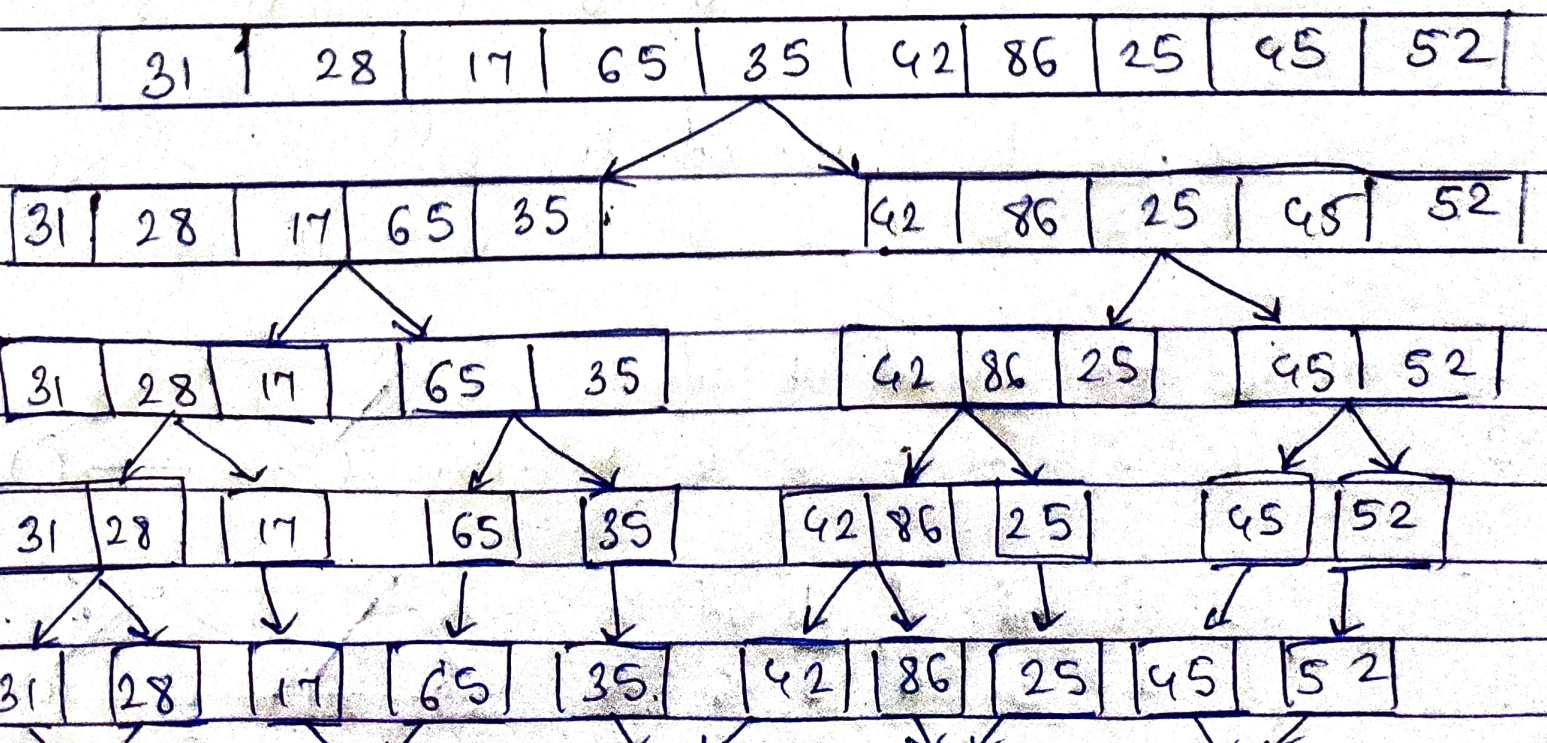
DAA - OBA - 2

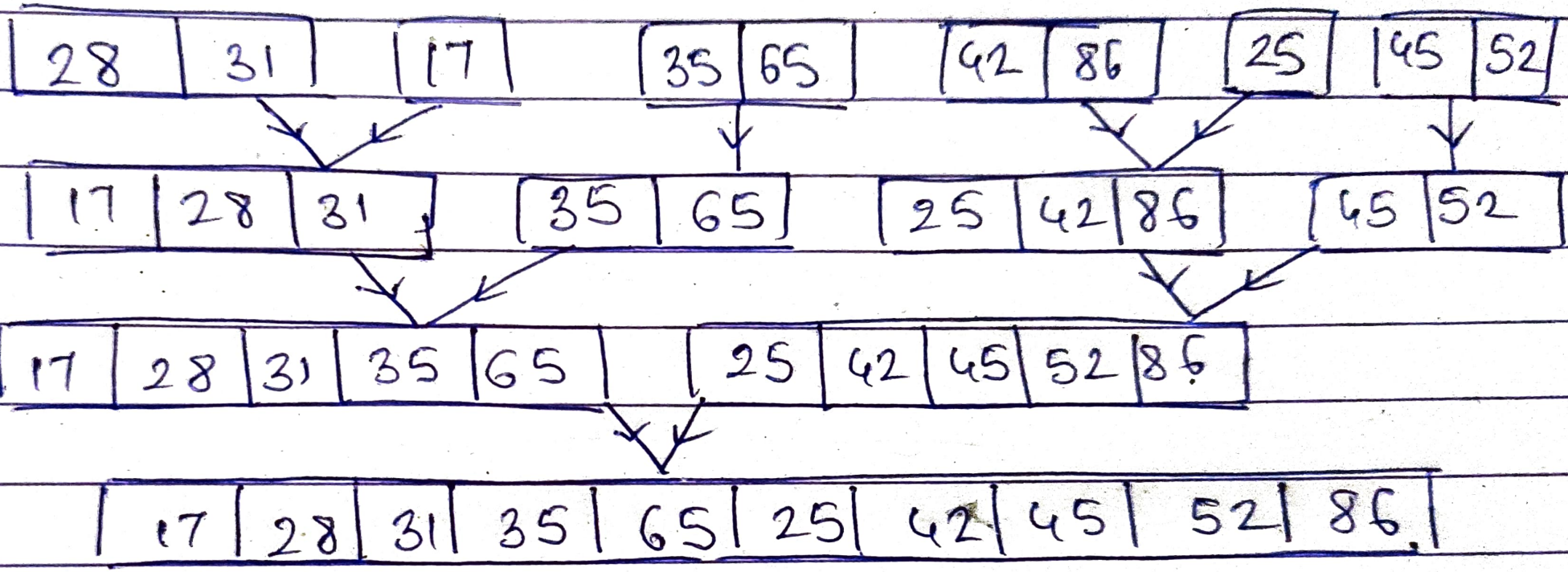
USN : 2GI19CS175 Name : Venkatesh G D

1) Given A = (31, 28, 17, 65, 35, 42, 86, 25, 45, 52)

Original Sequence



1)

