Q1. Factor is
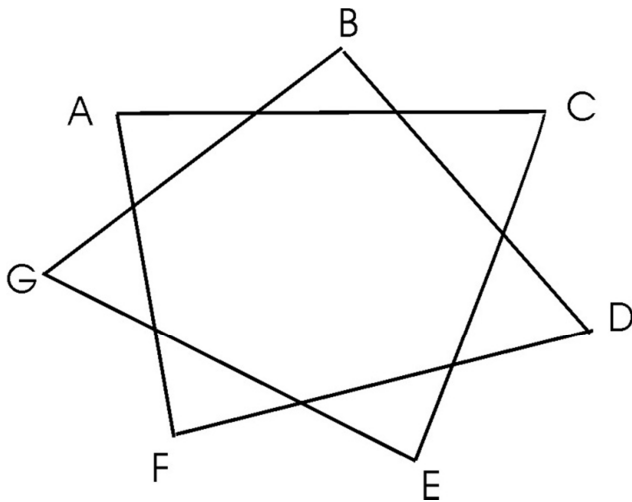
$a^3 + b^3 + c^3 - 3abc$

a) $1/2(a+b+c)[(b-c)^2 +(c-a)^2+(a-b)^2]$ b) $1/3(a-b+c)[(b-c)^2 +(c-a)^2+(a-b)^2]$ c)

$1/2(a+b-c)[(b-c)^2 +(c-a)^2+(a-b)^2]$ d) None of these

Q2.   *In the star*
∠A + ∠B + ∠C + ∠D + ∠E + ∠F + ∠G = ?

a) 560   b)540   c)720   d)   360

Q3.   Find the number of zeros that appear at the end in the representation of 158 !

in base of 10.

a) 38   b)37   c)36 d) 35

Q4.   If p<q, find p,q. Such that the number 2p6287q is divisible by 11.

   a) P=1,2,4,5 & q= 5,6,7,8   b) P=1, 5 & q= 5,6   c)   P=1   &   q=5

       d)   None of these

Q5.   If a polynomial is divided by x-2 and x-2, we obtain remainder 2 and 1
respectively. Find the remainder if it is divided by (x-1) (x-2).

   a) 3-x   b) 2-x   c) 5-x   d) None of these

Q6.   A ladder 25m long is placed so as to reach a road side window 24m high and
returning the ladder over to the other side of the road, it reaches a point 7m high.
Find the breadth of the road.

   a) 16 mtr   b) 15mtr   c) 17 mtr   d) None of these

7.   Fill in the blanks :

       If $3^{x-2} = 81$, then x is

   a) 5   b) 4   c) 3   d) None of these

8   Two clocks showed correct time at 12 noon. After that one started gaining 40 seconds and other started loosing 50 seconds in every 24 hours. After what interval the difference of time shown by the two clock was 16 minutes ?

What was then the correct time ?
a)11 noon   b) 10 noon 15   c) 12 noon d) None of these

9   A triangle has sides of lengths 6, 8 and 10. Find the distance between the center of its inscribed circle and the center of the circumscribed circle.

a) $(5)^{1/2}$ b) $(3)^{1/2}$ 15   c) $(7)^{1/3}$ d) None of these

10   A pair of poles are s meters apart and is supported by two cables which run from top of each pole to the bottom of other. The poles 4m and 6m tall. Determine the height of the point T.

a) 5   b) 6   c) 7   d) None of these

11.   Solve for n :
$100^{1/n} \times 100^{2/n} \times 100^{3/n} \times \ldots\ldots \times 100^{2003/n} = 1000$
a) 1338004   b) 1338003   c) 1337004   d) None of these

12.   A right triangle has base and altitude of b and a. A circle of radius r touches the two sides and has its center on the hypotenuse. Then $a^{-1} + b^{-1} =$
a)   r   b) r/2   c) r^{-1} d) None of these

13.   The four digit number aabb is a square number. Find it

a)3344   b) 4455   c) 7744   d) None of these

14 Find the smallest integer K which when divided by 6, 5, 4, 3, 2 successively leaves remainders 5, 4, 3, 2 and 1 respectively.

a)59   b) 56   c) 52   d) None of these

15   A cube is inscribed in a sphere. If the surface area of the cube is 60 cm^2, find the surface area of the sphere.

a)661/7 cm^2 b) 660/7 cm^2 15   c) 662/7 cm^2 d) None of these

16   Prove 11^{10}-1 is divisible by

a)11   b) 12   c) 13 d) None of these

17   How many squares and rectangles are there on standard chess board ?

a)64,15   b) 63,15   c) 64,14   d) None of these

18   Mr. John was x years old in year x^2. When was John born if he died in 1871.

a)1818   b) 1828   c) 1838   d) None of these

19.   In a triangle ABC, CD is altitude. Find the relationship between angles A and B, it is known that CD^2 = AD.DB.

a)60^0 b) 80^0 c) 90^0 d)   None of these

20   Show that there cannot exist any positive integral pair (x,y) satisfying the equation $x^2 = y^2 + 2182$

a) (18,18)   b) (280,18) c) (562,10)   d)   No positive integral