# DDPI OFFICE UDUPI- BEO OFFICE KUNDAPURA

## SSLC

## Multiple Choice Questions Based Model Question Paper – 01

### 2020-21

## Subject : Mathematics

## Medium : English

Code No : 81E                                                                 Time : 1 Hour

Total No of Questions : 40                                          Max.Marks : 40

**Four Choices are give for each of the questions/incomplete statements. Choose correct answer and shade the correct choice in the OMR given to you with blue/black ball point pen**                                   $40 \times 01 = 40$

1) The pair of linear equations $x = 0$ and $y = 0$ has

   A) one solution                                     B) two solutions

   C) infinitely many solutions                  D) no solutions

2) One equation of a pair of dependent linear equation is $x + 2y = 4$. The second equation can be

   A) $x + 3y = 5$                                      B) $2x + 4y = 5$

   C) $2x + 4y = 8$                                      D) $4x + 2y = 8$

3) For what value of $k$ , do the equations $x + 2y = 4$ and $3x + ky = 12$ represent coincident lines?

   A) 2                                                            B) 3

   C) 4                                                            D) 6

4) If the pair of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ has a unique solution, then

   A) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$                                       B) $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

   C) $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$                                D) $\frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

5) The solution of the pair of linear equations $x + y = 5$ and $x - y = 1$ is

    A) x = 2, y = 3                             B) $x = 3, y = 2$

    C) x = 5, y = 1                             D) $x = 3, y = 5$

6) The $n^{th}$ term of an arithmetic progression is $a_n = 4n + 5$ then the 3rd term is :

    A) 5                                        B) 9

    C) 13                                     D) 17

7) $2, x, 14$ are in Arithmetic progression, then the value of $x$ is :

    A) 28                                   B) 16

    C) 7                                     D) 8

8) The sum of first 20 natural numbers is

    A) 142                                 B) 210

    C) 254                                 D) 310

9) What is the common difference of an AP in which $a_{24} - a_{17} = -28$ ?

    A) 8                                   B) $-8$

    C) $-4$                                D) 4

10) The roots of quadratic equation $(x - 4)(2x - 1) = 0$ are

    A) $\frac{1}{2}$, 4                            B) 4, $-\frac{1}{2}$

    C) $-4$, $-\frac{1}{2}$                   D) $\frac{1}{2}$, $-4$

11) The sum of the the squares of consecutive natural numbers is 13. The quadratic equation of this statement is

    A) $x^2 + x + 13 = 0$              B) $x^2 - x - 6 = 0$

    C) $x^2 + x - 6 = 0$              D) $x^2 - x + 25 = 0$

12) Standard form of a quadratic equation is

A) $ax + bx^2 - c = 0$

B) $ax^2 + by + c = 0$

C) $ax^2 + bx + c = 0$

D) $bx^2 + c = a$

13) The determinant of the quadratic equation $3x^2 - 5x + 2 = 0$ is

A) 1

B) 2

C) 3

D) 4

14) If $13 \sin \theta = 12$ then the value of $cosec\ \theta$ is

B) $\frac{12}{5}$

B) $\frac{13}{5}$

C) $\frac{12}{13}$

D) $\frac{13}{12}$

15) Value of $\frac{1-tan^2 45°}{1+tan^2 45°}$ is

A) $\tan 90°$

B) 1

C) $\sin 45°$

D) 0

16) Value of $\cos 48° - \sin 42°$ is

A) 1

B) 0

C) 2

D) $-1$

17) $10sec^2 A - 10tan^2 A$ is equal to

A) 1

B) 9

C) 10

D) $-10$

18) The shadow of a tower is equal to its height. The sun's altitude is

   A) 30°                                  B) 45°

   C) 60°                                  D) 90°

19) The distance of the point $P$ ( 3, 4 ) from $y$-axis is

   A) 3 units                              B) 4 units

   C) 5 $units$                            D) 7 units

20) The distance between the origin and co-ordinates of a point ( $x, y$ ) is

   A) $x^2 + y^2$                          B) $\sqrt{x^2 - y^2}$

   C) $x^2 - y^2$                          D) $\sqrt{x^2 + y^2}$

21) If $P$ is the mid-point of the line segment joining $A$ ( 1, 4 ) and $B$ ( 3, 6 ) then the co-ordinates of $P$ is

   A) (4,10)                               B) (2,10)

   C) (2,5)                                D) (4,5)

