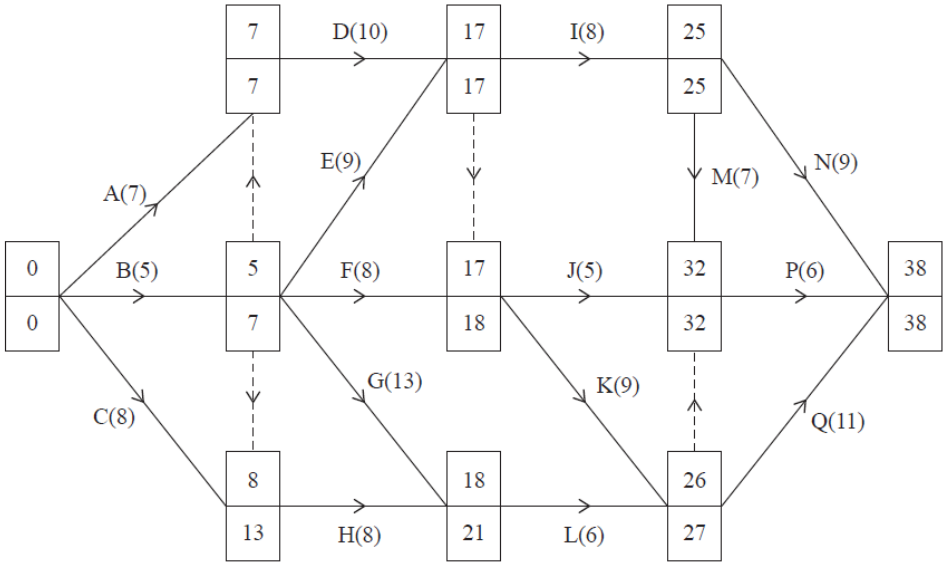
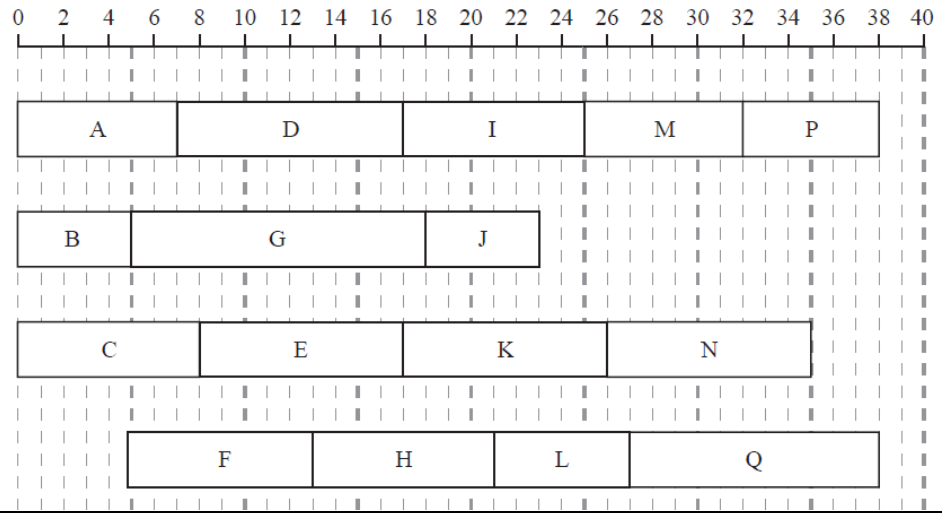
Question Number	Scheme	Marks
7.(a)		B1 (HIJ) B1 (KLM) B1 (NPQ) **(3)**
(b)		M1 A1 M1 A1 **(4)**
(c)	A D I M P	B1 **(1)**
(d)	$\frac{7+5+\ldots+6+11}{38} \quad \Rightarrow \frac{129}{38}=3.3947\ldots$ Therefore 4 workers	M1 A1 **(2)**
(e)	e.g. 	M1 A1 A1 A1 **(4)**
		14 marks

Activity	IPA	Activity	IPA
A	-	I	D E
B	-	J	D E F
C	-	K	D E F
D	A B	L	G H
E	B	M	I
F	B	N	I
G	B	P	J K L M
H	B C	Q	K L

	Notes for Question 7	
a1B1	Activities H to J correct	
a2B1	Activities K to M correct	
a3B1	Activities N to Q correct	
b1M1	**All** top boxes complete, values generally increasing in the direction of the arrows ('left to right'), condone one rogue	
b1A1	CAO (top boxes)	
b2M1	**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 24 (at the end event) for the M mark only	
b2A1	CAO (bottom boxes)	
cB1	CAO	
d1M1	Attempts total length (accept 129 ± 13) ÷ "38" Accept awrt 3.4 for M1	
d1A1	CAO 4 workers and correct calculation (an answer of 4 with no working scores M0)	
e1M1	Not a cascade (Gantt) chart. 5 'workers' used at most and at least 11 activities placed	
e1A1	4 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**.**	
	The table below is helpful in checking an activities duration, time interval and IPA	

Activity	Duration	Time Interval	IPA
A	7	0 – 7	-
B	5	0 – 7	-
C	8	0 – 13	-
D	10	7 – 17	A B
E	9	5 – 17	B
F	8	5 – 18	B
G	13	5 – 21	B
H	8	8 – 21	B C
I	8	17 – 25	D E
J	5	17 – 32	D E F
K	9	17 – 27	D E F
L	6	18 – 27	G H
M	7	25 – 32	I
N	9	25 – 38	I
P	6	32 – 38	J K L M
Q	11	26 – 38	K L