MASTER’S P.U COLLEGE, HASSAN, 573201.

KCET ONLINE TEST-27, MAY-2020  **MATHEMATICS**  **TIME: 45Mins MARKS: 30**

**TOPIC**: **L.P.P, M.R, LINEAR INQUALITY, M.I. DATE: 23/05/2020**

1. **Which of the following is not a proposition**

(a)  is a prime (b)  is irrational

(c) Mathematics is interesting (d) 5 is an even integer

1. ** is**

(a) A tautology (b) A contradiction

(c) Both a tautology and a contradiction (d) Neither a tautology nor a contradiction

1. ** is logically equivalent to**

(a)  (b) 

(c)  (d) 

1. **Which of the following is the inverse of the proposition : “If a number is a prime then it is odd.”**

(a) If a number is not a prime then it is odd (b)If a number is not a prime then it is odd

(c) If a number is not odd then it is not a prime (d) If a number is not odd then it is a prime

1. **Negation of the conditional : “If it rains, I shall go to school” is**

(a) It rains and I shall go to school (b) It rains and I shall not go to school

(c) It does not rains and I shall go to school (d) None of these

1. **Negation of “Paris in France and London is in England” is**

(a) Paris is in England and London is in France (b) Paris is not in France or London is not in England

(c) Paris is in England or London is in France (d) None of these

1. **Negation is “2 + 3 = 5 and 8 < 10” is**

(a) 2 + 3 ≠ 5 and < 10 (b) 2 + 3 = 5 and 8 ≮ 10

(c) 2 + 3 ≠ 5 or 8 ≮ 10 (d) None of these

1. For the following feasible region, the linear constraints except  and , are

*Y*

*x=*250

*y=*350

*X*

*O*

2*x+y=*600

(a)  (b) 

(c)  (d) 

1. **Let  and  are optimal solutions of a L.P.P., then**

(a)  is also an optimal solution

(b) gives an optimal solution

(c)  gives an optimal solution

(d)  gives an optimal solution

1. **The points which provides the solution to the linear programming problem: *Max* subject to constraints:, , is**

(a) (3, 2.5) (b) (2, 3.5)

(c) (2, 2.5) (d) (1, 3.5)

1. **Two tailors *A* and *B* earns *Rs.* 15 and *Rs.* 20 per day respectively. A can make 6 shirts and 4 pents in a day while *B* can make 10 shirts and 3 pents. To spend minimum on 60 shirts and 40 pents, *A* and *B* working *x* and *y* days respectively. Then linear constraints except , are and objective function are respectively**

(a) , 

(b) , 

(c) , 

(d) , 

1. **The maximum value of objective function  in the given feasible region, is**

*x+*2*y*=10

2*x+y*=14

*Y*

*X*

*O*

(a) 29

(b) 18

(c) 14

(d) 15

1. **The maximum value of  subject to the constraints  is**

(a) 84 (b) 95

(c) 100 (d) 96

1. **For the following linear programming problem : minimize  subject to the constraints ,  , the solution is**

(a) (0, 2) and (1, 1) (b) (0, 2) and 

(c) (0, 2) and (1, 6) (d) (0, 2) and (1, 5)

1. **The sum of the coefficients in the expansion of  is 4096. The greatest coefficient in the expansion is**

(a) 1024 (b) 924 (c) 824 (d) 724

1. **If the sum of the coefficients in the expansion of  is equal to the sum of the coefficients**

**in the expansion of , then =**

(a) 0 (b) 1

(c) May be any real number (d) No such value exist

1. **For every natural number *n*,  is divisible by**

(a) 16 (b) 128

(c) 256 (d) None of these

1. **The least remainder when  is divided by 5 is**

(a) 1 (b) 2

(c) 3 (d) 4

1. **The value of the natural numbers *n* such that the inequality  is valid is**

(a) For *n* ≥ 3 (b) For *n* < 3

(c) For *mn* (d) For any *n*

1. **Let *P*(*n*) be a statement and let *P*(*n*) ⇒ *p*(*n* + 1) for all natural numbers *n*, then *P*(*n*) is true**

(a) For all *n* (b) For all *n* > 1

(c) For all *n* > *m*, *m* being a fixed positive integer (d) Nothing can be said

1. ** is divisible by (where )**

(a)  (b) 

(c)  (d) All of these

1. **When  is divided by 5, the least positive remainder is**

(a) 4 (b) 8

(c) 2 (d) 6

1. **For a positive integer *n*, Let . Then**

(a)  (b) 

(c)  (d) 

1. ** is divisible by **

(a) 7 (b) 5

(c) 9 (d) 17

1. **For the following shaded area, the linear constraints except  and , are**

*Y*

*X*

*O*

*x+*2*y=*8

*x–y=*1

2*x+y=*2

(a)  (b) 

(c)  (d) 

1. **In equations  and **

(a) Have solution for positive *x* and *y* (b) Have no solution for positive *x* and *y*

(c) Have solution for all *x* (d) Have solution for all *y*

1. **Shaded region is represented by**

Shaded

region

*A*(0,3/2)

4*x–*2*y*=–3

*X*

*O*

##### B

(-3/4,0)

*Y*

(a)  (b) 

(c)  (d) 

1. **A Firm makes pents and shirts. A shirt takes 2 hour on machine and 3 hour of man labour while a pent takes 3 hour on machine and 2 hour of man labour. In a week there are 70 hour machine and 75 hour of man labour available. If the firm determine to make *x* shirts and *y* pents per week, then for this the linear constraints are**

(a)  (b) 

(c)  (d) 

1. **For the L.P. problem *Min* such that   and **

(a)  (b) 

(c)  (d) All the above

1. **A company manufactures two types of products *A* and *B*. The storage capacity of its godown is 100 units. Total investment amount is *Rs*. 30,000. The cost price of *A* and *B* are *Rs*. 400 and *Rs*. 900 respectively. If all the products have sold and per unit profit is *Rs*. 100 and *Rs*. 120 through *A* and *B* respectively. If *x* units of *A* and *y* units of *B* be produced, then two linear constraints and iso-profit line are respectively**

(a)  (b) 

(c)  (d) 