GOVERNMENT POLYTECHNIC MUMBAI
TERM END EXAMINATION

Programme : **Computer Engineering**
Course Title : **Computer Security**

0-18-19

03Hours / 80 marks Enrolment No.

***Instructions*:**
1. Use separate answer book for section I and section II.
2. Attempt all the questions from each section.
3. Illustrate your answers with neat sketches wherever necessary.
4. Use of Mathematical Tables, Steam Table and Pocket Calculator (non-programmable) is permissible.
5. Marks on Right Hand Side indicate full marks for the question.
6. Assume suitable additional data, if necessary

SECTION – I

Q.1 **Attempt any SIX** **12 Marks**

a. Define viruses.
b. What do you mean by intruders?
c. What is information warfare?
d. What are the criteria's for password selection?
e. Explain individual user responsibilities towards security.
f. What is asymmetric cryptography?
g. Explain hybrid trust model.
h. What are basics of public key infrastructures?

Q.2 **Attempt any FOUR** **16 Marks**

a. Explain the layers of security.
b. List types of attacks and explain man in the middle attack.
c. Explain shoulder surfing and dumpster diving, in brief.
d. What are the drawbacks of installing unauthorized software or hardware?
e. Explain Mono – Alphabetic cipher with suitable example.
f. Describe rail fence cipher with the help of example.

Q. 3 **Attempt any TWO** **12 Marks**

a. Explain in brief, role based authentication system.
b. Describe in detail, the physical access control methods.
c. Write a brief note on stenography.

SECTION – II

Q.4 **Attempt any SIX** **12 Marks**

a. What is Kerberos?
b. State the function of firewall.
c. What is spam & malicious code?
d. Enlist various components of designing good password.
e. State importance of IDS.
f. Define hardening.
g. What is application hardening?
h. What is secure socket layer?

Q.5 **Attempt any FOUR** **16 Marks**

a. Explain various security topologies.
b. Explain any two e mail security techniques (protocols).
c. Describe network based IDS with neat diagram.
d. Write a short note on password management.
e. Enlist and discuss web traffic security approaches in brief.
f. Discuss cyber crime with suitable example.

Q. 6 **Attempt any TWO** **12 Marks**

a. Describe IP security architecture in detail.
b. Discuss the terms i) Hot fix ii) Patch iii) Service pack.
c. What is web server? Enlist its various functions. State its advantages and disadvantages.

CO11412

GOVERNMENT POLYTECHNIC MUMBAI
TERM END EXAMINATION

Programme : **Computer Engineering**
Course Title : **Computer Security**

E-18-19

03Hours / 80 marks Enrolment No. | | | | | | | | | | |

Instructions:
1. Use separate answer book for section I and section II.
2. Attempt all the questions from each section.
3. Illustrate your answers with neat sketches wherever necessary.
4. Use of Mathematical Tables, Steam Table and Pocket Calculator (non-programmable) is permissible.
5. Marks on Right Hand Side indicate full marks for the question.
6. Assume suitable additional data, if necessary

SECTION – I

Q.1 Attempt any SIX **12 Marks**

a. State the need of computer security.
b. Compare Intruders with Insiders.
c. Define Malware.
d. Enlist Biometrics devices.
e. What do you mean by Piggybacking?
f. Define Cryptography.
g. State the role of registration authorities.
h. Enlist types of trust model.

Q.2 Attempt any FOUR **16 Marks**

a. Explain TCP/IP Hacking.
b. Explain layers of security.
c. Explain shoulder surfing with example.
d. Explain installing unauthorized software / hardware and access by non-employee.
e. Define plain text and cipher text. Describe Caesar cipher substitution techniques for "Cryptography" (shift key = 4)
f. Give the steps for obtaining a digital certificate.

Q. 3 Attempt any TWO **12 Marks**

a. Explain following terms - i) Confidentiality ii) Integrity iii) Availability
b. Explain password selection criteria with help of example.
c. Describe the steps and perform simple and double columnar transposition techniques on the following with column size = 6 and read output with order of column as "4, 6, 1, 2, 5, 3". "Transform knowing into work"

SECTION – II

Q.4 Attempt any SIX **12 Marks**

a. Explain spam with suitable example.
b. Explain mail encryption.
c. Explain need of security in computer system.
d. Explain tunneling.
e. Explain DMZ.
f. List any system security failures while using computer.
g. Explain following terms-
   i) Internet
   ii) Intranet
h. Give suitable example of malicious code and its probable risk.

Q.5 Attempt any FOUR **16 Marks**

a. Explain working of Kerberos.
b. Explain IPSec security.
c. Define cyber crime and demonstrate any one real time situation when cyber crime occurs.
d. Explain vulnerability. How it will affect through password selection.
e. Explain network based IDS.
f. List general steps to provide security to windows operating system.

