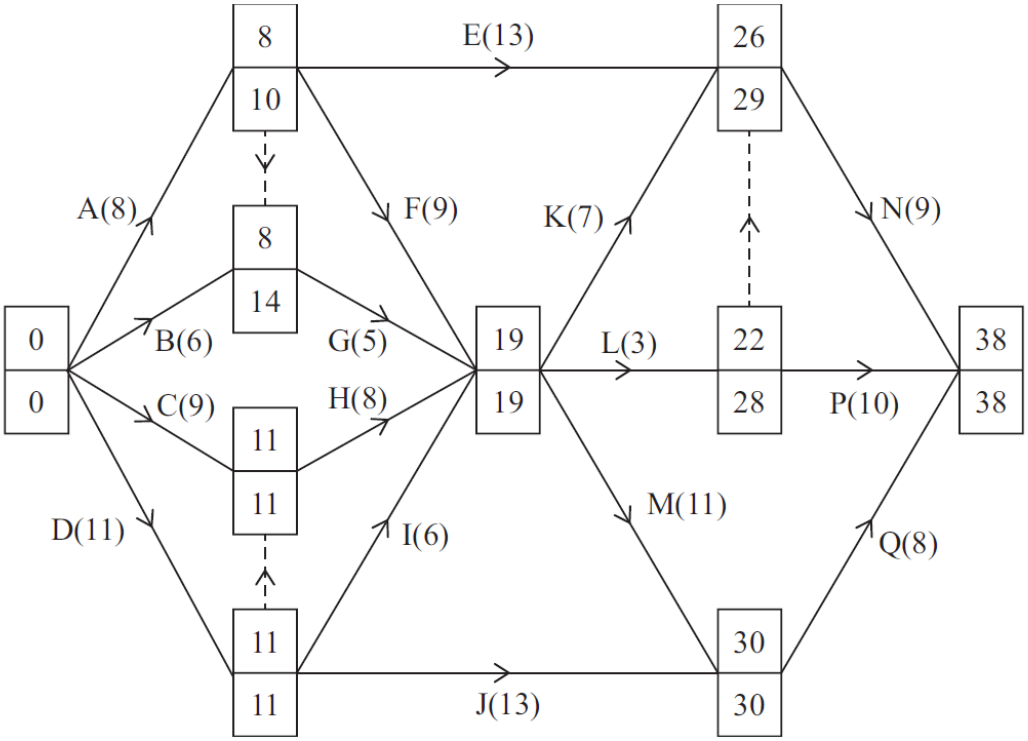
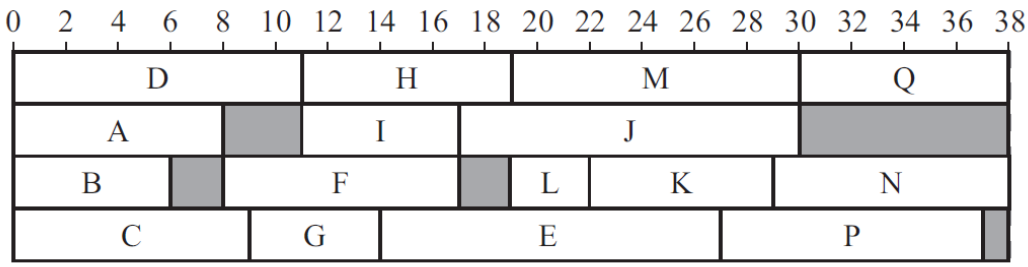
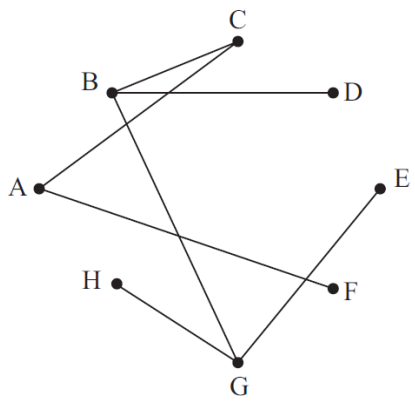
Question Number	Scheme	Marks
6.(a)		M1 A1 M1 A1
		(4)
(b)	DHMQ	B1
		(1)
(c)	$(8+6+9+11+13+9+5+8+6+13+7+3+11+9+10+8) \div 38 = 3.6$ $136 \div 38 = 3.6$ Therefore 4 workers	M1 A1
		(2)
(d)	$28 - 19 - 3 = 6$	B1ft
		(1)
(e)	e.g. 	M1 A1 A1 A1
		(4)
		12 marks

	Notes for Question 6	
a1M1	**All** top boxes complete, values generally increasing in the direction of the arrows ('left to right'), condone one rogue. For a rogue in the top boxes if values do not increase in the direction of the arrows, then if one value is ignored and then the values do increase in the direction of the arrows then this is considered to be only one rogue value (with a similar definition for bottom boxes but in reverse)	
a1A1	CAO (top boxes)	
a2M1	**All** bottom boxes complete, values generally decreasing in the opposite direction of the arrows ('right to left'), condone one rogue. Condone missing 0 and/or their 38 (at the end event) for the M mark only	
a2A1	CAO (bottom boxes)	
b1B1	CAO	
c1M1	$(136 \pm 13) \div 38\ (=3.58)$ or awrt 3.6 seen (If their final time is not 38 award for $(136 \pm 13) \div$ their "38")	
c1A1	CAO with no incorrect working seen – note an answer of 4 with no working is M0	
d1B1ft	Their "Late End Time L" – "Early Start Time L" – 3 (must see all three values)	
e1M1	Not a cascade (Gantt) chart. 5 'workers' used at most and at least 10 activities placed. **End time must be the same as their end time from the diagram in (a)**	
e1A1	4 or 5 workers. All 16 activities present (just once). Condone at most **three** errors. An activity can give rise to at most three errors; one on duration, one on time interval and only one on IPA	
e2A1	4 workers. All 16 activities present (just once). Condone **one** error **either** precedence **or** time interval **or** activity length; An activity can give rise to at most three errors; one on duration, one on time interval and only one on IPA	
e3A1	4 workers. All 16 activities present (just once). No errors.	
	For (e) the following may be useful in checking their schedule	

Activity	Duration	Time interval	IPA
A	8	0 - 10	-
B	6	0 - 14	-
C	9	0 - 11	-
D	11	0 - 11	-
E	13	8 - 29	A
F	9	8 - 19	A
G	5	8 - 19	A, B
H	8	11 - 19	C, D
I	6	11 - 19	D
J	13	11 - 30	D
K	7	19 - 29	F, G, H, I
L	3	19 - 28	F, G, H, I
M	11	19 - 30	F, G, H, I
N	9	26 - 38	E, K, L
P	10	22 - 38	L
Q	8	30 - 38	J, M

Question Number	Scheme	Marks
7.(a)(i)	DB, BG, BC, CA, AF, {GE, GH either order}	M1 A1
(a)(ii)	277 (miles)	A1 **(3)**
(b)		B1 **(1)**
(c)	"277" x 2 = 554 (miles)	B1ft **(1)**
(d)	Replace BC CA AF with BF $554 - 41 - 38 - 39 + 46 = 482$ (miles)	M1 A1 **(2)**