DEPARTMENT OF EDUCATION
PANJAB UNIVERSITY
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English Translation

of

GEOMETRIC CONCEPTS TEST (FINAL TRYOUT)

by

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IMPORTANT POINTS:

* Do not open this booklet until you are told to do so.

** Attempt all questions given in this booklet. Mark answers on a separate sheet provided for this purpose.

*** Do not write on this booklet.

**** Start solving the items hurriedly and carefully as soon as you are asked to do so.

***** Do not try to read the whole test. Read items one after the other and mark answers side by side.

****** If you are not sure of any answer do not waste much of your time on it and proceed further.

******* Try to guess intelligently but not blindly.
DIRECTIONS:

Read the following directions carefully in order to solve the items given in the booklet.

In this booklet there are 46 items. There are four probable answers given to each item which are shown by (A), (B), (C) and (D). Each item has only one correct answer and rest of the responses are incorrect. You have to find out the correct answer and mark a cross within the circle under the right response of the item in the answer-sheet.

Read the following examples carefully:

EXAMPLE - 1: Which of the following has only length?

( A ) Straight line
( B ) Point
( C ) Plane
( D ) None of the above is correct.

Now notice the above example. You will find that out of the four responses only (A) is correct.

EXAMPLE - 2: Which of the following angle is a straight angle?

( A ) (0°)
( B ) (90°)
( C ) (180°)
( D ) (360°)

In this example you will find that only (C) is correct and other three responses are wrong.
On the basis of the two examples, the sample of answer-sheet is given below. In front of 1, 2 the order of responses (A), (B), (C) and (D) is given, below which circles have been drawn. In examples 1 and 2, the responses (A) and (C) respectively are correct. The crossed (x), therefore, have been marked within the circles under (A) and (C). All other circles are left unmarked.

**Sample of Answer-sheet**

<table>
<thead>
<tr>
<th></th>
<th>(A)</th>
<th>(B)</th>
<th>(C)</th>
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<tbody>
<tr>
<td>1</td>
<td>(x)</td>
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<tr>
<td>2</td>
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<td>(x)</td>
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</tbody>
</table>

Read the above examples carefully and attempt all items given in the booklet. Mark answers in the given sheet only. Do not leave any marks on the booklet.
1. How many points are needed to fix the exact position of a straight line?
   (A) One
   (B) Two
   (C) Three
   (D) It depends on the given straight line.

2. Two straight lines intersect at
   (A) One point
   (B) Two point
   (C) More than one points
   (D) Never

3. To make a right bisector of a line AB, we draw two arc of equal length (radius) from the two points, A and B. Which of the following statement is true?
   (A) A length equal to 1/3 of line AB.
   (B) A length less than half of the line AB.
   (C) A length equal to half the line AB.
   (D) A length greater than half of line AB.

4. How many straight lines can be drawn parallel to a given straight line from a fixed distance in a plane?
   (A) One
   (B) Two
   (C) Infinite
   (D) We can not say unless we know the distance.
5. Out of the following, which is not a plane?
   (A) Surface of water
   (B) Surface of a glass
   (C) Surface of a black-board
   (D) Surface of a football.

6. Below are given four different angles, which of them is the greatest angle?
   (A) Right angle
   (B) Obtuse angle
   (C) Reflex angle
   (D) Straight angle.

7. See the Fig. (2) carefully and tell which of the following relation is the correct relation?
   (A) Angle AOB > angle COD
   (B) Angle AOB < angle COD
   (C) Angle ECF > both the angle AOB and angle COD
   (D) All the three angles—angle AOB, angle COD and angle ECF are equal.

8. What will be the angular measure of complementary angle of (10)°?
   (A) (10)°
   (B) (80)°
   (C) (90)°
   (D) (170)°

9. Below are given four different angles, which of them is the obtuse angle?
   (A) (170)°
   (B) (70)°
   (C) (210)°
   (D) (45)°
10. What will be the angular measure of supplementary angle of ( 20 )°?
   ( A ) ( 270 )°
   ( B ) ( 340 )°
   ( C ) ( 160 )°
   ( D ) ( 70 )°

11. In Fig. (3) angles 1, 2, 3, 4, 5, 6, 7, and 8 are formed at a point O. If all these angles be equal in magnitude, what will be the angular measure of each angle?
   ( A ) ( 33.75 )°
   ( B ) ( 45.00 )°
   ( C ) ( 30.00 )°
   ( D ) ( 22.50 )°

12. A minute hand of a clock will make an angle of ( 150 )° in --
   ( A ) Two hours
   ( B ) Five hours
   ( C ) 25 minutes
   ( D ) Half an hour

13. What will be the 7/10 part of a straight angle?
   ( A ) ( 63 )°
   ( B ) ( 70 )°
   ( C ) ( 126 )°
   ( D ) ( 49 )°

14. How many angles will be made by two intersecting lines?
   ( A ) One
   ( B ) Two
   ( C ) Four
   ( D ) It depends on the intersecting lines, therefore it cannot be said with certainty.
15. How many degree an hour hand of a clock will move in three hours?

(A) 30°
(B) 45°
(C) 60°
(D) 90°

16. If two parallel lines are cut by a transversal then, which of the following statement is not correct?

(A) Corresponding angles are equal
(B) Vertically opposite angles are equal
(C) Alternate angles are equal
(D) Interior angles on the same sides are equal.

