

REG-PAC-2425-ASM-SET 3-MATH**Suggested solutions****Conventional Questions**

1. (a) Number of ways = C_4^5 1M
 $= 5$ 1A
- (b) Number of ways = $C_3^5 C_1^5 + C_4^5$ 1M
 $= 55$ 1A

2. (a) Required number = $C_4^5 \times C_3^8$ 1M
 $= 280$ 1A
- (b) Required number = $C_5^5 \times C_2^8 + 280$ 1M
 $= 308$ 1A

3. Number of ways = $C_2^{18} - C_2^4 - C_2^4 - C_2^4 - C_2^6$ 1M
 $= 120$ 1A

4. (a) Number of ways = $C_2^6 \times C_2^5$ 1M
 $= 150$ 1A
- (b) Number of ways = $C_1^3 \times C_3^6$ 1M
 $= 60$ 1A
- (c) Case 1: 4 \$2 coins are selected. Number of ways = C_4^6
Case 2: 1 \$5 coin and 3 \$1 coin are selected. Number of ways = $C_1^3 \times C_3^5$
Number of ways = $C_4^6 + C_1^3 \times C_3^5$ 1M
 $= 45$ 1A

5. (a) Number of combinations = $C_4^{13} + C_4^9 + C_4^{10}$ 1M
 $= 1051$ 1A
- (b) Required number = $C_1^{13} \times C_1^9 \times C_2^{10} + C_1^{13} \times C_2^9 \times C_1^{10} + C_2^{13} \times C_1^9 \times C_1^{10}$ 1M
 $= 16\,965$ 1A
- (c) Required number = $C_2^{13} \times C_2^9 + C_2^{13} \times C_2^{10} + C_2^9 \times C_2^{10}$ 1M
 $= 7938$ 1A

6. (a) Number of ways = C_8^{20} 1M
 $= 125\,970$ 1A

(b) Number of ways = $C_8^9 + C_8^{11}$	1M
= 174	1A
(c) Number of ways = $125\,970 - C_4^9 C_4^{11}$	1M
= 84 390	1A
7. Required number = $6! \times 2$	1M
= 1440	1A
8. Required number = $3 \times (C_7^8 \times 7!)$	1M
= 120 960	1A
9. (a) Number of ways = $9!$	1M
= 362 880	1A
(b) Number of ways = $C_4^9 \times 4!$	1M
= 3024	1A
10. (a) Required number = $C_4^6 \times 4!$	1M
= 360	1A
(b) Required number = $C_4^7 \times 4! - C_2^5 \times 4!$	1M
= 600	1A
11. (a) Number of arrangements = $7!$	1M
= 5040	1A
(b) Number of arrangements = $6! \times 2!$	1M
= 1440	1A
(c) Number of arrangements = $7! - 6!2!$	1M
= 3600	1A
(d) Number of arrangements = $5! \times 3!$	1M
= 720	1A
12. (a) Number of ways = $C_2^4 \times 2! \times 8!$	1M
= 483 840	1A
(b) Number of ways = $C_2^6 \times 2! \times 8!$	1M
= 1 209 600	1A

(c) Number of ways = $7! \times 4!$
= 120 960

1M

1A

13. (a) Number of ways = $C_5^7 \times 5!$
= 2520

1M

1A

(b) Number of ways = $C_3^7 \times 3! \times 4^2$
= 3360

1M

1A