Section 1 of 2

22103

MSBTE theory online exam S-2020
Time:1 hour, Marks:30
Attempt any 30 questions.
1 mark each question
Subject :
BASIC MATHEMATICS

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Multiple Choice Questions

Attempt the following Question:

Question

Find the value of x if $log_3[x + 6] = 2$

○ 4

○ 1

○ 3

○ 5

Null matrix is also called as......

○ zero matrix

○ singular matrix

○ non singular matrix

○ scalar matrix
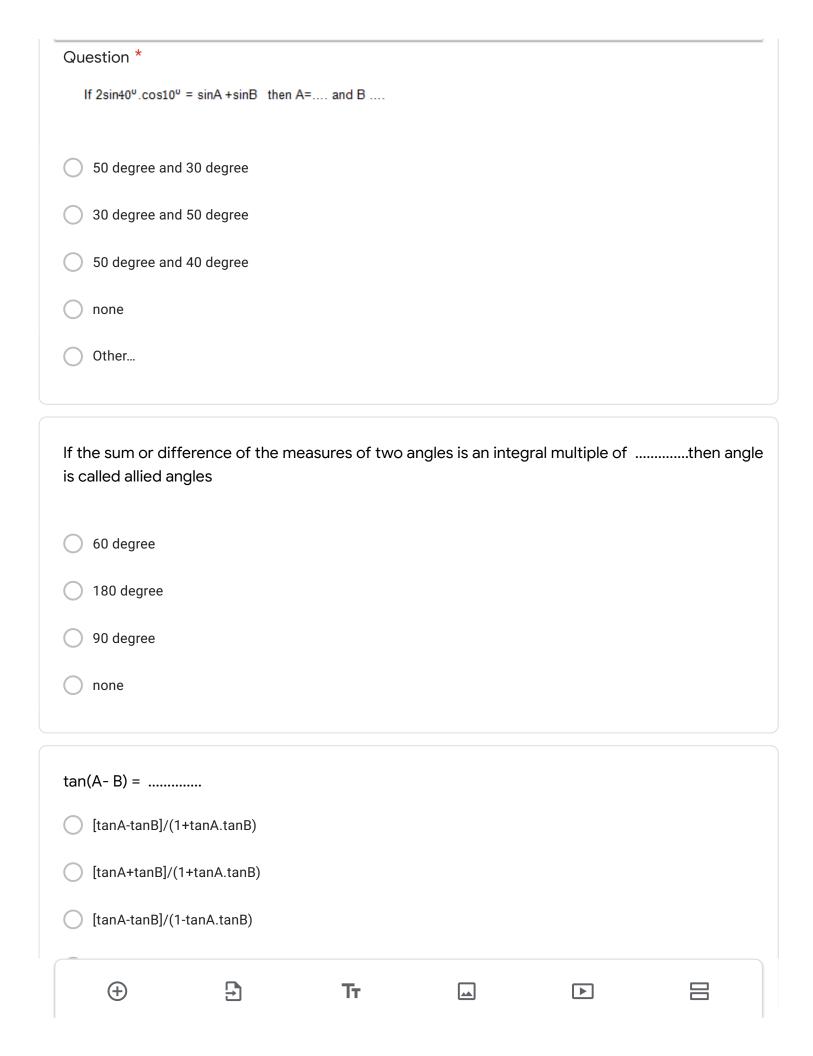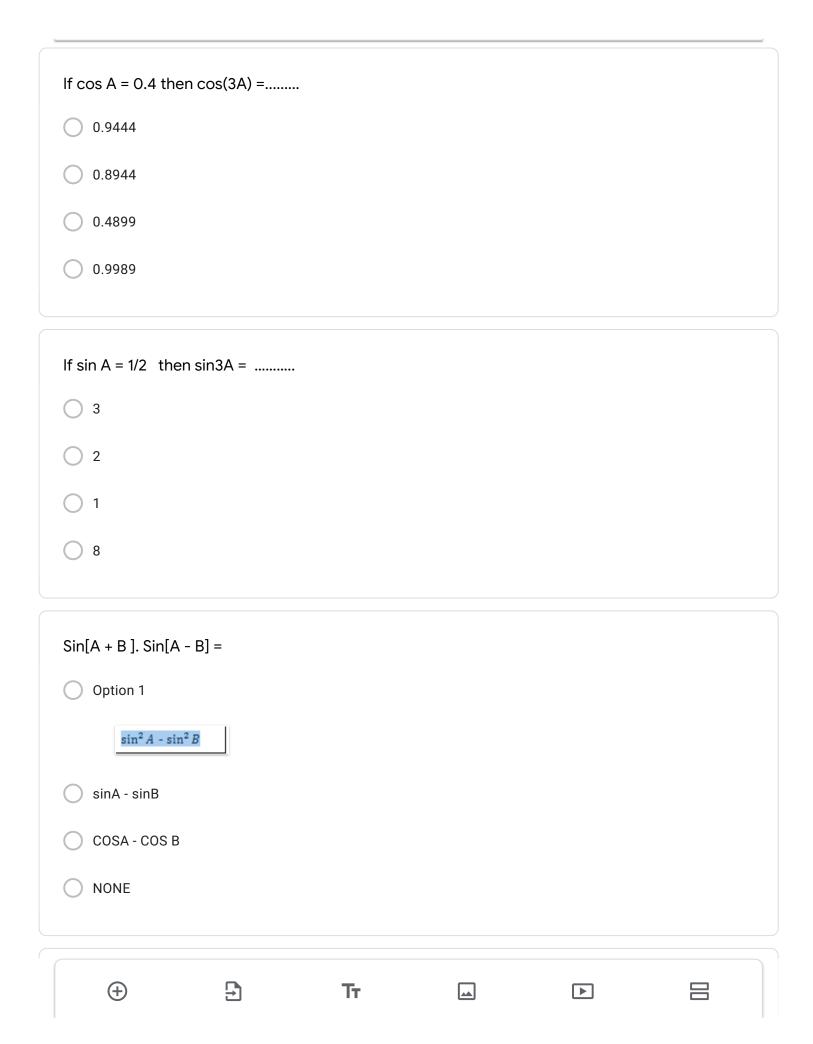
- ○ scalar matrix
- ○ diagonal matrix
- ○ non diagonal matrix
- ○ singular matrix