17. In the Fig. (4) if line AB is parallel to line CD, then which of the following statement is wrong?

(A) Angle GHD and angle GMC are supplementary angles.
(B) Angle AGJ and angle EGY are adjacent angles.
(C) Angle FHC and angle GHD are vertically opposite angles.
(D) Angle EGY and angle GHD are alternate angles.

18. In the Fig. (5) two straight lines are cut by another straight line XY. What will be the angular measure of angles A and B.

(A) angle A = (26°); angle B = (108°)
(B) angle A = (26°); angle B = (18°)
(C) angle A = (116°); angle B = (108°)
(D) angle A = (72°); angle B = (108°)
19. In Fig. (6), which of the following are the pair of adjacent angles?

(A) Fig. (I)  
(B) Fig. (II)  
(C) Fig. (III)  
(D) Fig. (IV)  

20. In Fig. (7) two parallel straight lines X and Y intersects two parallel straight lines. What is the angular measure of angle $\angle$.

(A) $50^\circ$  
(B) $40^\circ$  
(C) $60^\circ$  
(D) None of the above  

21. See the Fig. (8) carefully and tell which of the following represent a triangle?

(A) The shaded portion outside the straight lines.  
(B) The shaded portion inside the straight lines.  
(C) The union of shaded portion and straight lines.  
(D) Only the three straight lines.  

22. In Fig. (9) if point C be taken as a vertex of the triangle ABC, then which will be the base of the triangle?

(A) AC  
(B) AB  
(C) BC  
(D) Any side can be taken as a base.
23. Below are given some triplets of angles. Which triplet can generate a triangle?

(A) 112° 36° 12°

(B) 42° 58° 80°

(C) 128° 24° 26°

(D) All the above three triplets can generate a triangle.

24. Perimeter of a triangle is always—

(A) less than the sum of all the three sides of a triangle.

(B) greater than the sum of all the three sides of a triangle.

(C) equal to the sum of all the three sides of a triangle.

(D) sometime it is less than and some time it is greater than the sum of all the three sides of a triangle.

25. In a right angled triangle ABC, angle A is equal to one right angle, what will be the angular measure of other two angles?

(A) (40° and 60°)

(B) (80° and 50°)

(C) (80° and 100°)

(D) (20° and 30°)

26. What is the name of a triangle whose all the three sides are equal?

(A) Right angled triangle

(B) Isosceles triangle

(C) Obtuse angled triangle

(D) Equilateral triangle.
27. If the interior angles of any triangle are in the ratio of 2 : 3 : 4, then what will be their angular measures?

(A) 20°, 30°, 40°
(B) 40°, 60°, 80°
(C) 80°, 120°, 160°
(D) None of the above answer is correct.

28. In triangle ABC, side AB = 5cm, AC = 5cm, and angle BAC=60°. What type of triangle it is?

(A) Equilateral triangle
(B) Isosceles triangle
(C) Scalene triangle
(D) Unless we know about the third side, nothing can be said.

29. In the following Fig. (10), point D is a mid point of the side BC. Under what condition AD will be the perpendicular on side BC.

(A) AB = BC
(B) AB = AC
(C) Angle A = 90°
(D) None of the above

30. In triangle ABC (Fig. 11), side BC = a, CA = b, and AB = c. By which formula we can calculate the area of this triangle?

(A) \( a \times b \times c \)
(B) \( \frac{1}{2} \text{ base } \times \text{ height} \)
(C) \( \sqrt{s(s-a)(s-b)(s-c)} \) while \( s = \frac{a+b+c}{2} \)
(D) None of the above.
31. See Fig. (12). In triangle ABC, base AB = 10 cm, height CD = 6 cm. What is the area of this triangle?

(A) 30 Sq. cm.
(B) 40 Sq. cm.
(C) 50 Sq. cm.
(D) 60 Sq. cm.

![Diagram of triangle ABC with base AB, height CD, and area calculation](fig12)

32. Below are given four different triangles. Which of them is having an angle of (90°) as one of the angle?

(A) Equilateral triangle
(B) Right angled triangle
(C) Acute angled triangle
(D) Obtuse angled triangle.

33. Which of the following statement is always true?

(A) In isosceles triangle all the sides are equal.
(B) Equilateral triangle can also be an isosceles triangle.
(C) Any triangle can be an isosceles triangle.
(D) Right angled triangle can also be an isosceles triangle.

34. Out of the following, under what condition it is not possible to construct a triangle?

(A) When three sides are given
(B) When three angles are given
(C) When two sides and the angle containing by them are given.
(D) When one side and two angles on the same side are given.
35. For proving the congruency of two triangles, which of the following statement is true?

(I) Two sides and an angle contained by them of one triangle are equal to the corresponding two sides and an angle of other triangle.

(II) Three angles of a triangle are equal to the corresponding three angles of other triangle.

(III) Three sides of a triangle are equal to the corresponding three sides of other triangle.

(A) I and II
(B) I and III
(C) II and III
(D) I, II and III.

36. A square has one side equal to 10cm. What will be its area?

(A) 40 Sq. cm.
(B) 60 Sq. cm.
(C) 80 Sq. cm.
(D) 100 Sq. cm.

37. What will be the perimeter of a square having one side equal to 5 cm.

(A) 5 cm.
(B) 20 cm.
(C) 25 cm.
(D) None of the above.

