Sample Paper - 2013
 Class – Xth
 Subject – Maths

Time : 3 Hrs M. M. 80

*1. All questions are compulsory.*

*2. The questions paper consists of 34 questions divided into four sections A,B,C and D.*

*Section – A comprises of 10 questions of 1 mark each, Section – B comprises of 8 questions of 2 marks each, Section – C comprises of 10 questions of 3 marks each and Section – D comprises of 6 questions of 4 marks each.*

*3. Question numbers 1 to 10 in Section – A are multiple choice questions where you are to select one correct option out of the given four.*

Section-A ( MCQ--101=10)

Q.1 The decimal expansion of the rational number , will terminate after how many places of decimal?

 (a) 1 (b) 3 (c) 4 (d) 5

Q.2 Sum of an irrational number and a rational number is always: (a) an irrational (b) a rational (c) an integer (d) a whole number

Q.3 Zeros of 

(i)  (ii)  (iii)  (iv) none of these.

Q.4 Value of k for which the system kx+2y = 5, 3x+y = 1 has unique solution. (a) k=6 (b)k=3 (c) k  6 (d) both b & c

Q.5 The value of  − 1 is (a) —sin2 θ (b) —cosec2θ (c) —cos2θ (d) —cot θ

Q.6 The maximum value of  is: (a) 1 (b) 2 (c) 0 (d) -1

Q.7 Ratio of areas of two similar triangles whose corresponding sides are 8 cm and 12cm is

 (a) 4/9 (b)  (c)  (d) 

Q.8 ΔABC ~ Δ PQR ,AB=24cm AC=30cm BC=9cm PQ=16cm PR= a cm QR= b cm, then the values of ‘a’ & ‘b’ are

(i)10,6 (ii) 20, 6 (iii) 6, 20 (iv) 6, 10.

Q.9 Remainder when 3x3+16x2+21x+20 is divided by x+4

 (a) 10 (b) -10 (c) 0 (d) none

Q.10 For a given data with 70 observations the ‘less than ogive’ and the ‘more than ogive’ intersect at (20.5, 35).

 The median of the data is: (a) 20 (b) 35 (c) 70 (d) 20.5

 Section-B ( 2 marks each)

Q.11 Consider the number 6,Where n is a natural number. Check whether for any value  ends with the digit zero.

Q.12 If  are zeroes of quadratic polynomial ,find the value of such that 

Q.13 Solve for  and  ; 

Q.14 If one diagonal of a trapezium divides the other diagonal in ratio 1:2,Prove that one of the parallel side is double the other.

Q.15 If A,B and C are interior angle of triangle ABC, then show that 

Q.16 ABC and DBC are two triangles on the same base BC. Prove that =

Q.17 Calculate the mode of the following distribution:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Interval  |  50 -60  | 60-70  | 70-80 | 80-90  | 90-100  |
| Frequency  |  8  |  6  |  22  |  11  | 13  |

Q.18 . Using step deviation method, calculate arithmetic mean of the following:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Class Interval  |  0-20  | 20- 40  | 40-60 | 60-80  | 80-100  | 100-120 |
| Frequency  |  20  |  35  |  52  |  44  | 38  |  31 |

Section-C (3 marks each)

Q.19 Find the H.C.F. of 65 and 117 and express it in the form of 65m+117n. OR Prove that  is irrational.

Q.20 Find the largest number that will divide 398,436 and 542 leaving remainder 7,11,15,respectively.

Q.21 On dividing P(x) = 3x3−2x2+5x−5 by a polynomial g(x), we get quotient and remainder as x2 − x + 2 and-7 respectively. Find g(x).

 OR  are the zeros of the quadratic polynomial Find the value of if 

 Q.22 Solve the following system of linear equations graphically: 4x – 5y – 20 = 0; 3x +5y – 15 = 0. Determine the area of triangle formed

 by these lines, and the line x=0

Q.23 The area of a right triangle is 210 sq cm. If the smallest side is 12 cm, what is the hypotenuse?

Q.24 Given ABC, ,and ADBC, Prove that AD2=BD.CD

Q.25 Evaluate: Prove that (1 + cotA + cosecA) (1 + tanA—secA)= 2

Q.26 Prove that: Show that : cos2 30º cos2 45º + 4 sec2 60º + cos2 90º - tan2 60º = .

Q.27 The mean of following distribution is 53. Find the value of p.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class | 0-20 | 20-40 | 40-60 | 60-80 | 80-100 |
| Frequency | 12 | 15 | 32 | P | 13 |

Q.28 Find the missing frequencies f1 and f2 in the following frequency distribution if it is known that the mean of the distribution is 50 and the total frequency is 150.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x  | 10  | 30  | 50  | 70  | 90  |
| f  | 17  |     f1 | 32  |     f2 | 19  |

 OR

If  where = (i =1, 2, 3 …) are the class marks of a grouped data and  are the corresponding frequencies. If = 200 and =12, find.

Section-D (4 marks each)

Q.29 A man travels 370 km partly by train and partly by car . If he covers 250 km by train and the rest by car it takes him 4 hours . But if he travels 130 km by train and the rest by car , he takes 18 minutes longer . Find the speed of the car and the train.

Q.30 If are the zeroes of polynomial  and ,find the value of .

 Q.31 ABCD is a parallelogram in the given figure, AB is divided at P and CD and Q so that AP:PB=3:2 and CQ:QD=4:1. If PQ meets AC at R, prove that AR=AC.

A

C

D

QQQQ

B

P

R

 OR

A Point O in the interior of a rectangle ABCD is joined with each of the vertices A,B, C and D prove that OB2+OD2 = OC2+OA2

Q.32 If  and  then Prove that 

 OR

 Show that : + = 2 cosec θ.

Q.33 Prove that 

Q.34 Convert the following frequency table into an ordinary frequency table and determine its mean:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. of days | Below 5 | Below 10 | Below 15 | Below 20 | Below 25 | Below 30 |
| Frequency | 23 | 77 | 114 | 150 | 181 | 200 |

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