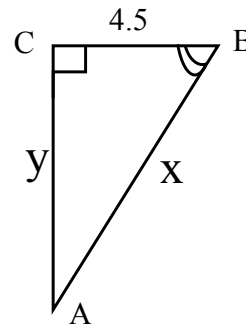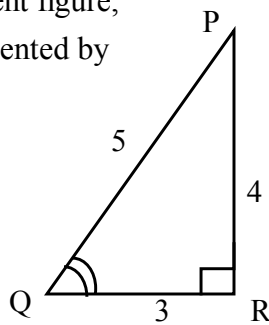A) Mean   B) Mode   C) Median   D) Both B and C

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) $\dfrac{X}{X+1}$ B) $\dfrac{X^2-1}{X^2+1}$ C) $\dfrac{X^2+1}{X^2-1}$ D) $\dfrac{1}{\sqrt{X^2+1}}$
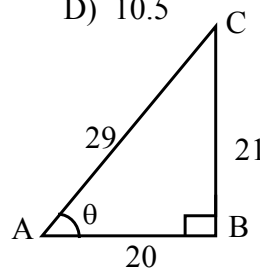
29. If the mean of 4, X, 6, 9, y, 13 is 8 then the relation between X and y is [   ]
A) X+y = 16   B) X-y = 16   C) Xy = 16   D) 2X-3y = 16

30. From the adjacent figure, the value represented by is ' X+y '   [   ]
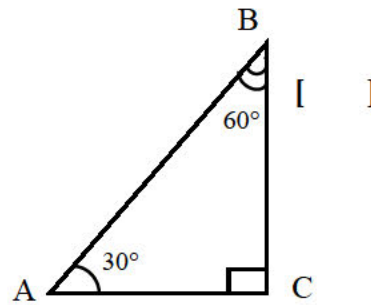
A) 13.5   B) 12.5   C) 14.5   D) 10.5

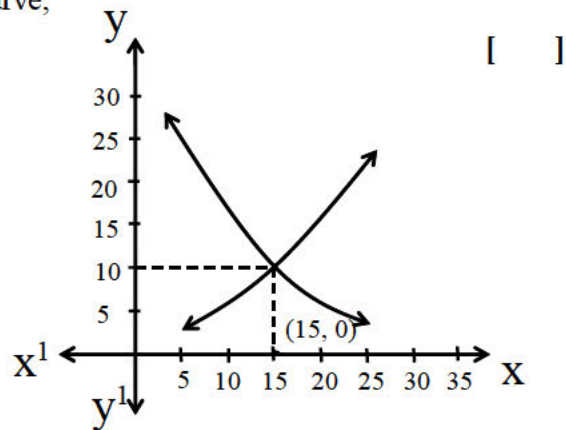30. From the adjacent figure, $\dfrac{29}{21}$ represents   [   ]

A) Cos θ B) Cosec θ C) Cot θ D) Sin θ

32. From the adjacent figure,
    value of 'Sin²A + Sin²B'   [   ]

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

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

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

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