| Name: | |
|---|---|
| Enrolment No: | UPES |

## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
### End Semester Examination, December 2018

**Course: Information Security Fundamentals**   **Semester: I**
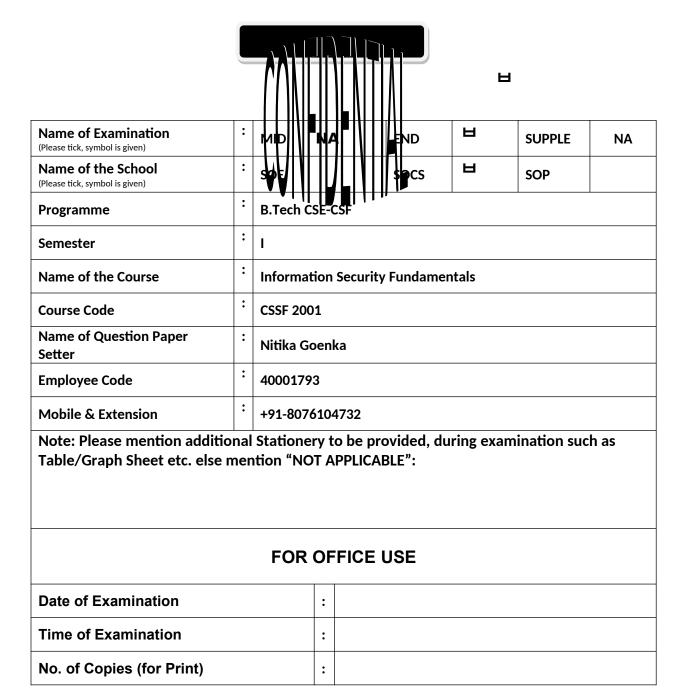**Programme: B.Tech CSE-CSF**   **CSSF2001**
**Time: 03 hrs.**   **Max. Marks: 100**
**Instructions: All Questions are Compulsory.**

### SECTION A

| S. No. | | Marks | CO |
|---|---|---|---|
| Q 1 | Illustrate Confidentiality and Integrity Information Security Elements with examples. | 4 | CO2 |
| Q 2 | Explain Asymmetric Algorithms with different widely used types. | 4 | CO3 |
| Q 3 | Explain the Fire Suppression technical control for providing physical security. | 4 | CO4 |
| Q 4 | Explain the following terms-<br>a) Hopscotch       b) Fuzzing | 4 | CO2 |
| Q 5 | Enumerate the various concepts of Governance, risk & compliance. | 4 | CO4 |

### SECTION B

| Q 6 | "Organization needs to decide at which layer of TCP/IP Model they want to implement security". Justify the statement by explaining various techniques for cryptography. | 10 | CO3 |
|---|---|---|---|
| Q 7 | Organization is always prone to different type of network attacks. Give a brief description on Threats and Vulnerabilities that may be present in Organization's Network. | 10 | CO1 |
| Q 8 | "SDLC is a process used by software industry to release high quality software in the market". Give a brief description of secure software development. | 10 | CO2 |
| Q 9 | Explain Log Management under following heads:<br>(i)  Functions of Log Management<br>(ii) Log Storage<br>(iii) Challenges in Logging<br><br>OR<br><br>Explain the Information Security Audit along with different Audit Drivers. Also explain different types of Audit. | 10 | CO4 |

### SECTION-C

| Q 10 | "Just as Government directs regulatory frameworks to assist others in their efficient and effective operations, similarly operating systems also regulate the generic system operations" Justify the statement and Illustrate the various types of Operating Systems along with Operating system protection | 20 | CO2 |
|---|---|---|---|

| | Controls in detail. | | |
|------|------|------|------|
| Q 11 | "Information Security audit is a continual process. An Organization's information can be secured well, if and only if the process of security Audit is repeated periodically" Explain Audit drivers and Information Security Audit process. Write down various security audit standards.<br>OR<br>"GRC is an integrated approach for improving governance through more effective compliance and a better understanding of the impact of risk on Business performance. It is used by corporations to act in risk ". What are various GRC Pillars? Explain the benefits of GRC along with tools for GRC. | **20** | **CO4** |

| Name of Examination (Please tick, symbol is given) | : | MID | NA | END | ⊟ | SUPPLE | NA |
|---|---|---|---|---|---|---|---|
| Name of the School (Please tick, symbol is given) | : | SOE | | SOCS | ⊟ | SOP | |
| Programme | : | B.Tech CSE-CSF | | | | | |
| Semester | : | I | | | | | |
| Name of the Course | : | Information Security Fundamentals | | | | | |
| Course Code | : | CSSF 2001 | | | | | |
| Name of Question Paper Setter | : | Nitika Goenka | | | | | |
| Employee Code | : | 40001793 | | | | | |
| Mobile & Extension | : | +91-8076104732 | | | | | |

**Note: Please mention additional Stationery to be provided, during examination such as Table/Graph Sheet etc. else mention "NOT APPLICABLE":**

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| Time of Examination | : | |
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**Note: - Pl. start your question paper from next page**

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**Programme: B.Tech CSE-CSF**  **CSSF2001**
**Time: 03 hrs.**  **Max. Marks: 100**
**Instructions: All Questions are Compulsory.**

### SECTION A

| S. No. | | Marks | CO |
|---|---|---|---|
| Q 1 | Illustrate Availability and Identification Information Security Elements with examples. | 4 | CO2 |
| Q 2 | "Organization has five actions which are possible once the risks are assessed and identified". Explain any 4 countermeasures to mitigate the risks. | 4 | CO1 |
| Q 3 | Explain Ethical Hacking along with approaches taken in ethical hacking undertakings. | 4 | CO1 |
| Q 4 | Explain the following terms- <br> a) Fuzzing    b) Cross Site Request Forgery | 4 | CO2 |
| Q 5 | Explain Audit Drivers and different types of Audit. | 4 | CO4 |

### SECTION B

| | | | |
|---|---|---|---|
| Q 6 | Illustrate Digital Signatures and Describe its Algorithm. Explain Objectives of Cryptographic Controls. | 10 | CO3 |
| Q 7 | Write down and explain about the phases and requirements during Cost Benefit Analysis. | 10 | CO2 |
| Q 8 | Organization is always prone to different type of network attacks. List the associated security issues and different type of attacks. | 10 | CO1 |
| Q 9 | Illustrate web application security and various web security assessment techniques. <br> OR <br> "Research conducted by NIST showed that 92% of vulnerabilities found in application, not in system". Justify the given statement in context of application security as well as describe the various techniques and tools used for application security.    10 | 10 | CO2 |

### SECTION-C

| | | | |
|---|---|---|---|
| Q 10 | "Operating systems can be highly vulnerable to Malwares, especially those which are connected to an Internet network. Malwares can cause operating systems to Crash irrespective of what kind of OS is installed on it." Explain different types of Malwares and Solutions for protection against them. | 20 | CO2 |

| Q 11 | Explain Log Management under following heads:<br>(i)  Meaning of Logs<br>(ii) Log Sources and types.<br>(iii)  Functions of Log Management<br>(iv) Log Storage<br>(v) Challenges in Logging<br><br>OR<br><br>"Information Security audit is a continual process. An Organization's information can be secured well, if and only if the process of security Audit is repeated periodically" Explain the Information Security Audit along with different Audit Drivers. Also different types of Audit along with Information Security Audit process. | 20 | CO4 |