1. As the number of favourable outcomes according to the problem is 2 (BGBGBGBG and GBGBGBGB); the state space is (8! / (4!\*4!)). Therefore the required probability is (2/ (8! / (4!\*4!))). The final answer is **0.0285714285714286**.
2. 8Cores Defective(C)=.3=> Functioning(C)=.7
3. Therefore required probability = (.7)^8 => **0.05764801**
4. Great:   
   At least 1 functional core => 1 - Probability (all defective cores)   
   => 1- ((.3) ^8)  
   . ’ . P (Great) = 0.99993439  
   => No. of great systems expected are **900**  
   Advanced:  
    At least 4 functional cores => Probability((4 functional )+ (5 functional )+ (6 functional )+ (7 functional ) +(8 functional ))  
   => (((.7)^4)\*((.3)^4)+ ((.7)^5)\*((.3)^3)+ ((.7)^6)\*((.3)^2)+ ((.7)^7)\*((.3)^1)+ (.7)^8))  
   . ’ . P (Advanced) = 0.09942541  
   No. of advanced systems expected are floor (99.42541) = **42**  
   Extreme:   
   All functional cores => (.7) ^8  
   . ’ . P (Extreme) = 0.05764800999999997  
   No. of Extreme systems expected are floor(57.64800999999997) = > **57**
5. 57 Extreme, 42 Advanced, 900 Great in the thousand after removing duplicates.  
   So Revenue => (57\*1000+42\*100+900\*50) = **$106200**
6. (a) P (V=G/G) = 0.7; => negation (P (V=G/G)) => P (V=I/G) = 0.3  
   P (V=G/I) =0.2;=> negation (P (V=G/I)) => P (V=I/I) = 0.8  
   P (G) = 0.7  
   P (I) => negation (P (G)) = 0.3  
   => P (V=I) = 0.4499999999999999  
   => P (V=G) = 0.5499999999999999  
   (a) Judge 1 voted guilty. Probability of the person being in fact guilty?  
    => P (G/V=G) = (P (V=G/G)\*P (G))/P (V=G) according to Bayes theorem.  
   => P (G/V=G) = (0.7\*0.7)/(P (V=G))  
   P (V=G) =>( P(G)\*P(V=G/G) + (P(I)\*P(V=G/I))  
   => P (V=G) = (0.7\*0.7)+(0.3\*0.2) = 0.5499999999999999  
   . ’ . P (G/V=G) **= 0.8909090909090909** is the required probability.  
   (b) P (G/V1=G, V2=G, V3=G) =?  
   As the decisions are independent, the required probability is (0.8909090909090909) ^3  
   = **0.7071314800901577**(c) P (V3=G/V1=I, V2=I) =?  
   The expression further can be deduced as  
   => P((V3=G)|(V1=I))\* P((V3=G)|(V2=I))  
   As we know that P((V=G)|(V=I)) => P((V=I)|(V=G))\*P (V=G)/P (V=I),  
   => (P((V1=I)|(V3=G))\*P (V3=G)/P (V1=I))\* (P((V2=I)|(V3=G))\*P (V3=G)/P (V2=I))  
   => ???  
     
   P (V=G) = **0.5499999999999999**
7. ??? Am not able to comprehend the question properly.

D1-> D2-> D3-> D4