38. What will be the area of a rectangle having length = 8cm and breadth = 6cm?

(A) 4 Sq. cm.
(B) 4/3 Sq. cm.
(C) 288 Sq. cm.
(D) 48 Sq. cm.
39. Which of the following figures are always similar?

( I ) Any two squares
( II) Any two circles
(III) Any two rectangles
( IV) Any two equilateral triangles
   ( A ) I and II
   ( B ) I and III
   ( C ) I, II and IV
   ( D ) I, II, III and IV.

40. If the two hypotenuses of a square are joined together then the square is divided into four triangles. What we can say regarding the similarity of these triangles?

( A ) All the four triangles will be similar.
( B ) Only the opposite triangles will be similar.
( C ) Out of the four triangles, none of them will be similar to the other triangle.
( D ) We cannot say with certainty.

41. Below are given four different figures. Which of the figure represents a parallelogram?

Fig ( I ) Fig(II) Fig(III) Fig(IV)

( A ) Fig. ( I )
( B ) Fig. (II )
( C ) Fig. (III)
( D ) Fig. (IV )
42. In Fig. (13) there is a circle, which one of the following statements describe the circle most accurately?

(A) Only the shaded portion is a circle.
(B) Only the coloured portion is a circle.
(C) The circle is formed by the union of shaded and coloured portions.
(D) None of them is correct.

43. Below are given four geometrical figures. Which of the following represents a closed curve?

Fig. (I)  Fig. (II)  Fig. (III)  Fig. (IV)

(A) Fig. (I)
(B) Fig. (II)
(C) Fig. (III)
(D) Fig. (IV)

44. In 25 meter X 15 meter rectangular field, a cow is tied by three meter rope in one of the corner of a field. If there is a wire around the field, then what will be the figure of an area in which the cow can graze.

(A) 1/4 of a circle
(B) Semi-circle
(C) A circle
(D) A rectangle.

45. By which formula we can calculate the area of a circle?

(A) 2 \( \pi r \)
(B) \( \pi r^2 \)
(C) \( \pi r \)
(D) \( \pi r^2 \)
46. In Fig. (14) a circle with centre O and chords AB and CD is given. Chord AB passes through the centre. Which of the following relation is the correct relation?

(A) AB = CD
(B) AB < CD
(C) AB > CD
(D) Chord AB is sometime smaller and sometime greater than chord CD.
In this test there are 50 questions. There are four probable answers given to each question. Each question has only one correct answer and rest of the responses are incorrect. You have to find out the correct answer and mark a cross within the circle under the right response of the question in the answer sheet.

1. Opposite of addition is
   A. Multiplication  
   B. Subtraction  
   C. Division  
   D. None of these

2. Value of -(-15) is
   A. Positive number  
   B. Negative number  
   C. Zero  
   D. None of these

3. Meaning of $3 \div 4$ is
   A. Division of $\frac{4}{3}$ by 3  
   B. Division of 3 by $\frac{1}{4}$  
   C. Division of 3 by 4  
   D. None of these

4. In number 2050, underline 5 as compare to another 5 is
   A. One time greater  
   B. 100 times greater  
   C. ten times greater  
   D. none of these

5. Addition of even number and odd number will be
   A. even number  
   B. odd number  
   C. both even and odd  
   D. none of these

6. Prime number can be divided by
   A. 2  
   B. 3  
   C. 1 and itself  
   D. none of these

(Contd. on next page)
7. Out of 11, 19, 21, 13 which is the composite number
   A. 11  B. 21
   C. 19  D. 13

8. Distance of -12 from number 6 is
   A. 6  B. 2
   C. -18  D. 18

9. The value of empty space in 213 is
   A. \( \frac{114}{169} \)  B. 4
   C. 14  D. none of these

10. The value of \( 25 + 15 - 16 \) is
    A. 24  B. 26
    C. 25  D. none of these

11. What type of process is going on in this question

\[
\begin{array}{c}
\text{465} \\
\text{220} \\
\text{165}
\end{array}
\]
   A. addition  B. subtraction
   B. division  D. multiplication

12. The value of \( 5 \left[3-2(8-6)\right] \) is
   A. 5  B. 15
   B. -5  D. none of these

13. The value of \( (-4) (-6) \) is
   A. -2  B. 2
   C. -32  D. none of these

14. The value of \(-12 + 2\) is
    A. 6  B. -6
    C. -10  D. none of these

15. Which is the greatest \( \frac{12}{5}, \frac{16}{5}, \frac{21}{5} \) and \( \frac{13}{5}. \)
    A. \( \frac{16}{5} \)  B. \( \frac{21}{5} \)
    C. \( \frac{12}{5} \)  D. \( \frac{13}{5} \)

(Contd. on next page)
16. A man has Rs. 400. He spent 30% of it. How much are left with him.
   A. Rs. 300  
   B. Rs. 183  
   C. Rs. 280  
   D. Rs. 320

17. What is the value of \(11.11\)?
   A. 122  
   B. 100  
   C. 0  
   D. none of these

18. What is the number which can be placed at the empty place in this question:
   \[ \frac{43}{x} = \frac{129}{?} \]
   A. 3  
   B. 6  
   C. 13  
   D. none of these

19. There is mistake in this question due to
   \[ \frac{25}{12} \]
   \[ \frac{50}{25} \]
   \[ \frac{75}{?} \]
   A. addition  
   B. by taking 1 from ten place  
   C. multiplication  
   D. putting the numbers at wrong place