Q. 6 Attempt any TWO

a. Explain following terms. **12 Marks**
   i) Components of good password
   ii) Cyber laws
b. Explain following terms.
   i) Application patches
   ii) Active directory
c. Explain following terms.
   i) Secure socket layer
   ii) Web traffic

CO11312

GOVERNMENT POLYTECHNIC MUMBAI
TERM END EXAMINATION

Programme : **Computer Engineering** 0-18-19
Course Title : **Software Testing**

03Hours / 80 marks Enrolment No. | | | | | | | | | |

Instructions:
1. Use separate answer book for section I and section II.
2. Attempt all the questions from each section.
3. Illustrate your answers with neat sketches wherever necessary.
4. Use of Mathematical Tables, Steam Table and Pocket Calculator (non-programmable) is permissible.
5. Marks on Right Hand Side indicate full marks for the question.
6. Assume suitable additional data, if necessary

SECTION – I

Q.1 Attempt any SIX **12 Marks**

a. What is bug? Give one example.
b. Why testing is required? Give any two reasons.
c. Why does bug occur?
d. What is equivalences portioning?
e. List any two differences between whitebox & black box testing.
f. What is debugging?
g. What is dynamic white box testing?
h. What is compatibility testing?

Q.2 Attempt any FOUR **16 Marks**

a. Explain following (any two)
   (i) Precision and accuracy
   (ii) Verification and validation
   (iii) Quality assurance & quality control
b. Differentiate between static and dynamic testing.
c. What is 'Test to Pass' & 'Test to Fail' testing?
d. Write note on following (any two)
   (i) Peer review (ii) Walkthroughs (iii) Inspections.
e. Explain in detail unit & integration testing.
f. What is backward & forward compatibility?

Q. 3 Attempt any TWO **12 Marks**

a. Explain in detail data testing.
b. Explain in detail generic code review check list
c. Explain the following in detail (any two)
   (i) Platform & application versions
   (ii) Isolating configuration bugs
   (iii) Impact of testing multiple versions.

SECTION – II

Q.4 Attempt any SIX 12 Marks

a. Enlist the black box testing element while testing any GUI.
b. Define accessibility testing.
c. Define following terms-
   i) Drivers
   ii) Stubs
d. State types of test automation tools.
e. Define load testing and stress testing.
f. Enlist the different factors considered to decide strategy or test approach.
g. State the goal of test case planning.
h. Define the following terms-
   i) Test design
   ii) Test procedure

Q.5 Attempt any FOUR 16 Marks

a. Describe how to perform usability testing and GUI testing.
b. Describe how to select testing tool.
c. Differentiate between Alpha testing and Beta testing. (any four points)
d. Describe test plan with definition and list test planning activities.
e. Write any four test cases to test login form.
f. Describe defect life cycle with neat diagram.

Q. 6 Attempt any TWO 12 Marks

a. Explain configuration testing and compatibility testing with an example.
b. Describe automated testing. Write down advantages of using automated testing tools in software testing.
c. Prepare six test cases for admission form for college admission.

IF11409

GOVERNMENT POLYTECHNIC MUMBAI
TERM END EXAMINATION

Programme : **Information Technology**
Course Title : **Network Management and Administration**

0-18-19

03Hours / 80 marks

Enrolment No. | | | | | | | | | |

Instructions:
1. Use separate answer book for section I and section II.
2. Attempt all the questions from each section.
3. Illustrate your answers with neat sketches wherever necessary.
4. Use of Mathematical Tables, Steam Table and Pocket Calculator (non-programmable) is permissible.
5. Marks on Right Hand Side indicate full marks for the question.
6. Assume suitable additional data, if necessary

SECTION – I

Q.1 Attempt any SIX **12 Marks**

a. Define the term Directory services.
b. Define the following terms. (i) Forest (ii) Domain.
c. Draw flowchart for DHCP client server process.
d. Enlist functions of DNS (Any four)
e. Give difference between BOOTP protocol and DHCP protocol. (Any two points)
f. Enlist any two DHCP objectives.
g. Enlist different Network services (Any 4)
h. Enlist different Network needs.

Q.2 Attempt any FOUR **16 Marks**

a. Explain lightweight Directory access protocol.
b. Describe LDAP notations.
c. Explain DHCP architecture.
d. Explain working of RARP protocol.
e. Explain the working of DNS (Domain Name System).
f. Describe Growth and capacity planning of network.

Q. 3 Attempt any TWO **12 Marks**

a. Explain active Directory Architecture.
b. Enlist and explain different DNS levels.
c. Describe the process of adding the DHCP and WINS rols in windows 2003 server.

