CS1231S Midterm Test

AY2020/21 Semester 1

This is the report for the CS1231S midterm test held on 3 October 2020.

669 out of 671 students sat for the test.

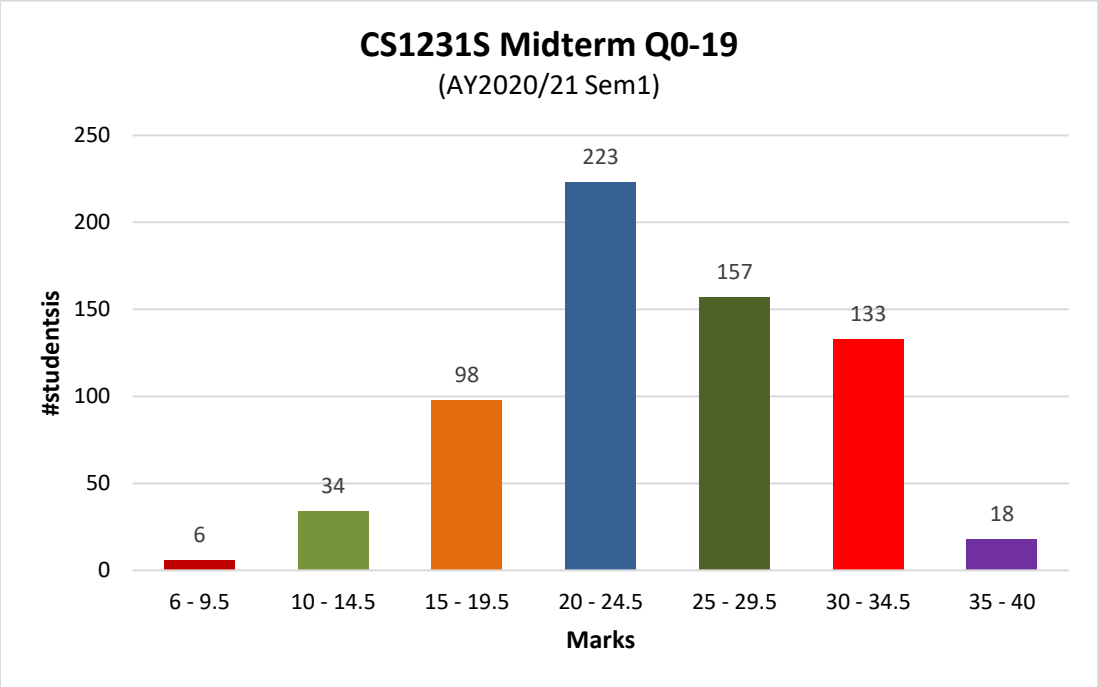
Below are the statistics for Part A and Part B (questions 0 – 19). This report will be updated when the results for the other questions are in.

1. General statistics

	Part A (Q1-7) (Total: 14 marks)	Part B (Q8-19) (Total: 24 marks)	Q0 – 19 (Total: 40 marks)	Q20 (3 marks)	Q21 (3 marks)	Q22 (4 marks)	**Total (50 marks)**
Average	11.08 (79.1%)	11.08 (46.2%)	24.12 (60.3%)	1.72 (57.3%)	0.86 (28.7%)	3.18 (79.5%)	29.93 (59.9%)
Median	12	10	24	2	0	4	30
Standard deviation	2.49	4.65	6.18	1.36	1.22	1.35	7.69

