THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)
Re-accredited (2nd Cycle) by NAAC with Grade "A", CGPA – 3.46 on a 4-point scale

Backlog Arrear Examination, March 2021

MCA 4421 Time: Three hours
Mathematical Foundation for computer science Max: 75 mks

Answer any five questions 5 X 15 = 75

1. Obtain principal conjunctive normal form of (7P^Q^R)

2i. state the rule CP
ii.Show that $R \rightarrow S$ can be derived from the premises $P \rightarrow (Q \rightarrow S), 7(RVP)$ and Q

3. Draw the Hasse dagram of (D18,/)

4. Explain Kurskal's algorithm. Algorithm

5. consider the D.F.A with initial state Q0 and final state Q1

State	Input a	Input b
Q0	Q1	Q2
Q1	Q1	Q2
Q2	Q0	Q2

Check wther the strings are Accepted or not i.aabbaabb a ii. bababbaa-

6. Obtain D.F.A of the N.D.F.A with Q0 is initial state and Q2 is final state.

State	Input a	Input b
Q0	{Q1,Q0}	{Q2,Q1}
Q1	{Q1,Q2}	{Q1}
Q2	{Q0}	{Q2,Q0}

7. Obtain D.F.A of the regular expression

i. 101+0*10* ii. 0*1 + 1*0 + 10 iii.(10*+01*)*