

**REG-PAC-2324-ASM-SET 1-MATH****Suggested solutions****Conventional Questions**

1. (a) Required number  $= 4 \times 5 \times 2 \times 8$  1M  
 $= 320$  1A

(b) Required number  $= 5 \times 2 \times (4 + 8)$  1M  
 $= 120$  1A

2. Let  $x$  be the number of boys in the group.

$$x(30 - x) = 224$$
 1M  
$$-x^2 + 30x - 224 = 0$$
 1M  
$$x = 16 \quad \text{or} \quad 14 \quad (\text{rejected})$$

There are 16 boys and 14 girls in the group. 1A

3. (a) Number of ways  $= (5 + 2)(4 + 3)$  1M  
 $= 49$  1A

(b) Number of ways  $= 49 \times 14 \times 49$  1M  
 $= 33\,614$  1A

4. (a) Required number  $= 9 \times (8 + 6)$  1M  
 $= 126$  1A

(b) Required number  $= (9 + 6)(9 + 6 - 1)$  1M  
 $= 210$  1A

(c) Required number  $= 9 \times 8 \times 6 + 6 \times 9 \times 5$  1M  
 $= 702$  1A

5. (a) (i) Required number  $= 6 \times 7 \times 7$  1M  
 $= 294$  1A

(ii) Required number  $= 6 \times 7 \times 3$  1M  
 $= 126$  1A

(b) (i) Required number  $= 6 \times 6 \times 5$  1M  
 $= 180$  1A

(ii) Required number  $= 6 \times 5 \times 1 + 5 \times 5 \times 3$  1M  
 $= 105$  1A

6. (a) Required number =  $(6 + 12)(10 + 8)(8 + 5)$  1M  
 $= 4212$  1A

(b) Required number =  $4212 - (6)(10)(8)$  1M  
 $= 3732$  1A

7. Number of cases when hundred digit is 3, 5 or 7 =  $3 \times 4 \times 8$   
Number of cases when hundred digit is 4 or 6 =  $2 \times 5 \times 8$   
Required number =  $3 \times 4 \times 8 + 2 \times 5 \times 8$  1M+1M  
 $= 176$  1A

8. (a) Required number =  $5 + 5$  1M  
 $= 10$  1A

(b) Required number =  $10 \times 9$  1M  
 $= 90$  1A

(c) Required number =  $5 \times 5$  1M  
 $= 25$  1A

9. Number of ways of answering the questionnaire if the answer of question 7 is A  
 $= 4^6 \times 1 \times 4 = 4^7$  1M  
Number of ways of answering the questionnaire if the answer of question 7 is not A  
 $= 4^6 \times 3 \times 4^5 = 4^{11} \times 3$   
Required number =  $4^7 + 4^{11} \times 3$  1M  
 $= 12\,599\,296$  1A

10. (a) Number of choices =  $4 + 7 + 8 = 19$  1M+1A  
(b) Number of choices =  $7 \times 8 = 56$  1M+1A  
(c) Number of choices =  $4 \times 15 = 60$  1M+1A  
(d) Number of choices =  $4 \times 7 \times 8 = 224$  1M+1A

11. (a) Number of ways answering the first 5 questions in the first part =  $2^5 = 32$  1M  
Required number =  $32 \times 3^5 + 32 \times 5^4$  1M  
 $= 27\,776$  1A  
(b) Number of ways answering the second and third parts =  $3^5 \times 5^4$  1M  
 $= 151\,875$  1A  
The claim is incorrect. 1A