Find k if the following points are collinear [2,3],[-1,k],[5,8]

- ○ 6
- ○ 3
- ○ 1
- ○ -2

The condition for square matrix A to have the inverse is that ,it must be......

- ○ scalar matrix
- ○ singular matrix
- ○ non singular matrix
- ○ zero matrix

The transpose of the matrix of the co-factors is called the _____ of the matrix

○ scalar

○ diagonal

○ null

If the degree of the numerator is less than the degree of the denominator then the fraction is called a-------------

○ fraction

○ linear fraction

○ improper fraction

○ proper fraction

An improper fraction can be reduced to proper fraction by

○ division

○ multiplication

○ proper division

○ none

If A and B are two square matrices, then |A.B| is same as which of the following?

○ |A|.|B|

⊕   ⏎   T⊤   ⯐   ▷   ▤

○ ZERO

○ NONE

For a matrix A,if |A| = 0, which of the following are true?

○ matrix "A" is non singular

○ Inverse of matrix "A "does not exist

○ matrix "A" is null matrix

○ none

Find the equation of the line passing through point (1,7) and having slope 2 units

○ 2x-3y+5 =0

○ 2x-y-5 =0

○ 2x+y+5 =0

○ 2x-y+5 =0

Find p if the lines 3x+ 4py+8=0 and 3py-9x+10=0 are perpendicular to each other

○ 3/2

○ -3/2

⊕   ⤵   T̠ᴛ   ▣   ▶   ▤

3/2 and -3/2

Find x and y intercepts of a line 2x+3y=6

○ x = 4 and y = 2

○ x = 3 and y=2

○ x = 2 and y = 3

○ x = -3 and y = -2

Find the length of perpendicular from (2,3) to the line 4x+3y=12

○ 1

○ -1

○ 2

○ 3

Find the distance between two parallel lines   5x-12y+1=0,10x-24y-1=0

○ -3/26 unit

○ 3/26 unit

○ 13/26 unit

○ 23/26 unit

Question *

If $2\sin40^u.\cos10^u = \sin A + \sin B$ then A=.... and B ....