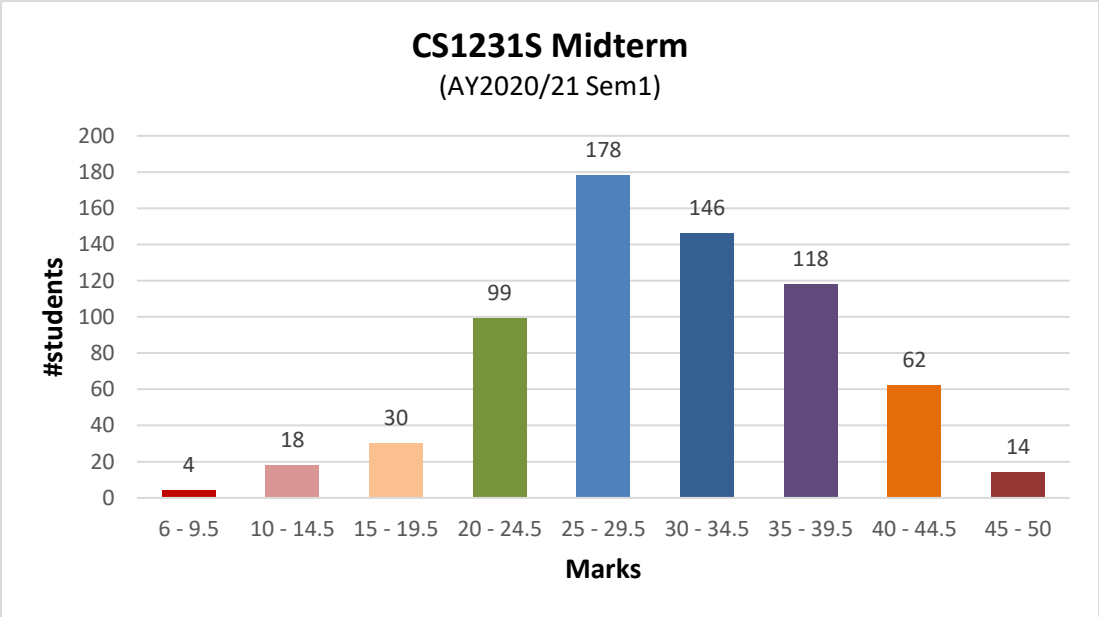
Part A's performance is considerable better than Part B. The overall average of 60.3% is in the typical range of average.

Below is the chart for the overall results for questions 0 – 19 (excluding two absentees):



The average score for the midterm is 59.9%, which is on the borderline of a typical range of the average (60 – 65%).

Below is the chart for the overall results (excluding one absentee):



2. Part A: MCQs 1 - 7

The table below shows the percentage of students who chose the correct answers, and of those who chose the most popular wrong answers:

	Q1	Q2	Q3	Q4	Q5	Q6	Q7
		Easiest	Hardest				
%students who chose the correct answer	B (71.2%)	D (95.7%)	C (59.0%)	C (87.3%)	C (67.1%)	D (85.1%)	E (88.4%)
%students who chose the most popular wrong answer	E (16.2%)	B (2.1%)	E (18.5%)	A (4.8%)	E (18.0%)	B (5.4%)	B (5.1%)

The easiest question is Q2 with 95.7% of students getting it right.

The hardest question is Q3 with 59.0% of students getting it right.

One quick way to simplify the given statement in Q3:

$$(\sim p \wedge \sim r) \vee \big(p \wedge \sim(\sim r \vee s)\big) \vee p \vee (\sim p \wedge q \wedge \sim r \wedge s) \vee \sim(q \vee \sim p)$$

is to observe that the part in red can be combined into p (by absorption) and the part in blue can be combined into $(\sim p \wedge \sim r)$ (by absorption as well), hence giving:

$$(\sim p \wedge \sim r) \vee p \vee \sim(q \vee \sim p) \equiv (\sim p \wedge \sim r) \vee p \vee (p \wedge \sim q) \equiv (\sim p \wedge \sim r) \vee p$$

With two variables left it is easy to check that it is logically equivalent to $p \vee \sim r$.

3. Part B: MRQs 8 - 19

The table below shows the answer and average mark for each question:

Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
BC	AD	ABCD	AD	C	B	C	A	BC	D	BC	BCD
0.26	0.54	1.07	1.60	0.76	1.35	1.61	0.52	0.98	0.20	1.54	0.69
						Easiest			Hardest		

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