20. \(3578 \div 4\) the answer will start from
   A. 8 thousand  
   B. 8 hundred  
   C. 8 tens  
   D. 8

21. In \(23/4\) the meaning of Remainder 3 will be
   A. \(3/20\) of divisor  
   B. \(3/4\) of divisor  
   C. \(3/5\) of divisor  
   D. none of these

22. Value of \(1/6\) is
   A. sixth part of unity  
   B. sixth part of 6  
   C. 6  
   D. none of these

(Contd. on next page)
23. The value of \( \frac{2+2\times2+2}{4+4+4+4} \) will be
A. 1/2  
C. 7  
B. 1  
D. none of these

A. 3/5  
C. 3/8  
B. 3/4  
D. 3/16

25. What will be the next number in the series 10, 8½, 7
A. 7½  
C. 6½  
B. 5½  
D. none of these

26. Value of 3/16 + 9/16 is
A. 3/4  
C. 27/16  
B. 3/8  
D. none of these

27. Value of 5/13 - 0/1 is
A. 5/13  
C. 5/12  
B. 5/12  
D. 0

28. Value of 1/2 x 1/3 x 0 will be
A. 0  
C. 2/5  
B. 1/6  
D. none of these

29. If we add 2 in the numerator and denominator of 5/7, the value of this fraction
A. will increase  
C. will remain same  
B. will decrease  
D. none of these

30. Reciprocal of \( \frac{10}{11} \) is
A. \( \frac{11}{10} \)  
C. \( \frac{1}{10} \)  
B. \( \frac{1}{10} \)  
D. 9/10

21. The value of zero will be greater than
A. 1/3  
C. -1  
B. 1  
D. none of these

(Contd. on next page)
32. If we put 0 to the right of number 7 then the value
   A. will increase  B. will decrease
   C. will remain same  D. none of these

33. The mean of .9 is
   A. tenth part of 1  B. 9
   C. 90  D. none of these

34. .9 + .99 will be equal to
   A. .999  B. 9.99
   C. 18.9  D. none of these

35. The value of 1.6 + 4 will be
   A. .04  B. 4.0
   C. 6.4  D. none of these

36. 20% of 200 will be
   A. 10  B. 40
   C. 180  D. none of these

37. L.C.M. of 3, 4, 6 will be
   A. 24  B. 13
   C. 72  D. none of these

38. H.C.F. of 12, 15, 21 is
   A. 12  B. 1
   C. 7  D. none of these

39. L.C.M. of 1/2, 1/4 will be
   A. 1/8  B. 1/2
   C. 1/6  D. none of these

40. Product of L.C.M. x H.C.F. is equal to
   A. the product of first number and second number
   B. first number + second number
   C. first number + second number
   D. none of these

   (Contd.on next page)
41. The value of $\sqrt{64}$ is
   A. 8
   C. 16

42. The value of $\sqrt[4]{1}$ is
   A. 2
   C. 4

43. The value of $\sqrt{1}$ is
   A. 1
   B. 0
   D. none of these

44. $\sqrt{15}$ is equal to
   A. $\sqrt{16} + \sqrt{8}$
   C. $\frac{8}{2}$

45. Opposite of square root is
   A. multiplication
   B. division
   C. square
   D. none of these

46. $2^3$ is equal to
   A. $2^2 \times 2$
   C. $3/2$

47. $\sqrt{27}$ is equal to
   A. $27^{3/2}$
   C. $3^{3/2}$

48. $(2^3)^{1/3}$ is equal to
   A. 2
   B. 8
   C. 2/9
   D. none of these

49. The number in the empty space in the question $2/3 = \frac{4}{?}$ will
   A. 9
   B. 6
   C. 3
   D. none of these

50. The numbers in the empty spaces in the question $\frac{2}{9} = \frac{?}{8}$ will be
   A. 6
   B. 16
   C. 4
   D. none of these
On the following pages there are 70 items. There are four probable answers given to each item. But only two probable answers have been given for item 11 to item 20. Each item has only one correct answer and rest of the responses are incorrect. You have to find out the correct answer and mark a cross within the circle under the right response of the item in the answer-sheet.
PART - A

1. If \( n \) is a natural number, then the next consecutive number to it will be
   A. \( 2n \)  B. \( n+1 \)  C. \( n-1 \)  D. none of these

2. If \( c \) is an even number, then the next even number to it will be
   A. \( c + 2 \)  B. \( 2c \)  C. \( c + 1 \)  D. none of these

3. If \( c \) is an odd number, then the next even number to it will be
   A. \( c - 1 \)  B. \( c + 2 \)  C. \( c + 1 \)  D. none of these

4. If \( a \) and \( b \) are both even numbers, then \( ab \) will be
   A. even  B. odd  C. prime  D. none of these

5. If \( a \) and \( b \) are both odd numbers, then \( ab \) will be
   A. even  B. odd  C. prime  D. none of these

6. If \( a \) and \( b \) are both odd numbers and \( a \) is divisible by \( b \), then \( a \) divided by \( b \) will be
   A. even  B. odd  C. greater than \( a \)  D. none of these

7. If \( 1 \) is less than \( a \), then \( 1 \) divided by \( a \) is
   A. equal to \( 1 \)  B. greater than \( 1 \)  C. less than \( 1 \)  D. equal to zero

