

**Q1:** Let  $U = \{a, b, c, d, e, f, g\}$ ,  $A = \{a, b, c, d\}$ ,  $B = \{b, c, f, g\}$   
and  $C = \{d, e, f, g\}$  find  $(A|B)^c \cap (B^c|C^c)$ .

**Q2:** How many **4 digit** numbers **greater than 6000** can be formed using  
numbers **2,3,4,5,6,7,8,9** with the following conditions:

- a- without repetition of digits.
- b- odd numbers with repetition.
- c- odd numbers without repetition.

**Q3:** A student is to **answer 8** out of **11 questions** in an exam :

1-How many choices has he ?

2-How many choices if he must answer **the first or second question but not both** ?

3- How many choices if he if he must answer **exactly 3 of the first 5 question** ?

4- How many choices if he if he must answer **at least 3 of the first 5 question** ?

**Q4:** How many words, with or without meaning can be made from the  
letters of the word '**COUNTRIES**', assuming that **no letter is repeated**, if:

i) 4 letters are used at a time.

ii) all letters are used at a time.

iii) all letters are used but the letters '**IES**' must **come together**.