22) If the points $(0,0), (a, 0), (0, b)$ are collinear , then

   A) $a = b$                              B) a + b = 0

   C) $ab = 0$                             D) a ≠ 0

23) The empirical relationship between the three measures of central tendency is

   A) $2\,Median = Mode + 3Mean$

   B)  $3\,Median = Mode + 2Mean$

   C)  $Median = Mode + Mean$

   D)  $Median = Mode - Mean$

24) The median of the scores 5,8,14,16,19 and 20 is

    A) 14                                                   B) 16

    C) 15                                                   D) 8

25) The modal class in the following frequency distribution is
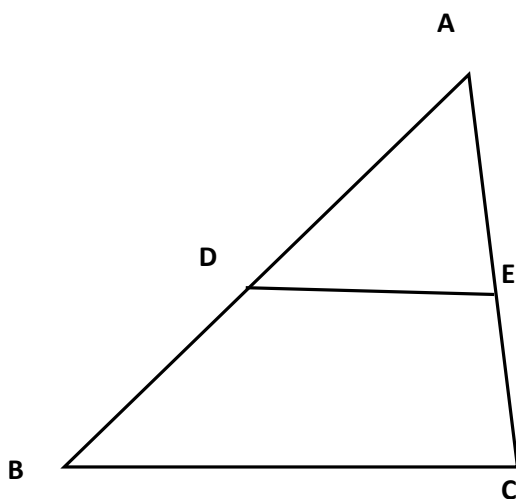
| Class Interval | Frequency |
|---|---|
| $5 - 15$ | 2 |
| $15 - 25$ | 3 |
| $25 - 35$ | 6 |
| $35 - 45$ | 5 |
| $45 - 55$ | 4 |

    A) $15 - 25$                                       B) $25 - 35$

    C) $35 - 45$                                       D) $45 - 55$

26) $D$ and $E$ are the midpoints of side $AB$ and $AC$ of a triangle $ABC$, respectively and $BC = 6cm$. If $DE \ || \ BC$, then the length of $DE$ is



    A) $2.5 \ cm$                                     B) $3 \ cm$

    C) $5 \ cm$                                       D)$6 \ cm$

27) The diagonals of a rhombus are 16 $cm$ and 12$cm$ in length. The side of rhombus in length is

A) 20 $cm$                                    B) 8 $cm$

C) 10 $cm$                                    D) 9$cm$

28) Corresponding sides of two similar triangles are in the ratio of $2:3$. If the area of small triangle is 48 sq.cm, then the area of large triangle is:

A) 230 $sq.cm$                              B) 106 $sq.cm$

C) 107 $sq.cm$                              D) 108 $sq.cm$

29) If triangles ABC and DEF are similar and AB = 4 cm, DE= 6 cm, EF = 9 cm and FD = 12 cm, the perimeter of triangle ABC is:

A) 22 $cm$                                    B) 20 $cm$

C) 21 $cm$                                    D) 18 $cm$

30) The height of an equilateral triangle of side 5 cm is:

A) 4.33 $cm$                                  B) 3.9 $cm$

C) 5 $cm$                                      D) 4 $cm$

31) Maximum number of tangents drawn to a circle from an external point is

A) 1                                          B) 2

C) 3                                          D) 4

32) A line which intersects a circle at two points is called

A) *diameter*                                 B) *tangent*

C) *secant*                                   D) *chord*

33) In the figure $TP$ and $TQ$ are tangents to a circle with centre $'O'$. If $\angle POQ = 110°$ then $\angle PTQ$ is equal to
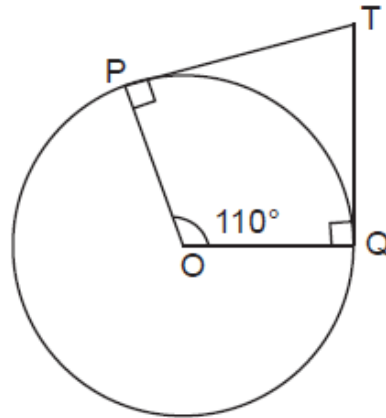


A) 60°          B) 70°

C) 80°          D) 90°

34) To divide a line segment $AB$ in the ratio $3 : 4$ ,first a ray $AX$ is drawn so that $\angle BAX$ is an acute angle and then at equal distance points are marked on the ray AX such that the minimum number of points. These points is

A) 3          B) 4

C) 7          D) 9

35) Two draw a pair of tangents to a circle which are inclined to each other at an angle of 60° ,it is required to draw tangents at end points of those two radii of the circle. The angle between then shoud be

A) 135°          B) 90°

C) 60°          D) 120°

36) The formula to find total surface area of a cylinder is

A) $2\pi rh$          B) $2\pi r(r + h)$

C) $2\pi r^2$          D) $2\pi r^2 h$

37) The volume of two cubes is in the ratio 64 : 125. The ratio of their total surface areas is
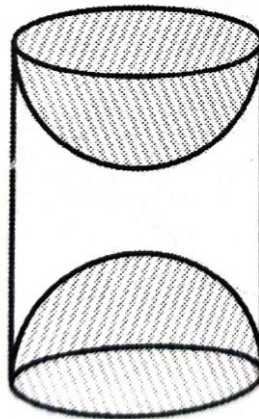
A) 16 : 25

B) 4 : 5

C) 4 : 6

D) 8 : 25

38) A wooden article is made by scooping out hemisphere from each end of the solid cylinder. The total surface area of the article is



A) $2\pi rh + 4\pi r^2$

B) $2\pi rh + \pi r^2$

C) $2\pi rh + 2\pi r^2$

D) $2\pi r(r + h)$

39) If the volume of a cone is $72 \ cm^3$ then the volume of a cylinder with same base and height as that of the cone is

A) $524 \ cm^3$

B) $616 \ cm^3$

C) $144 \ cm^3$

D) $216 \ cm^3$

40) Surface area of a sphere of radius $7 \ cm$ is

A) $616 \ cm^2$

B) $161 \ cm^2$

C) $49 \ cm^2$

D) $132 \ cm^2$