	B. M.S. COLLEGE OF ENGINEERING, BANGALORE-19 (Autonomous Institute, Affiliated to VTU) **Department Name: CSE**

Third INTERNALS – Online		
Course Code : 20CS5PEAAG	**Course Title : Advanced Algorithms**	
Semester :5th	**Maximum Marks: 40**	**Date: 6-01-2021**
Faculty Handling the Course:	NN,GRP	
Instructions: ***Internal choice is provided in Part C.***		

PART-A

Total 5 Marks (No choice)

No.	Question	Marks	CO No.	Level
1a	Explain what do you mean by Feasible solution, Infeasible solution, Optimal solution with an example for each.	**5M**	**2**	**1**

PART-B

Total 15 Marks (No Choice)

No.	Question	Marks	CO No.	Level
2a	Convert the below LPP to standard form Minimize x1+2x2 Subjected to x1+x2 > 40 x1-x2 =14 x1-2x2 < 3	**5M**	**1**	**2**
2b	Check whether the point (10,25) is to the left of (30,30).	**5M**	**1**	**2**
2c	Formulate maximum flow problem as LPP.	**5M**	**2**	**3**

PART- C

Total 20 Marks (Choice)

<table>
<tr><th>No.</th><th>Question</th><th>Marks</th><th>CO No.</th><th>Level</th></tr>
<tr><td>3a</td><td>Solve the below LPP using Simplex method.

Maximize 7x1 + 5x2

Subject to

2x1+x2 < =100

4x1+3x2 <= 240</td><td>10M</td><td>2</td><td>2</td></tr>
<tr><td colspan="5">OR</td></tr>
<tr><td>3b</td><td>Solve the below LPP using Simplex method.

maximize z=4x1+6x2

subject to

-x1+x2<=11

x1+x2<=27

2x1+5x2<=90</td><td>10M</td><td>2</td><td>2</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>4a</td><td>Apply Graham scan algorithm to find convex hull for the below points.

<table><tr><td>P0</td><td>(0,0)</td></tr><tr><td>P1</td><td>(10,0)</td></tr><tr><td>P2</td><td>(20,10)</td></tr><tr><td>P3</td><td>(15,10)</td></tr><tr><td>P4</td><td>(20,30)</td></tr><tr><td>P5</td><td>(35,20)</td></tr></table></td><td>10M</td><td>2</td><td>2</td></tr>
<tr><td colspan="5">OR</td></tr>
<tr><td>4b</td><td>Design pseudo code/ program for checking whether a pair of line segments intersect or not.

Apply the same to check line segment (p1,p2) intersects with(p3,p4). P1=(10,10) P2=(30,30), P3=(10,30) and p4=(40,10)</td><td>10M</td><td>2,3</td><td>2,3</td></tr>
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