8. If \( 1 \) is greater than \( a \), then \( 1 \) divided by \( a \) is
   A. greater than \( 1 \)  B. equal to zero  C. equal to \( 1 \)  D. less than \( 1 \)

9. If \( a \) is greater than \( b \) and \( c \) is greater than zero, then
   A. \( a/c = b/c \)  B. \( a/c \) is greater than \( b/c \)  C. \( a/c \) is less than \( b/c \)  D. none of these

10. The reciprocal of \( 2a/b \) is
    A. \( 2b/a \)  B. \( a/2b \)  C. \( b/2 \)  D. none of these

PART - B

Which one of the two is algebraically greater in the following

11. A. \( a \)  B. \( -5a \)
12. A. \( x/100 \)  B. \( -100x \)
13. A. \( -15x \)  B. \( 0 \)
14. If \( a = b + x \) and \( x \) is a negative quantity then
A. \( a \) is less than \( b \)  
B. \( a \) is greater than \( b \)

15. If \( x + y \) is equal to zero, then
A. \( x \) is greater than \( y \)  
B. \( x \) is equal to \( -y \)

16. The product of two positive quantities will be
A. positive  
B. negative

17. The product of two negative quantities will be
A. negative  
B. positive

18. The product of one positive and one negative quantity will be
A. positive  
B. negative

19. If a negative quantity is divided by another negative quantity, then the quotient will be
A. positive  
B. negative

20. If a positive quantity is divided by a negative quantity, then the quotient will be
A. positive  
B. negative

PART - C

21. A number greater than \( y \) by 4 is
A. \( y - 4 \)  
B. \( y + 4 \)  
C. \( 4 \ y \)  
D. \( y/4 \)

22. A number one seventh of \( x \) is
A. \( 7x \)  
B. \( 7 + x \)  
C. \( x/7 \)  
D. none of these

Express the following relationships algebraically by using \( N \) for the unknown number:

23. 3 less than a number is 5
A. \( 3 = N + 5 \)  
B. \( N = 3 = 5 \)  
C. \( 5 = N/3 \)  
D. none of these

24. One third of a number is 7
A. \( N/3 = 7 \)  
B. \( 3 N = 7 \)  
C. \( N = 7/3 \)  
D. none of these

25. The square of a number is 64
A. \( N^2 = 64 \)  
B. \( 2N = 64 \)  
C. \( N/2 = 64 \)  
D. none of these

26. The cube of a number is 27
A. \( 3N = 27 \)  
B. \( N/3 = 27 \)  
C. \( N^3 = 27 \)  
D. none of these
27. The square of a number is five times 20

A. \( N^2 = 5 \times 20 \)  
B. \( 2N \times 5 = 20 \)  
C. \( N^2 \times 5 = 20 \)  
D. none of these

Use \( x \) for the first number and \( y \) for the second and express the following relationships algebraically.

28. The square of the first number is one fourth of the cube of the second number

A. \( x^2 = y^3/4 \)  
B. \( x^2 = 4y^3 \)  
C. \( 4x^3 = y^2 \)  
D. none of these

29. The sum of the squares of two numbers is 25

A. \( x^2 + 25 = y^2 \)  
B. \( y^2 + 25 = x^2 \)  
C. \( x^2 + y^2 = 25 \)  
D. none of these

30. If \( x^2 - 5 = 95 \), the value of \( x \) is

A. 50  
B. 10 or -10  
C. 45  
D. none of these

PART - D

31. By removing brackets in the expression \( a(bc + cd) \), you will get

A. \( abc \)  
B. \( abc + acd \)  
C. \( acd + ab \)  
D. none of these

32. To remove brackets in the expression \( x + (-2y) \), you have to

A. Place a minus sign between \( x \) and \( 2y \)  
B. Place a plus sign between \( x \) and \( 2y \)  
C. Place both plus and minus sign  
D. none of these

33. \( 2x( + 8y ) \) is equal to

A. \( 2x + 4y \)  
B. \( 2x + 4y \)  
C. \( 2x - 3y \)  
D. none of these

34. \( 4a(-2b) \) is equal to

A. \( 4a - 2b \)  
B. \( 4a - 2b \)  
C. \( -8ab \)  
D. none of these
In case of the following expression enclose the last two terms preceded by a minus sign. Mark the correct answer on the answer sheet.

35. \(a^2-b^2-c^2\) is equal to
   A. \(a^2 - (b^2 + c^2)\)
   B. \(a^2 - (b^2 + c^2)\)
   C. \(a^2 - (b^2 - c^2)\)
   D. none of these

36. \(16-x^2 + 2xy\) is equal to
   A. \(16 - (x^2 - 2xy)\)
   B. \(16 - (-x^2 + 2xy)\)
   C. \(16 - (-x^2 - 2xy)\)
   D. none of these

37. \(1 + 4x + 4y^2\) is equal to
   A. \(1 - (4x^2 + 4y^2)\)
   B. \(1 - (-4x^2 + 4y^2)\)
   C. \(1 - (4x^2 - 4y^2)\)
   D. none of these

In case of the following expression enclose the last two terms preceded by a plus sign

38. \(5y + 6x^2 + 6y^2\) is equal to
   A. \(5y + (6x^2 + 6y^2)\)
   B. \(5y + (-6x^2 - 6y^2)\)
   C. \(5y + (6x^2 - 6y^2)\)
   D. none of these