○ 50 degree and 30 degree

○ 30 degree and 50 degree

○ 50 degree and 40 degree

○ none

○ Other...

If the sum or difference of the measures of two angles is an integral multiple of ....then angle is called allied angles

○ 60 degree

○ 180 degree

○ 90 degree

○ none

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tan(A- B) = ...

○ [tanA-tanB]/(1+tanA.tanB)

○ [tanA+tanB]/(1+tanA.tanB)

○ [tanA-tanB]/(1-tanA.tanB)

If cos A = 0.4 then cos(3A) =.........

○ 0.9444

○ 0.8944

○ 0.4899

○ 0.9989

If sin A = 1/2   then sin3A = ...

○ 3

○ 2

○ 1

○ 8

Sin[A + B]. Sin[A - B] =

○ Option 1

$sin^2 A - sin^2 B$

○ sinA - sinB
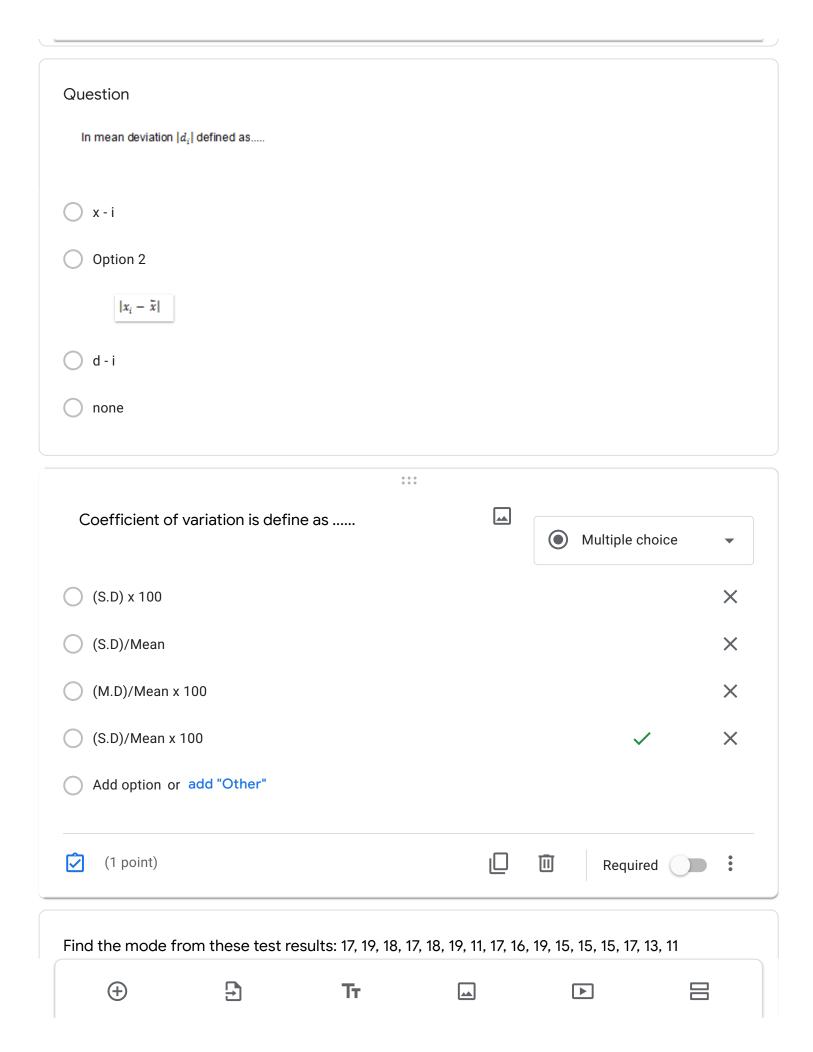
○ COSA - COS B

○ NONE

Find the value of $\sin[\frac{\pi}{2} - \sin^{-1}\{-\frac{\sqrt{3}}{2}\}]$

○ 1/3

○ 1/2

○ 3/2

○ 1/4

Question

Find the value of $\tan^{-1}(\frac{1}{2}) + \tan^{-1}(\frac{1}{3})$

○ 1

○ 0

○ Option 3

$\frac{\pi}{4}$

○ NONE

Question

If $\tan^{-1}(1) + \tan^{-1}(x) = 0$ then x =....

○ 1

○ 3

○ -1

Question

Find the value of $\sin[-420^0]=.....$

○ -1

○ 1

○ 0

○ NONE

$\sin A = 5/13$ then $\cos A=$ ......

○ 12/13

○ 13/12

○ 1

○ 0

Find the area of triangle whose vertices are (3,1),   (1, 3)and(2,3).

○ 10unit

○ 11unit

12unit

○ 14 unit

Find the volume of the sphere whose surface area is 616 sq. m.

○ 1437.37 cu. m

○ 1237.37 cu.m

○ 1200 cu m

○ none

Find the length of the longest pole that can be placed in a room 12 m long 9 m broad and 8 m high

○ 15m

○ 16m

○ 17 m

○ 18m

Find the surface area of a cuboid of dimensions 26 cms ; 20 cms and 12 cms.

