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KCET ONLINE TEST-33, JUNE-2020  **MATHEMATICS**  **TIME: 45Mins MARKS: 30**

**TOPIC**: **2nd PU RELATIONS & FUNCTIONS, MATRICES, DETERMINANTS, CONTINUITY AND DEFFENTIATION, APPLICATION OF DERIVATIVES. DATE: 04/06/2020**

1. ***The relation R defined in N as  is divisible by a is***

(a) Reflexive but not symmetric (b) Symmetric but not transitive

(c) Symmetric and transitive (d) None of these

1. ***Suppose  is defined by , then  and ***

(a)  (b) {0}

(c)  (d) 

1. ***For a real number  denotes the integral part of x. The value of***

 ***is***

(a) 49 (b) 50

(c) 48 (d) 51

1. ***The domain of the function  is***

(a)  (b) 

(c) ]0, 1[ (d) None of these

1. ***If and  are defined by and , then the values of x such that  are***

(a) 1, 2 (b) –1, 2

(c) –1, –2 (d) 1, –2

1. ***The value of  for which the function may be continuous at , is***
2. (a) 1 (b) 2

(c) 3 (d) None of these

1. ***The values of a and b such that , are***
2. (a)  (b) 

(c)  (d) None of these

1. ***The function  is***

(a) Continuous at  but not differentiable at (b) Both continuous and differentiable at 

(c) Not continuous at  (d) Not differentiable at 

1. ***In a  if , then ***

(a)  (b) 

(c) 1 (d) 

1. ***For positive numbers and z the numerical value of the determinant is***

(a) 0 (b) 1

(c)  (d) None of these

1. ***If , then ***

(a)  (b) 

(c)  (d) 

1. ***If and I is a unit matrix of order, then  equals***

(a) 2*A* (b) 4*A*

(c) 6*A* (d) None of these

1. ***If  and , then ***

(a)  (b) 

(c)  (d) None of these

1. ***If and I is the identity matrix of order 2, then ***

(a) *I* (b) *O*

(c)  (d) 

1. ***If , then***

(a)  (b) 

(c)  (d) 

1. ***If |A| denotes the value of the determinant of the square matrix A of order 3, then |– 2A|=***

(a)  (b) 

(c)  (d) None of these

1. ***If be positive and not all equal, then the value of the determinant is***

(a) –*ve* (b) + *ve*

(c) Depends on  (d) None of these

1. ***If , then***

(a) *a* is one of the cube roots of unity (b) *b*  is one of the cube roots of unity

(c) is one of the cube roots of unity (d) is one of the cube roots of –1

1. ***For which interval, the function  satisfies all the conditions of Rolle's theorem***

(a) [0, 3] (b) [– 3, 0]

(c) [1.5, 3] (d) For no interval

1. ***For the function , the value of c in mean value theorem will be***

(a) log *x* (b) 

(c) 0 (d) 1

1. ***If , then the value of at will be***

(a)  (b) 

(c)  (d) 

1. ***If for all x and y and , , then will be***

(a) 2 (b) 4

(c) 6 (d) 8

1. ***If , then at ***

(a) –1 (b) – 2

(c) 1 (d) 2

1. ***If , then ***

(a)  (b) 

(c)  (d) None of these

1. 

(a)  (b) 

(c)  (d) 

1. ***The volume of a spherical balloon is increasing at the rate of 40 cubic centimeter per minute. The rate of change of the surface of the balloon at the instant when its radius is 8 centimeter, is***

(a)  *sq cm*/*min* (b) 5 *sq cm*/*min*

(c) 10 *sq cm*/*min* (d) 20 *sq cm*/*min*

1. ***A man of height 1.8 meter is moving away from a lamp post at the rate of 1.2  If the height of the lamp post be 4.5 meter, then the rate at which the shadow of the man is lengthening is***

(a) (b) 

(c)  (d) None of these

1. ***On the interval [0, 1], the function  takes its maximum value at the point***

(a) 0 (b) 1/2

(c) 1/3 (d) ¼

1. ***The maximum value of exp  is***

(a)  (b) 

(c)  (d) 1

1. ***If  is tangent to the curve  at (2, 3), then***

(a)  (b) 

(c)  (d) 