39. \(2-6x^2 + 15y^2\) is equal to
   A. \(2 + (6x^2 + 15y^2)\)
   B. \(2 + (-6x^2 + 15y^2)\)
   C. \(2 + (6x^2 - 15y^2)\)
   D. none of these

40. In \(5x-9x+3 - 4x\) expression enclose the co-efficients of \(x\) within brackets precedes by a positive sign.
   A. \(x (5 - a - 4) + 3\)
   B. \(x (5 - 3 + 4) + 3\)
   C. \(x (5 + a + 4) + 3\)
   D. none of these

PART E

Find the value of each one of the following expressions for the given value of letters

41. \(4x + 3\), if \(x = 3\)
   A. 46
   B. 433
   C. 7
   D. 15
42. If \( x = 3 \), \( x^2 - 7x + 10 \) is equal to
   A. -2
   B. -53
   C. -40
   D. 26

43. If \( x = -2 \), \( 4x^2 - 2x + 1 \) is equal to
   A. -9
   B. 9
   C. -19
   D. none of these

44. If \( x = -3 \), \( x^3 \) is equal to
   A. -33
   B. 27
   C. -27
   D. none of these

45. If \( x = 2 \), \( y = -4 \), \( x^3/y \) is equal to
   A. \( 27/4 \)
   B. -2
   C. 2
   D. none of these

46. If \( a = b \), the value of \( a/c - b/c \) is equal to
   A. zero
   B. 1
   C. \( ab/c \)
   D. none of these

Note: If \( a = 1 \), \( b = 0 \), \( c = 4 \), \( d = 5 \), then

47. \( ad/c \) is equal to
   A. \( 5/4 \)
   B. \( 15/4 \)
   C. \( 4/5 \)
   D. none of these

48. \( abc \) is equal to
   A. 4
   B. 104
   C. 1
   D. none of these

49. \( abcd \) is equal to
   A. 1045
   B. zero
   C. \( 10 \times 45 \)
   D. none of these

50. If \( L = 2W \), \( 3H = 6x \) and \( V = LWH \) then \( V \) is
   A. \( 6x \)
   B. \( 36x^3 \)
   C. \( 11x^3 \)
   D. none of these
PART - F

Use the law of exponents to solve the following:

51. \( a^2 \cdot a^7 \) is equal to
   
   A. \( a^{2+7} \)  
   B. \( a^{2 \cdot 7} \)  
   C. \( a^{2 \times 7} \)  
   D. \( a^{2 \cdot 7} \)  

52. \( a^{-5} \cdot a^{-5} \) is equal to
   
   A. 1  
   B. \( a^{-10} \)  
   
53. \( (a^4)^n \) is equal to
   
   A. \( 4an \)  
   B. \( a^{4n} \)  
   C. \( n a^4 \)  
   D. \( a^{4+n} \)  

54. \( \frac{a^p}{a^q} \) is equal to
   
   A. \( a^{p-q} \)  
   B. \( a^{p+q} \)  
   C. \( a^p \)  
   D. \( a^{p-q} \)  

55. \( a^5 \cdot a^{-5} \) is equal to
   
   A. zero  
   B. a  
   C. one  
   D. a^{-25}  

56. \( a^{-2} \cdot a \) is equal to
   
   A. \( a^3 \)  
   B. \( a^{-21} \)  
   C. \( 1/a \)  
   D. \( a^{1/2} \)  

57. \( \frac{a^5}{a^{-3}} \) is equal to
   
   A. \( a^2 \)  
   B. \( a^{5+3} \)  
   C. \( a^{-5/3} \)  
   D. \( a^{-53} \)  

58. \( (a^2 \cdot a^3)^2 \) is equal to
   
   A. \( a^{10} \)  
   B. \( a^{12} \)  
   C. \( a^{62} \)  
   D. \( a^{52} \)  

59. \( (a^2 + a^2)^2 \) is equal to
   
   A. \( 2a^{22} \)  
   B. \( 2a^4 \)  
   C. \( 4a^4 \)  
   D. \( 4a^2 \)  

60. \( (2a^3)^2 \) is equal to
   
   A. \( 4a^2 \)  
   B. \( 2a^{322} \)  
   C. \( 4a \)  
   D. \( 4a^{12} \)
PART - G

61. If in fig. 1, xox and yoy are perpendicular to one another and if x is to the east of o, then y lies to
A. West of o
B. north west of o
C. south of o
D. north of o

62. Number of quadrants made by the intersection of lines xox and yoy in fig. 1 is
A. 4
B. 2
C. 1
D. none of these

63. All (+x, +y) points can be located in the quadrant
A. xoy
B. x'oy'
C. xoy
D. xoy'

64. All (-x, -y) points can be located in the quadrant
A. x'oy'
B. xoy
C. xoy
D. xoy'

65. All (-x, +y) points can be located in the quadrant
A. xoy
B. x'oy'
C. xoy
D. xoy'

66. How will you show a length of 36 feet on a 6" paper?
A. by joining the strips of paper to make 36 feet
B. It is not possible
C. by taking 6 = 1" thus will make 6"
D. A scale 6" will be used as a scale to measure 36 feet

