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### **3413ICT Network Security**

### **Workshop – 11B**

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| **Review Questions:**   1. Explain and differentiate between the following access control policies: Discretionary access control (DAC), Mandatory access control (MAC), and Role-based access control (RBAC). 2. Explain the following terms:  * Access matrix * Access control list (ACL) * Capability ticket  1. You are given the following access matrix     What is the access control list for “File 1”?   1. For the same access matrix given in Question 3, what are the capability tickets for Users B and C, respectively? 2. The relationship between users and roles are represented by the set of all possible pairs (*u*, *r*), where *u* is a user and *r* is a role. Suppose a company has 200 staff members (each staff member is a user) and 50 distinct roles. How many pairs, (*u*, *r*), does this company have?   *Suppose a group of 10 users are assigned with 5 roles. There are 10 files that these users can access (Note that different users may be able to access different files with different permissions). For the following two matrices, users are represented by U1,…, U10; roles are represented by R1, …, R5; and files are represented by F1, …, F10. Answer the following Questions (6)-(8) based on these matrices.*           1. Compare users U1 and U2, in terms of numbers of files that they can access and types of permissions by which they can access these files. 2. For each of the users U3, U4, and U5, list all the files that this user can access as well as the types of access rights. 3. Among the 10 users, who can access the maximum number of files? What files can this user access? For each of these files, by what permissions can this user access it? 4. Explain what a constraint is in a RBAC model. List and explain the three types of constraints in the RBAC reference models that we have studied. 5. In real-world applications, a role can be defined as a combination of official position and job function. Suppose an organization has 10 official positions and 20 job functions. How many different roles does this organization have? 6. The BLP model was developed for data confidentiality. Is this model effective to protect data integrity? Why or why not? |