

SUMMATIVE ASSESSMENT - I - 2017-2018

MATHEMATICS Paper - II

(English Medium)

PART - A & B

Class : X

(Max. Marks : 40)

Time : 2.45 Hrs.

Instructions :

1. 15 Minutes are allotted for reading the question paper (Part A & B) in addition to 2.30 hours for writing the answers.
2. Part - A answers should be written in a separate answer book.
3. There are three Sections in Part - A.
4. Answer all the questions.
5. Every answer should be visible and legible.
6. There is internal choice in Section - III.
7. Part-A & B should be given at the beginning of the exam only.

Marks : 30

PART-A

Section - I

Note 1. Answer all the Questions.

2. Each Question carries 1 Mark

 $4 \times 1 = 4$

1. If x cm, 8 cm and 10 cm are the sides of a right angle triangle ABC and if the smallest side is x cm then find x . (Hint: use pythagorous theorem)

2. Find the value of $\frac{\tan 45^\circ + \cos 60^\circ}{\sin 90^\circ - \sin 30^\circ}$
3. Why is the mode of first five prime numbers cannot be defined? Give reasons.
4. $\triangle ABC \sim \triangle XYZ$ the sides of $\triangle ABC$ are in a ratio of 7 : 24 : 25. Then what type of triangle is $\triangle XYZ$? Justify your answer.

Section - II

Note 1. Answer all the Questions.

2. Each Question carries 2 Marks

 $5 \times 2 = 10$

5. Find the Value of $\frac{\tan A + \tan B}{1 - \tan A \tan B}$ if $A = 60^\circ$, $B = 30^\circ$
6. Write the formula for finding mode for a grouped data and explain the variables

7. Length and breadth of a rectangle are $(3 + \sqrt{2})$ cm, $(3 - \sqrt{2})$ cm. Find the length of its diagonal (Hint: use pythagorus principle)
8. In a triangle ABC, $\angle C = 90^\circ$ and $\sin A : \sin B = 1 : \sqrt{3}$. Find the value of $\tan A$.
(Hint: $\sin B = \cos A$)
9. Draw a rough diagram for the following information.
*In a trapezium ABCD, $\overline{AB} \parallel \overline{CD}$, E and F are points on non parallel sides \overline{AD} , \overline{BC} respectively such that $\overline{EF} \parallel \overline{AB}$.

Section - III

Note: 1. Answer all the Questions.

2. Each Question has internal choice

3. Each Question carries 4 Marks

$4 \times 4 = 16$

10. a) Find the value of $\tan 5A$, if $\cos 7A = \sin(A - 6^\circ)$ and $7A$ is an acute angle
(Hint: $0^\circ < 7A < 90^\circ$)

(OR)

b) If $C \sec \theta + C \cot \theta = k$ The find the Value of $\cos \theta$ in term of k .

11. a) The table given below shows the daily expenditure on food for 25 house holds in a locality.

Daily Expenditure (in Rupees)	100 - 150	150 - 200	200 - 250	250-300	300-350
No. of house holds	4	5	12	2	2

Find the mean of their daily expenditure.

(OR)

b) The table given below shows the ages of patients admitted in a hospital during a year. If the mode of the data is 37 and modal class is 35 - 45 find out the missing frequency f .

Age in years	5 - 15	15 - 25	25 - 35	35 - 45	45 - 55	55 - 65
No. of Patients	6	10	21	f	15	5

12. a) In the given figure $\overline{LM} \parallel \overline{CB}$ and

$$\overline{LN} \parallel \overline{CD} \text{ prove that } \frac{\overline{AM}}{\overline{AB}} = \frac{\overline{AN}}{\overline{AD}}$$

(Hint: use Basic proportionality theorem)



(OR)

b) Show that $\sqrt{\frac{1+\sin A}{1-\sin A}} = \sec A + \tan A$

(Hint: $-\sin^2 A + \cos^2 A = 1$)

13. a) Draw a line segment of length 7.3 cm and divide it in the ratio of 2 : 3

(OR)

- b) Construct a triangle similar to a given triangle ABC with its sides equal to $\frac{2}{3}$

of corresponding sides of triangle $\triangle ABC$ (Scale factor $\frac{2}{3}$)

Regd.No.