67. If in fig. 2, M is 2 units off towards east of o and N is 2 units away from o in the direction of north, then a point which is 2 units east and 2 units north of o can be located by
A. taking 2 units in the direction of OP
B. taking 2 units in the direction of OX
C. taking 2 units in the direction of oy
D. taking 2 units along ox = OM and 2 units along MP parallel to oy in the vertical direction.
68. In fig. 2, a point ( 2, -3 ) is located in the quadrant.
   A. yox  
   B. x oy
   C. xoy  
   D. x oy

69. \( x + y = 0 \), passes through the point o, if
   A. \( x = 0 \)  
   B. \( y = 0 \)
   C. \( x = 0, y = 0 \)  
   D. none of these

70. \( x + y = 2 \), can be represented graphically by
   A. taking \( x \) values along ox and \( y \) values along oy
   B. giving (assigning) numerical values to \( x \) and finding \( y \) values for each one of the \( x \) values and then the sets of points are plotted and are joined together
   C. taking \( x = 1 \) and \( y = 1 \) and plotting a point (1, 1 )
   D. none of these.
DEPARTMENT OF EDUCATION
PUNJAB UNIVERSITY
CHANDIGARH

English Translation of
GEOMETRIC CONCEPTS TEST
By
Subhash Chander

IMPORTANT POINTS:

* Do not open this booklet until you are told to do so.

** Attempt all questions given in this booklet. Mark answers on a separate sheet provided for this purpose.

*** Do not write on this booklet.

**** Start solving the items hurriedly and carefully as soon as you are asked to do so.

***** Do not try to read the whole test. Read items one after the other and mark answers side by side.

****** If you are not sure of any answer, do not waste much of your time on it and proceed further.

******* Try to guess intelligently but not blindly.
DIRECTIONS:

Read the following directions carefully in order to solve the items given in the booklet.

In this booklet there are 35 items. There are four probable answers given to each item, which are shown by (A), (B), (C) and (D). Each item has only one correct answer and rest of the responses are incorrect. You have to find out the correct answer and mark a cross within the circle under the right response of the item in the answer-sheet.

Read the following examples carefully.

EXAMPLE-1: Which of the following has only length?
(A) Straight line
(B) Point
(C) Plane
(D) None of the above is correct.

Now notice the above example. You will find that out of the four responses only (A) is correct.

EXAMPLE-2: Which of the following angle is a straight angle?
(A) (0°)
(B) (90°)
(C) (180°)
(D) (360°)

In this example you will find that only (C) is correct and other three responses are wrong.

On the basis of the two examples, the sample of answer-sheet is given below. In front of 1, 2 the order of
responses (A), (B), (C) and (D) is given, below which circles have been drawn. In examples 1 and 2, the responses (A) and (C) respectively are correct. The crosses (x), therefore, have been marked within the circles under (A) and (C). All other circles are left unmarked.

Sample of Answer-sheet

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Read the above examples carefully and attempt all the items given in the booklet. Mark answers in the given sheet only. Do not leave any marks on the booklet.
1. How many points are needed to fix the exact position of a straight line?
   (A) One
   (B) Two
   (C) Three
   (D) It depends on the given straight line.

2. Two straight lines intersect at ___
   (A) One point
   (B) Two points
   (C) More than one points
   (D) Never

3. To make a right bisector of a line AB, we draw two arcs of equal length (radius) from the two points A and B. Which of the following statement is true?
   (A) A length equal to 1/3 of line AB.
   (B) Any length less than half of the line AB.
   (C) A length equal to half of line AB.
   (D) A length greater than half of the line AB.

4. How many straight lines can be drawn parallel to a given straight line from a fixed distance in a plane?
   (A) One
   (B) Two
   (C) Infinite
   (D) We can not say unless we know the distance.
5. Out of the following, which is not a plane?

(A) Surface of water
(B) Surface of a glass
(C) Surface of a black-board
(D) Surface of a football.

6. What will be the angular measure of supplementary angle of (20°)?

(A) (270°)
(B) (340°)
(C) (160°)
(D) (70°)

7. In a right angled triangle ABC, angle A is equal to one right angle. What will be the angular measure of other two angles?

(A) (40°) and (60°)
(B) (40°) and (50°)
(C) (80°) and (100°)
(D) (20°) and (30°)

8. In Fig. (2) angles 1, 2, 3, 4, 5, 6, 7 and 8 are formed at a point O. If all these angles be equal in magnitude, what will be the angular measure of each angle?

(A) (33.75°)
(B) (45.00°)
(C) (30.00°)
(D) (22.50°)

Fig. (2)
9. How many angles will be made by two intersecting lines?
   (A) One
   (B) Two
   (C) Four
   (D) It depends on the intersecting lines, therefore it can not be said with certainty.

10. A minute hand of a clock will make an angle of \((150)°\) in—
   (A) two hours
   (B) five hours
   (C) 25 minutes
   (D) half an hour

11. In the Fig. (3), two straight lines are cut by another straight line XY. What will be the angular measure of angles A and B.
   (A) Angle \(A = (26)°; B = (108)°\)
   (B) Angle \(A = (26)°; B = (18)°\)
   (C) Angle \(A = (116)°; B = (108)°\)
   (D) Angle \(A = (72)°; B = (108)°\)

12. How many degree an hour hand of a clock will move in three hours?
   (A) \((30)°\)
   (B) \((45)°\)
   (C) \((60)°\)
   (D) \((90)°\)

13. Below are given four different angles. Which of them is the greatest angle?
   (A) Right angle
   (B) Obtuse angle
   (C) Reflex angle
   (D) Straight angle
14. See the Fig. (4), carefully and tell which of the following relation is the correct relation?