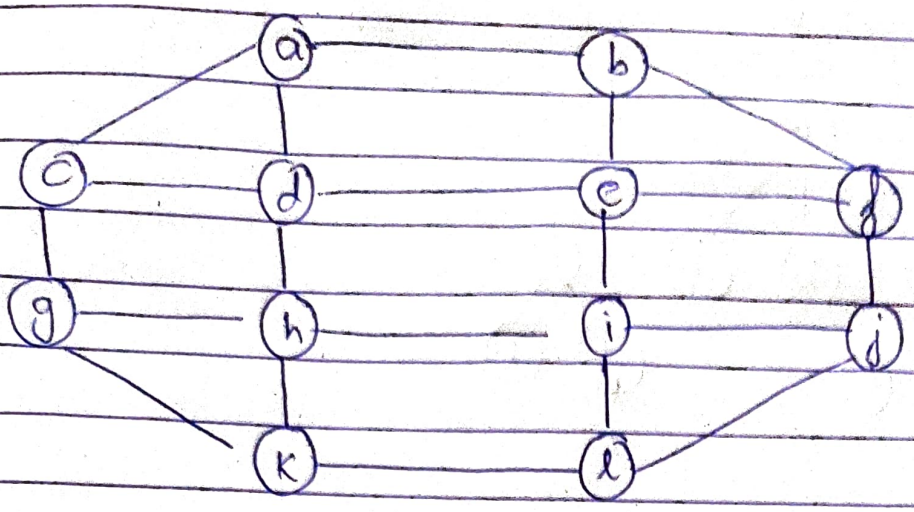


Sorted Sequence

∴ Array after sorting,

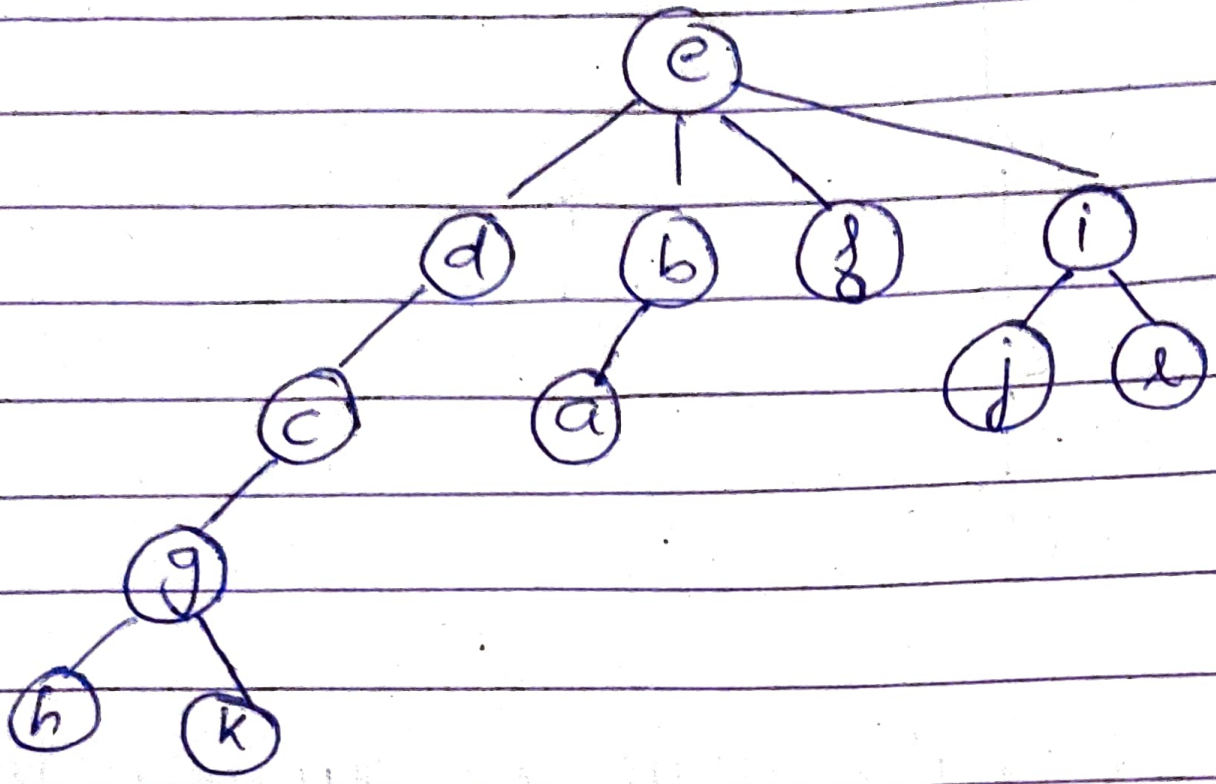
17, 25, 28, 31, 35, 42, 45, 52, 65, 86

2.) Apply Prim's algorithm to following graph

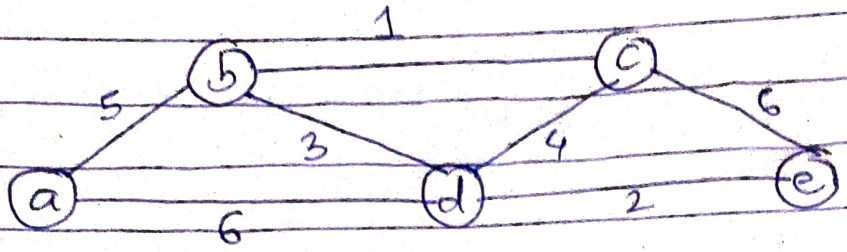


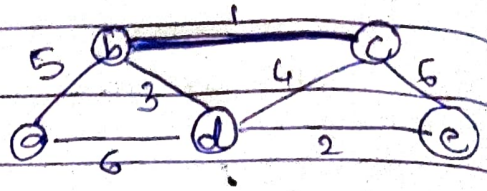
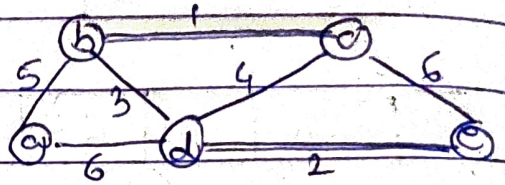
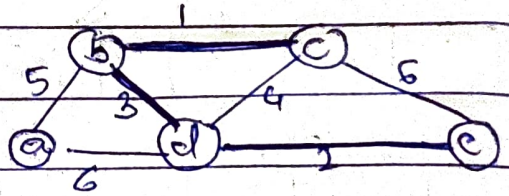
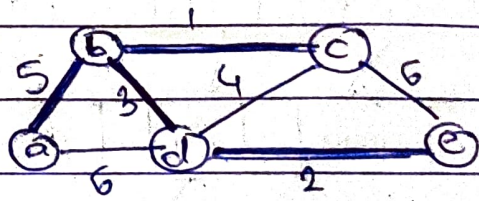
Tree vertices	Priority queue of fringe vertices
a(-, -)	b(a, 3) c(a, 5) d(a, 4)
b (a, 3)	c(a, 5) d(a, 4) e(b, 3) f(b, 6)
e (b, 3)	c(a, 5) d(e, 1) f(e, 2) i(e, 4)
d (e, 1)	c(d, 2) f(e, 2) i(e, 4) h(d, 5)
c (d, 2)	f(e, 2) i(e, 4) h(d, 5) g(c, 4)
f (e, 2)	i(e, 4) h(d, 5) g(c, 4) j(f, 5)
i (e, 4)	h(d, 5) g(c, 4) ~~k(i, 6)~~ j(i, 3) l(i, 5)
j (i, 3)	h(g, 3) ~~g(c, 4) k(g, 6)~~ g(c, 4) l(i, 5)
g (c, 4)	~~k(g, 6)~~ h(g, 3) l(i, 5) k(g, 6)
h (g, 3)	l(i, 5) k(g, 6)
l (i, 5)	k(g, 6)

2.) The minimum spanning tree found by algorithm comprises the edges ab, be, ed, dc, ef, ei, ij, eg, gh, il, gk.



3)



Tree edges	Sorted list of edges (selected edges are underlined)	Illustration
	<u>bc</u> de bd cd ab ad ce 1 2 3 4 5 6 6	
bc 1	bc <u>de</u> bd cd ab ad ce 1 2 3 4 5 6 6	
de 2	bc de <u>bd</u> cd ab ad ce 1 2 3 4 5 6 6	
bd 3	bc de bd cd <u>ab</u> ad ce 1 2 3 4 5 6 6	
ab 5		

Minimum Spanning Tree is