59-B

Marks:

SUMMATIVE ASSESSMENT - I - 2017-2018**MATHEMATICS PAPER - II**

(English Medium)

Class X

Part - B

Time : 30minutes

Marks : 10

Academic Standards	Problem Solving					Reasoning				Communication		Connection			Visualism		
Q.NO.s	1	2	5	10	11	14-21	3	4	12	22-25	6	26-29	7	8	30-33	9	13
Marks																	
Total Marks																	

Name of the Student : Roll No. :

Note:

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

- 10 - 24, 25 - 39, 40 - 54 are the class intervals. Difference between lower boundary and lower limit of the class 25 - 39 ()
A) 1 B) 0.5 C) 15 D) 14
- If $\sin(A+B) = \sin(A-B) = \frac{1}{\sqrt{2}}$ ($0^\circ \leq A \leq 90^\circ$) then the angle A is ()
A) 30° B) 0° C) 45° D) 90°
- $\triangle ABC \sim \triangle DEF$ $\overline{AB} : \overline{DE} = 2:3$ and if $\overline{DF} = 4.5$ cm then $\overline{AC} =$ ()
A) 6 cm B) 3 cm C) 2 cm D) 1.5 cm
- In a class of 10 students a test with 5 Questions for each 1 mark was conducted 4 of them write all 5 correctly. 3 of them wrote 3 correctly and the remaining wrote none. Then the average mark of the class is ()
A) 2.7 B) 2.9 C) 3.4 D) 3

18. In $\triangle ABC$, $\angle C = 90^\circ$. If $\tan A = \frac{1}{\sqrt{3}}$ then $\sin B =$ ()

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

19. $\triangle KLM \sim \triangle PQR$. If $\frac{KL}{PQ} = \frac{2}{3}$ then ar $\triangle KLM$: ar $\triangle PQR =$ ()

- A) $\sqrt{2} : \sqrt{3}$ B) 4 : 9 C) 3 : 2 D) $\sqrt{3} : \sqrt{2}$

20. Cumulative frequencies of classified data are 6, 26, 50, 78, 93, 97, 100
frequency of 4th class = ()

- A) 20 B) 6 C) 28 D) 15

21. $\sin 30^\circ + \cos 60^\circ + \tan 45^\circ =$ ()

- A) 0 B) 6 C) 2 D) $\frac{1}{\sqrt{2}}$

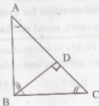
22. From the given figure which among these are correct? ()

A) $\frac{AB}{DC} = \frac{AD}{BC}$

B) $\frac{BD}{DC} = \frac{AD}{BD}$

C) $\frac{BD}{BC} = \frac{AD}{AB}$

D) Both B and C



23. If mean and mode are equal for the data 14, 15, 13, 15, a, b then the value of $a + b =$ ()

- A) 15 B) 18 C) 33 D) 30

24. If $2 \sin \theta = \tan 45^\circ$ ($0^\circ < \theta < 90^\circ$) then $\tan \theta =$ ()

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

25. If in ΔPQR , $ar \Delta STU = 5:9$, and $\overline{PX}, \overline{SY}$ are altitudes of these triangles respectively, then $\overline{PX} : \overline{SY} =$ ()
- A) $\sqrt{5} : \sqrt{3}$ B) $5 : 3$ C) $\sqrt{5} : 9$ D) $\sqrt{5} : 3$
26. In $\Delta ABC, \Delta XYZ$ $\frac{\overline{AB}}{\overline{XY}} = \frac{\overline{BC}}{\overline{YZ}} = \frac{\overline{AC}}{\overline{XZ}} \neq 1$ then ()
- A) $\Delta ABC \sim \Delta XYZ$ B) $\Delta ABC \cong \Delta XYZ$
 C) $\Delta ABC = \Delta XYZ$ D) Both A and C
27. $\sin \theta =$ ()
- A) $\sqrt{1 - \tan^2 \theta}$ B) $\sqrt{1 - \cos^2 \theta}$
 C) $\frac{\tan \theta}{\sec \theta}$ D) Both B and C
28. In finding Median for a grouped data $M = l + \frac{\frac{N}{2} - F}{f} \times h$
 the letter "l" represents ()
- A) lower limit of median class
 B) Lower boundary of median class
 C) length of the class
 D) Median class frequency
29. $\sin 22^\circ =$ (Hint:- $\cos(90^\circ - \theta^\circ) = \sin \theta^\circ$) ()
- A) $\cos 22^\circ$ B) $\cos 78^\circ$ C) $\cos 68^\circ$ D) $\sin 68^\circ$
30. If mean value of $\tan 0^\circ, \tan x^\circ, \sin 30^\circ$ is equals to $\sin 30^\circ$ then $x =$ ()
- A) 60° B) 30° C) 45° D) 90°

31. In the given figure $\triangle ABC$ $\angle B = 90^\circ$,

$$\overline{AB} = \sin^2 \theta + \cos^2 \theta ;$$

$$\overline{BC} = \sec^2 \theta - \tan^2 \theta \text{ then } \overline{AC}$$

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



32. The 'mode' of the word SEPTEMBER is same as one of the following word. Then the word is ()

- A) JUNE B) JULY
C) OCTOBER D) DECEMBER

33. If a ladder kept at a distance of 3 mt from the foot of a wall touches the wall at a height of 4 mt then the length of the ladder is. (Hint: - use pythagorous principle) ()

- A) 3 mt B) 5 mt C) 4 mt D) 7 mt