HOLY CHILD

Muskan
= X B

SUMMATIVE ASSESSMENT – I [2012-2013]
MATHEMATICS

CLASS: X
TIME: 3 HRS

M. M: 90 25
Date: 19/9/2011

General Instructions.

1. *All questions are compulsory*
2. *The question paper consists of **34** questions divided into four sections **A, B, C,** and **D**. **Section –A** comprises of **8** questions of **1 mark** each. **Section- B** comprises of **6** questions of **2 marks** each. **Section -C** comprises of **10** questions of **3 marks** each and **Section-D** comprises of **10** questions of **4 marks** each.*
3. *Question numbers **1 to 8** in **Section - A** are multiple choice questions where you have to select **one correct** option out of the given four.*
4. *There is no overall choice. However, internal choice has been provided in **1** question of **two marks**, **3** questions of **three marks** each and **3** questions of **four mark** each. You have to attempt only one of the alternatives in all such questions.*

SECTION -A

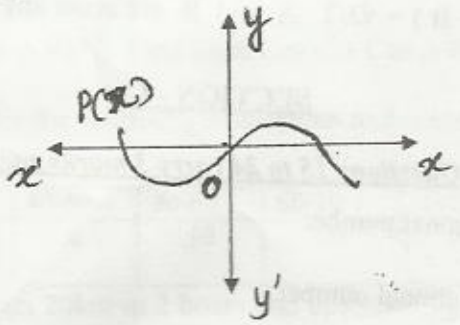
Question numbers 1 to 8 carry 1 mark each.

Q1. $119^2 - 111^2$ is .....
a) Prime Number
b) Composite number
c) odd prime number
d) odd composite number

Q2. The decimal expansion of 7/125 will terminate after how many places of decimals
a) 1 b) 2 c) 3 d) 4

Q3. The pair of Linear equation $5x+4y=20$ and $10x+8y=16$ have
a) No solution b) Many solutions c) Two solutions d) One solution

Q4. In the given figure the graph of a polynomial P(x) is shown. The number of zeroes P(x) is .....



a) 1 b) 2 c) 3 d) 4

Q5. If in ΔABC and ΔDEF, $\frac{AB}{ED} = \frac{BC}{DF}$ then these 2 triangles will be similar, if .....
a) $\angle B = \angle E$ b) $\angle A = \angle D$ c) $\angle B = \angle D$ d) $\angle A = \angle F$

Q6. If $\tan\theta = \cot\theta$, then the value of $\sec\theta$ is .....
a) 2 b) 1 c) $21\sqrt{3}$ d) $\sqrt{2}$

Q7. For a given data with 35 observations, the less than ogive and more than ogive intersect at (28.5 , 30). The median of the data is .....?
a) 28.5 b) 30 c) 1.5 d) 35

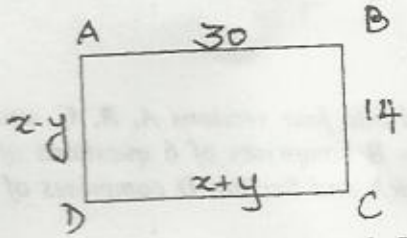
Q8. If $\sin\theta = \cos\theta$, then the value of θ is .....
a) 0 b) 45° c) 60° d) 30°

SECTION - B

Questions numbers 9 to 14 carry 2 marks each

Q9. Write 29250 as product of its prime factors.

Q10.



In the given figure ABCD is a rectangle Find the values of x and y.

Q11. Find the mode of the given data.

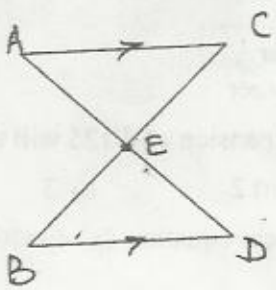
Class Interval	0-20	20-40	40-60	60-80
Frequency	15	6	18	10

Q12. If the areas of 2 similar triangles are equal. Prove that they are congruent

OR

In the given figure AC $||$ BD

Prove that $\frac{AE}{DE} = \frac{CE}{BE}$



Q13. Divide $14x^3 - 5x^2 + 9x - 1$ by $2x - 1$ Find Quotient and Remainder.