(A) angle AOB > angle COD
(B) angle AOB < angle COD
(C) angle EOF > both the angle AOB and angle COD
(D) All the three angles—angle AOB angle COD and angle EOF are equal

15. Below are given four different angles. Which of them is the obtuse angles?

(A) (170°)
(B) (70°)
(C) (210°)
(D) (45°)

16. In Fig. (5), two unparallel straight lines X and Y intersect two parallel straight lines. What is the angular measure of angle X?

(A) (50°)
(B) (40°)
(C) (60°)
(D) None of the above.

17. If two parallel lines are cut by a transversal than, which of the following statement is not correct?

(A) Corresponding angles are equal
(B) Vertically opposite angles are equal
(C) Alternate angles are equal
(D) Interior angles on the same sides are equal.

18. What will be the 7/10 part of a straight angle?

(A) (63°)
(B) (70°)
(C) (126°)
(D) (49°)
19. In Fig. (6), which of the following are the pair of adjacent angles?

(A) Fig.(I)  
(B) Fig.(II)  
(C) Fig.(III)  
(D) Fig.(IV)  

20. See the Fig. (7) carefully and tell which of the following represents a triangle?

(A) The shaded portion outside the straight lines.
(B) The shaded portion inside the straight lines.
(C) The union of shaded portion and straight lines.
(D) Only the three straight lines.

21. Below are given four different triangles. Which of them is having an angle of (90°) as one of the angle?

(A) Equilateral triangle.
(B) Right angled triangle.
(C) Acute angled triangle.
(D) Obtuse angled triangle.

22. What is the name of a triangle, whose all the three sides are equal?

(A) Right angled triangle
(B) Isosceles triangle.
(C) Obtuse angled triangle.
(D) Equilateral triangle.
23. Perimeter of a triangle is always——

(A) less than the sum of all the three sides of a triangle,

(B) greater than the sum of all the three sides of a triangle;

(C) equal to the sum of all the three sides of a triangle,

(D) sometime it is less than and sometime it is greater than the sum of all the three sides of a triangle.

24. Below are given some triplets of angles. Which triplet can generate a triangle?

(A) 112° 36° 12°

(B) 42° 58° 80°

(C) 128° 24° 26°

(D) All the above three triplets can generate a triangle.

25. If the interior angles of any triangle are in the ratio of 2:3:4, then what will be their angular measures?

(A) (20)° (30)° (40)°

(B) (40)° (60)° (80)°

(C) (80)° (120)° (160)°

(D) None of the above answer is correct.

26. In Fig. (8), if point C be taken as a vertex of the triangle ABC, then which will be the base of the triangle?

(A) AC

(B) AB

(C) BC

(D) Any side can be taken as a base.
27. Which of the following statement is always true?

(A) In isosceles triangle, all the sides are equal.
(B) Equilateral triangle can also be an isosceles triangle.
(C) Any triangle can be an isosceles triangle.
(D) Right angled triangle can also be an isosceles triangle.

28. What will be the area of a rectangle having its length = 8 cm and breadth = 6 cm?

(A) 4 sq. cm.
(B) 4/3 sq. cm.
(C) 28 sq. cm.
(D) 48 sq. cm.

29. Below are given four different figures. Which of the figure represents a parallelogram?

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<th>Fig(I)</th>
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(A) Fig. (I)
(B) Fig. (II)
(C) Fig. (III)
(D) Fig. (IV)

30. A square has one side equal to 10 cm. What will be its area?

(A) 40 sq. cm.
(B) 60 sq. cm.
(C) 80 sq. cm.
(D) 100 sq. cm.

31. What will be the perimeter of a square having one side equal to 5 cm.

(A) 5 cm.
(B) 20 cm.
(C) 25 cm.
(D) None of the above.
32. In Fig. (9) there is a circle, which one of the following statements describe the circle most accurately?

(A) Only the shaded portion is a circle
(B) Only the coloured portion is a circle.
(C) The circle is formed by the union of shaded and coloured portions.
(D) None of them is correct.

33. By which formula we can calculate the area of a circle?

(A) \(2 \pi r\)
(B) \(\pi r^2\)
(C) \(\pi^2 r\)
(D) \(\pi r\)

34. In Fig. (10) there is a circle with centre O. Two chords AB and CD are drawn in the circle. Chord AB passes through the centre of the circle. Which of the following relations is correct?

(A) \(AB = CD\)
(B) \(AB < CD\)
(C) \(AB > CD\)
(D) Chord AB will be sometimes less than CD and sometimes greater than CD.

35. If the two hypotenuses of a square are joined together than the square is divided into four triangles. What we can say regarding the similarity of these triangles?

(A) All the four triangles will be similar.
(B) Only the opposite triangles will be similar.
(C) Out of the four triangles, none of them will be similar to the other triangle.
(D) We cannot say with certainty.
### Answer Sheet for Numerical Ability Test

**Name:**

**Sex:**

**Boy/Girl:**

**Class & Section:**

**School:**

**Date:**

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**INVESTIGATOR -** Subhash Chander
# ANSWER SHEET FOR ALGEBRAIC CONCEPTS TEST

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INVESTIGATOR - Subhash Chander
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