SECTION – II

Q.4 Attempt any SIX 12 Ma

a. Define the term Group membership.
b. Define cresting shares.
c. List any four advantages of network printer.
d. Enlist needs of remote network access (Any four)
e. Define the term PSTN.
f. Define the term Troubleshooting.
g. Define the term viruses enlist (Any four)
h. Differentiate between Front Door threats and back door threats (minimum 2 points)

Q.5 Attempt any FOUR 16 Ma

a. Explain share security concept.
b. Explain windows 2000 server backup software.
c. Describe SSL virtual private networks.
d. Explain DSL terminology.
e. Describe Denial services threats.
f. Explain segmenting the problem in NMA.

Q. 6 Attempt any TWO 12 Ma

a. Explain working with user account with following term.
   (i) Adding a user.
   (ii) Modifying a user.
   (iii) Disabling a user account.
b. Explain type of VPN.
c. Enlist and explain the troubleshooting tools.

IF11414

GOVERNMENT POLYTECHNIC MUMBAI
TERM END EXAMINATION

Programme : **Information Technology**
Course Title : **Information Security**

0-18-19

03Hours / 80 marks

Enrolment No. | | | | | | | | | | |

Instructions:
1. Use separate answer book for section I and section II.
2. Attempt all the questions from each section.
3. Illustrate your answers with neat sketches wherever necessary.
4. Use of Mathematical Tables, Steam Table and Pocket Calculator (non-programmable) is permissible.
5. Marks on Right Hand Side indicate full marks for the question.
6. Assume suitable additional data, if necessary

SECTION – I

Q.1 **Attempt any SIX** **12 Marks**

a. List out the classification of information.
b. State any two basic principles of security.
c. Define the term risk management.
d. What is a need of confidentiality?
e. List any four information security standards.
f. Write any four applications of Cryptography.
g. Define digital signature.
h. State types of substitution cipher techniques.

Q.2 **Attempt any FOUR** **16 Marks**

a. Explain need of security in detail.
b. List and explain security policies used for information security.
c. Describe protection mechanism in a trusted computing base.
d. List integrity models and explain any one in detail.
e. Describe use of Ceasor cipher with example.
f. Explain digital signature with its standards in detail.

Q. 3 **Attempt any TWO** **12 Marks**

a. Explain data obfuscation in detail. Also three pillars of information security.
b. Describe trusted computer security evaluation criteria and information technology security evaluation criteria.
c. Introduce classical encryption techniques. Convert the given plan text into cipher text using play fair cipher. Assume suitable data. plain text : GOVTPOLYMUMBAI

SECTION – II

Q.4 Attempt any SIX 12 Ma

a. Enlist Data Recovery Tools.
b. Differentiate between Hacking and cracking. (any two)
c. Define Mail Bombs.
d. State any two Access control methods.
e. Define virus and list types of viruses. (any 2)
f. Define the need of cyber law.
g. Define software Piracy.
h. State single sign – on.

Q.5 Attempt any FOUR 16 Ma

a. Explain IT act 2000 and IT Act 2008.
b. Explain Kerberos with neat diagram.
c. Explain how cyber crime investigation takes place.
d. Explain COBIT framework in detail.
e. Write steps to recover deleted files.
f. Explain any four attacks on computer system.

Q. 6 Attempt any TWO 12 Ma

a. Explain biometric system with the help of a block diagram.
b. Explain the following terms in detail -
   i) Identification ii) Authorization iii) Authentication
c. Explain Data Recovery procedure and ethics.

IT16309

GOVERNMENT POLYTECHNIC MUMBAI
TERM END EXAMINATION

Programme : **Information Technology**
Course Title : **Information Security**

0-18-19

03Hours / 70 marks

Enrolment No. | | | | | | | | | | |

Instructions:
1. Attempt all the questions.
2. Illustrate your answers with neat sketches wherever necessary.
3. Use of Mathematical Tables, Steam Table and Pocket Calculator (non-programmable) is permissible.
4. Marks on Right Hand Side indicate full marks for the question.
5. Assume suitable additional data, if necessary

Q.1 **Attempt any SIX** **12 Marks**

a. What is the role of Kerberos?
b. State difference between stream ciphers and block ciphers. (any two points)
c. Write any two applications of public-key cryptosystem.
d. Define computer security.
e. Draw a diagram for model of conventional cryptosystem.
f. Give meaning of COBIT frame work.
g. Define phishing attack.

Q.2 **Attempt any THREE** **12 Marks**

a. Explain following terms.
   i) Intellectual property
   ii) Software piracy
b. With neat diagram explain model for network security.
c. Explain modular arithmetic concept.
d. Explain transposition techniques with example.

Q. 3 **Attempt any THREE** **12 Marks**

a. Explain IT act 2008 cyber laws.
b. Explain monoalphabetic cipher with an example.
c. Explain Eudid's algorithm.
d. Explain X-509 digital certificate.
e. Write requirements for public key cryptography algorithm.