Q14. If $\sin(A+B) = \cos(A-B) = \sqrt{3}/2$ A and B are acute angles with $A > B$, Find the values of A and B.

SECTION - C

Questions 15 to 24 carry 3 marks each.

Q15. Show that $2 - \sqrt{3}$ is an irrational number

Or

Prove that $3 + \sqrt{5}$ is an irrational number.

Q16. ΔABC is an isosceles right triangle right angled at C. Prove that $AB^2 = 2BC^2$

Q17. In a trapezium ABCD , AB $||$ CD. Its diagonals AC and BD intersect at O Show that OA/OC = OB/OD.

Q18. If $\sin 3A = \cos(A-26)$ where 3A is an acute angle. Find A.

Or

Prove that $(\sec\theta - \tan\theta)^2 (1+\sin\theta) = 1 - \sin\theta$.

Q19. Find the median of the following data.

Class Interval	0-10	10-20	20-30	30-40	40-50	Total
Frequency	8	16	36	34	6	100

Q20. Find the zeroes of the quadratic polynomial $6x^2 - 7x - 3$ and verify the relationship between the zeroes and the coefficients.

Q21. Evaluate $(\sin^2 25° + \sin^2 65°) + \sqrt{3}(\tan 5° \tan 15° \tan 30° \tan 75° \tan 85°)$

Or

Prove that $\sec A (1 - \sin A)(\sec A + \tan A) = 1$

Q22. The sum of the Numerator and denominator of a fraction is 8. If 3 is added to both the Numerator and Denominator the fraction becomes ¾. Find the fraction.

Q23. Find the mean of the following distribution.

Class Interval	10-25	25-40	40-55	55-70	70-85	85-100
Frequency	2	3	7	6	6	6

Q24. Solve : $99x + 101y = 499$
$101x + 99y = 501$

SECTION –D

Question number 25 to 34 carry 4 marks each

Q25. Find all the zeroes of $x^4 - 3x^3 + 6x - 4$, If 2 of its zeroes are $\sqrt{2}$ and $-\sqrt{2}$.

Q26. State and prove the Pythagoras Theorem

Or

Prove that the line drawn parallel to one side of a triangle to intersect the other two sides in distinct points, then the other two sides are divided in the same ratio.

Q27. Solve the following system of linear Equations graphically
$2x + y = 6$
$2x - y = -2$
Also shade the region bounded by these lines and x-axis .

Q28. In $\triangle ABC$, $\angle B = 90°$ AB = 3cm , BC = 4cm Find (i) Sin C (ii) Sec A (iii) Cos C (iv) Cosec A
Or
In $\triangle ABC$, $\angle B = 90°$ Tan A $= 1/\sqrt{3}$ Find SinA Cos C + Cos A Sin C

Q29. Draw a less then ogive for the following distribution and obtain the median.

Marks	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of Students	14	6	10	20	30	8	12

Q30. Ritu can row downstream 20km in 2 hours and upstream 4km in 2hrs. Find her speed of rowing in still water and speed of the current.

Or

The sum of a 2 digit number and the number obtained by reversing the digits is 66. If the digits of the number differ by 2 find the number?

Q31. The mean of the following distribution is 62.8 . Find p.

Class Interval	0-20	20-40	40-60	60-80	80-100	100-120
Frequency	5	8	P	12	7	8

Q32. Use Euclid's Division lemma to show that the square of any positive integer is either of the form 3m or 3m+1 for some integer m.

Q33. Prove that sum of the squares of the sides of a rhombus is equal to the sum of the squares of its diagonals.

Q34. Evaluate :

$$\frac{\cos 70° + \cos 55° \operatorname{cosec} 35°}{\sin 20° \tan 5° \tan 25° \tan 45° \tan 65° \tan 85°}$$