○ 144 sq.cm

○ 2144 sq.cm

⊕   ⤵   T⊤   ◩   ▷   ▤

○ none

Find the capacity of a cylindrical water tank whose radius is 2.1m and length is 5m.

○ 88.6 cu.m

○ 77 cu. m

○ 69.3 cu. m

○ 100 cu.m

A square grassy plot is of side 100 metre .It has a gravel path 10 meters wide all round it on the inside. Find the area of path.

○ 3600 sq m

○ 1200 sq.m

○ 1000 sq.m

○ 4000 sq.m.

○ Other...

Find range and coefficient of range for the data :3, 7, 11, 2, 16, 17, 22, 20, 19

○ Range =40 C.R=0.80

○ Range =20 C.R=0.833

○ Range =30 C.R=0.833

If mean is 82 and standard deviation is 7, find the coefficient of variance

○ 8.537

○ 9.53

○ 10.4

○ 7.54

If coefficient of variation of a distribution is 60and standard deviation is 20, find its mean

○ 40

○ 38.33

○ 33.33

○ 44.4

Calculate mean of the following data 1, 1.2, 1.3, 1.5, 1.8 ,2, 2.1 ,2.2 ,2.3, 3

○ 1.50

○ 1.66

○ 1.74

Question

In mean deviation $|d_i|$ defined as.....

- ○ x - i
- ○ Option 2

$$|x_i - \bar{x}|$$

- ○ d - i
- ○ none

Coefficient of variation is define as ...... 🖼

○ Multiple choice ▾

- ○ (S.D) x 100 ✕
- ○ (S.D)/Mean ✕
- ○ (M.D)/Mean x 100 ✕
- ○ (S.D)/Mean x 100 ✓ ✕
- ○ Add option or add "Other"

☑ (1 point)   Required ⬤ ⋮

Find the mode from these test results: 17, 19, 18, 17, 18, 19, 11, 17, 16, 19, 15, 15, 15, 17, 13, 11

⊕   ⤵   T⊤   🖼   ▶   ▤

○ 17

○ 15

○ 16

○ 19

More consistency means........

○ more coefficient of variance

○ less coefficient of variance

○ equal coefficient of variance

○ none

○ Other...