MASTER’S P.U COLLEGE, HASSAN, 573201.

KCET ONLINE TEST-34, JUNE-2020  **MATHEMATICS**  **TIME: 45Mins MARKS: 30**

**TOPIC**: **2nd PU INTEGRATION, DIFFERENTIAL EQUESTIONS, VECTOR, 3D-GEOMETRY, PROBABILITY. DATE: 06/06/2020**

**KEY**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| **C** | **B** | **B** | **A** | **B** | **C** | **C** | **D** | **B** | **C** | **B** | **B** | **A** | **B** | **D** |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| **C** | **D** | **C** | **C** | **D** | **A** | **D** | **A** | **A** | **B** | **C** | **C** | **A** | **C** | **A** |

**HINTS AND SOLUTIONS**

1. (c)  .



.....(i)

Now given that 

Equating it to (i), we get constant.

1. (b) 

Put  then it reduces to .

1. (b) 







.

1. (a) 



 .

1. (b) 

. 

1. (c) . Put  then it reduces to 

.

1. (c) Since  =  and 

So that , and hence by the property of definite integral .

1. (d) 
2. (b) Solving the equations and  simultaneously. The points of intersection of the parabola and the line are and .

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*x*2=4*y*

*Y*

*B*

*O*

*x=*4*y*–2

### A(2,1)

*X*

∴ The required area = shaded area





*sq*. *unit*.

1. (c) Required area  =.
2. (b) The length of normal is given by,    ⇒ 

⇒  ⇒ .

1. (b)  ⇒ ⇒ 

On integrating both sides, we get ⇒ 

⇒ or .

1. (a) Given ⇒

Integrating both sides, 

 ⇒ 

  or .

1. (b)  

Here, , , 

(Since equation consists of four arbitrary constants)

∴ order of differential equation = 4.

1. (d) 

At ,  ∴ ⇒ .

1. (c)   .
2. (d) Unit vector is equal to 
3. (c) Area of triangle =  

Here, , , 

   *sq. unit*.

1. (c) The area of parallelogram is given by  

Here we are given adjacent sides and so



Hence required area is 

1. (d) ,arec oplanar.

∴⇒ .

1. (a) Given lines are, , (say)

and , (say)

,  and 

On solving, we get .

1. (d) Since  Hence lines are intersecting at right angles.
2. (a)  .
3. (a) Plane passing through (1, 1, 1) is 

It also passes through (1, – 1, 1) and (–7, – 3, – 5), then 

Hence the required equation is .

**Trick** : Since the plane  passes through given three points.

1. (b) Angle between the plane and lineis 

Here,  ⇒ 

1. (c) Let  denote the event of drawing a white ball at any draw and  that for a black ball.

Then  ,  wins the game)ororor …..)





Also  wins the game)

According to the given condition,



1. (c) The last digit of the product will be  or 9 if and only if each of the  positive integers ends in any of these digits. Now the probability of an integer ending in  or 9 is  Therefore the probability that the last digit of the product of  integers in  or 9 is  The probability for an integer to end in  or 9 is  Therefore the probability for the product of  positive integers to end in  or 9 is  Hence the required probability .
2. (a) Mean  





Hence binomial distribution is .

1. (c) To get 3 white balls in first 6 draw and then a white again in 7th draws.

.

1. (a) Let  be the chances of happenig of the first and second event respectively, then according to the given conditions, we have

 and 

 and so 