



UNSW
S Y D N E Y

CANDIDATE

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TEST

Quiz 8

Subject code	--
Evaluation type	--
Test opening time	10.04.2024 08:00
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Question	Status	Marks	Question type
1.1	Correct	1/1	Numeric Entry
1.2	Correct	1/1	Multiple Choice
1.3	Correct	1/1	Multiple Choice
1.4	Correct	1/1	Multiple Choice
2.1	Correct	1/1	Numeric Entry
2.2	Correct	1/1	Multiple Choice
2.3	Correct	1/1	Numeric Entry
2.4	Correct	1/1	Multiple Choice

1.1 In a class of 200:

- 80 are funny
- 130 are clever
- 42 are neither funny nor clever

How many are both funny and clever?



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1.2 How many integers are there between 1 and 1000 which are divisible by 6 or 15 but not both?

Select one alternative:

☐ 199

☐ 211

☒ 166



☐ 210

1.3 Let S be a set of size n , and fix a constant $k > 1$ (i.e k does not depend on n). Which of the following gives the **best** asymptotic upper bound for the number of subsets of S of size k ?

☒ $O(n^k)$



☐ $O(k^n)$

☐ $O(2^n)$

☐ $O(nk)$

- 1.4 Suppose I place 2 red balls, 3 green balls, and 4 blue balls into a hat, and draw two balls without replacement.

What is the probability they are both blue?

Select one alternative:

☐ 4/9

☐ 5/9


☐ 1/2

☒ 1/6



☐ None of the other alternatives

☐ 1/3

- 2.1 How many ways are there of choosing an **ordered** sequence of three letters (**with no replacements**) from SYDNEY?:  .

- 2.2 How many sequences of $2n$ coin flips have exactly n heads and n tails?


☐ 2^{2n-1}

☐ 2^n

☒ $\binom{2n}{n}$



☐ $\binom{2n}{n} \binom{2n}{n}$

- 2.3 How many ways are there of placing 6 indistinguishable balls into 3 distinguishable boxes so that each box contains **at least** 1 ball?:  .

- 2.4 Suppose I place 2 red balls, 3 green balls, and 4 blue balls into a hat, and draw two balls without replacement.

What is the probability that the second ball is blue, **given** that the first ball is blue?

Select one alternative:

☒ 3/8



☐ 4/9

☐ None of the other options

☐ 1/6

☐ 2/7