

**Section 1 (20 marks)**

Question	Definitive Mark	Comment
1.(a)	1/1	Correct statement provided.
(b)	2/2	Correct statements.
2.(a)	2/2	Good response.
(b)	2/2	Good response.
3. (a)	2/3	Candidate showed understanding of voltage operation (voltage flowing ignored) and current flow given.
4.	2/3	Three reasonable skills given (things an engineer does rather than knows) but the candidate appears to have misread the question as two electrical skills and one digital skill were given.
5.	4/4	Two reasonable role statements for engineer 1 given, one clear and the other (calculation of suitability for given loads) implied. Engineer 2 two acceptable role statements given.  NB: Engineering branches and sub-branches are ever evolving and so cannot be definitive in an answer.
6.	3/3	Correct working and answer.

**Section 2 (70 marks)**

Question	Definitive Mark	Comment
7. (a) (i)	3/3	Correct expression.
(a)(II)	2/4	Marks given for NOT and AND conversions.
(b)(i)	2/2	Correct statement.
(b)(ii)	0/4	Response too general.
(c)	2/2	Clear explanation of Mark/Space ratio controlling speed.
8. (a)	3/4	Full marks cannot be awarded as the total load has not been divided by three to give load per metre.
(b)(i)	2/3	Magnitudes correct although no natures given
(b)(ii)	3/3	Correct working and answer.
(c)	5/5	Correct working and answer.
9. (a)	3/3	Three acceptable benefit points given.
(b)(i)	1/2	Incorrect VD ratio used, correct step to calculate speed.
(b)(ii)	1/2	Incorrect VD ratio used, correct step to calculate speed.
9.(c)	3/4	5V used instead of 4.3V rest correct with follow through.
(d)	0/4	No information on sketch, no calculation.
(e)	5/5	Correct working and answer.
10. (a)	2/2	Good response.
(b)	7/7	Very good explanation of circuit function.
(c)	0/3	Incorrect restrictor position and explanation provided.
(d)	4/8	Marks gained for signal 1, Mark and Space values, incrementing and decrementing and x10 loop.
<b>Total marks</b>	<b>66/90</b>	