

*You have 15 minutes to complete this quiz.*

Name: \_\_\_\_\_ **Grading Key**

RIT Username: \_\_\_\_\_

Problem	Possible	Score
1	10	
2	10	
3	20	
Total	40	

1. There are three principles in the information security model. Explain what they are and whether each of them is hold in DNSSEC or not. (10 pts)

*Confidentiality (x), Integrity (o), Availability (o)*

2. There are two types of DNSKEY in DNSSEC. Discuss what they are and why DNSSEC uses two types of DNSKEY rather than a single one. (10 pts)

*The KSK signs for ZSK, and ZSK signs for DNS records. Thus, KSK can be stored in more secure place such as HSM because it is less frequently used than ZSK. If ZSK were compromised, the domain owner can generate ZSK and KSK can simply signs the new ZSK*

3. Assume that you are using a DNSSEC-supporting resolver to return the A record of example.com, of which nameserver supports DNSSEC. Using proper terminologies, explain all the required steps to verify the A record. (20 pts)

*Verifying the signature (RRSIG) of A record using DNSKEY (ZSK). ZSK's signature can be verified using KSK. KSK can be verified using its signature and comparing the DS record fetched from the parent zone. The DS record is also signed by the parent zone, of which signature can be verified similarly.*