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KCET ONLINE TEST-21, MAY-2020  **MATHEMATICS**  **TIME: 45Mins MARKS: 30**

**TOPIC**: **VECTORS & 3D-GEOMETRY.**

1. **The volume of the tetrahedron, whose vertices are given by the vectors  and with reference to the fourth vertex as origin, is**

(a) *cubic unit* (b)  *cubic unit*

(c) *cubic unit*  (d) None of these

1. **Let  If  is a unit vector such that  then  is equal to**

(a)  (b) 

(c)  (d) 

1. **The value of '*a*' so that the volume of parallelepiped formed by  and  becomes minimum is**

(a) – 3 (b) 3

(c)  (d) 

1. **If  is parallel to  and  where ,  and , then  is equal to**

(a)  (b) 

(c) (d) None of these

1. **The vector c directed along the internal bisector of the angle between the vectors  and  with  is**

(a)  (b) 

(c)  (d) 

1. **If  and  then **

(a)  (b) 

(c)  (d) 

1. **If  and  where  and  then r and *λ* are equal to**

(a)  (b) 

(c)  (d) None of these

1. **If and  then a unit vector perpendicular to both u and v is**

(a)  (b) 

(c)  (d) None of these

1. **The points  are such that    and  If  then the angle between  and  is**

(a)  (b) 

(c)  (d) None of these

1. **If  and  then the value of *t* such that  is at right angle to vector ** is

(a) 2 (b) 4

(c) 5 (d) 6

1. **Let  and c be two vectors perpendicular to each other in the *xy*-plane. All vectors in the same plane having projections 1 and 2 along b and c respectively, are given by**

(a)  (b) 

(c)  (d) 

1. **The vectors  and  are the sides of a triangle *ABC.* The length of the median through *A* is**

(a)  *unit* (b)  *unit*

(c) 5 *unit* (d) 10 *unit*

1. **Let the value of  and  where a and b are non-collinear vectors. If  then the value of *x* and *y* will be**

(a) – 1, 2 (b) 2, – 1

(c) 1, 2 (d) 2, 1

1. **If  is perpendicular to and ,  and the angle between  and is , then  is equal to**

(a)  (b) 

(c)  (d) 

1. **If  are non-coplanar vectors and  is a real number then  for**

(a) Exactly three values of  (b) Exactly two values of 

(c) Exactly one value of  (d) No value of 

1. **If the vectors  and  are coplanar, then the value of  is equal**

(a) – 13 (b) 13/9

(c) – 13/9 (d) – 9/13

1. **The line  lies in the plane . The values of *k* and *d* are**

(a) 4, 8 (b) –5, – 3

(c) 5, 3 (d) – 4, – 8

1. **The value of *k* such that  lies in the plane , is**

(a) 7 (b) – 7

(c) No real value (d) 4

1. **The direction cosines of a line segment  are   If  and the co-ordinates of *A* are (3, –6, 10), then the co-ordinates of *B* are**

(a) (1, –2, 4) (b) (2, 5, 8)

(c) (–1, 3, –8) (d) (1, – 3, 8)

1. **The projection of any line on co-ordinate axes be respectively 3, 4, 5 then its length is**

(a) 12 (b) 50

(c)  (d) None of these

1. **If centroid of the tetrahedron , where are given by (*a*, 2, 3),(1, *b*, 2) and (2, 1, *c*) respectively be (1, 2, –1), then distance of  from origin is equal to**

(a)  (b) 

(c)  (d) None of these

1. **If the straight lines    and , with parameters *s* and  respectively, are co-planar, then equals**

(a) 0 (b) –1

(c) –1/2 (d) – 2

1. **If the lines  and  intersect, then *k* =**

(a)  (b) 

(c) 0 (d) None of these

1. **A square  of diagonal 2*a* is folded along the diagonal  so that the planes  and  are at right angle. The shortest distance between  and  is**

(a)  (b) 

(c)  (d) 

1. **The equation of the planes passing through the line of intersection of the planes  and  whose distance from the origin is 1, are**

(a) , 

(b) , 

(c) , 

(d) None of these

1. **The equation of the plane passing through the points  and perpendicular to planes  and , is**

(a)  (b) 

(c)  (d) None of these

1. **If  is the equation of the plane through the origin that contains the line then *k* =**

(a) 1 (b) 3

(c) 5 (d) 7

1. **The line joining the points (3, 5, –7) and (–2, 1, 8) meets the *yz*-plane at point**

(a)  (b) 

(c)  (d) (2, 2, 0)

1. **The point of intersection of the line  and plane  is**

(a)  (b) 

(c)  (d) None of these

1. **The equation of the plane through the origin containing the line  is**

(a)  (b) 

(c)  (d) 