Q. 4 **Attempt any FIVE** **10 Marks**

a. Define Pretty Good Privacy(PGP).
b. List out properties of digital signatures.
c. Define steganography. Write its advantages.(any two)
d. State any two challenges of computer security.
e. Give roles of the public key and private key.
f. Differentiate between passive attack and active attack. (any two points)
g. Give meaning of one way function.

Q. 5 Attempt any THREE

a. Explain self sign certificate concept.
b. List out and explain any four security services.
c. Explain MDS message digest hash algorithm.
d. Explain general structure of advanced encryption standard (AES) technique.
e. Explain secure hash algorithm.

Q. 6 Attempt any TWO

a. With proper example, explain polyalphabetic cipher.
b. Explain triple DES encryption technique with diagram.
c. Explain public key distribution concept in detail with diagrams.

IF11414

GOVERNMENT POLYTECHNIC MUMBAI
TERM END EXAMINATION

Programme : **Information Technology**
Course Title : **Information Security.**

E-18-19

03Hours / 80 marks Enrolment No. | | | | | | | | | | |

Instructions:
1. Use separate answer book for section I and section II.
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6. Assume suitable additional data, if necessary

SECTION – I

Q.1 Attempt any SIX **12 Marks**

a. State the need and importance of information.
b. State the three pillars of information security.
c. State the term risk management with respect to information security.
d. Define Cryptography.
e. State applications of cryptography.
f. Define Stenography.
g. Define trusted computing base.
h. State the significance of digital signature.

Q.2 Attempt any FOUR **16 Marks**

a. Explain protection mechanism in trusted computing base.
b. Explain Rungs of trust with suitable diagram.
c. Explain Transposition cipher method of encryption.
d. Explain the process of DSA (Digital Signature Algorithm) generation.
e. State and explain the criteria for classification of information.
f. Explain security policies in ISRM.

Q. 3 Attempt any TWO **12 Marks**

a. State the need for information security. Explain the basic principle of information security.
b. Explain information Technology security Evaluation criterion in brief.
c. Describe substitution cipher method of encrypting. Give suitable example.

SECTION – II

Q.4 Attempt any SIX 12 Ma

a. State the need for data recovery.
b. Can the data be recovered from a HDD having physical errors? How?
c. Define mail Bombs.
d. Define cracking.
e. State the terms Intellectual property.
f. Define ISO 27001.
g. State the two main parts of ISO 20000.
h. Define Authentication and Authorization.

Q.5 Attempt any FOUR 16 Ma

a. Explain the basics of formatted partition recovery.
b. What is single-sing on (SSO)? State its benefits.
c. Explain the significance and framework of COBIT.
d. Describe the security measures that should be implemented to prevent physical Access threats.
e. Explain principle of Kerberos with suitable diagram.
f. Explain the major provision in IT Act 2008 related with Electronic signature certificate.

Q. 6 Attempt any TWO 12 Ma

a. Explain Data Recovery procedure and Ethics. State the tools used for data recovery.
b. Explain any six sections of IT Act 2000.
c. Describe the following cyber crimes.
   (i) Hacking
   (ii) Software Piracy.

IF11409

GOVERNMENT POLYTECHNIC MUMBAI
TERM END EXAMINATION

Programme : **Information Technology**
Course Title : **Network Management Administration** E - 18-19

03Hours / 80 marks Enrolment No. | | | | | | | | | |

Instructions:
1. Use separate answer book for section I and section II.
2. Attempt all the questions from each section.
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SECTION – I

Q.1 **Attempt any SIX** **12 Marks**

a. Define Directory services.
b. Define the terms Roots and Leaves.
c. What is the origin of DHCP?
d. What are the objectives of DHCP?
e. What do you mean by sub domains?
f. Explain Domain Naming system.
g. How do we select network type?
h. What are the criteria's for choosing servers?

Q.2 **Attempt any FOUR** **16 Marks**

a. Explain x500 Directory Access Protocol.
b. Describe Lightweight Directory Access Protocol.
c. Explain the bootstrap Protocol (BOOTP).
d. Describe reverse Address Resolution Protocol.
e. How do we maintain Resource records in DNS.
f. Describe about configuring server/client in brief.

Q. 3 **Attempt any TWO** **12 Marks**

a. Explain active Directory Architecture in detail.
b. Which are the different levels of Domains? Explain each with suitable example.
c. Describe the setting of windows 2003 server in brief.

SECTION II

Q.4 **Attempt any SIX** 12 Marks

a. What is cresting shares?
b. How group is created in Windows 2000?
c. Which types of job was to be performed by the printer administrator?
d. Enlist the application of VPN. (any two)
e. What is CATV?
f. Define threats. Give any two examples.
g. What is account security?
h. List down different external threats.

Q.5 **Attempt any FOUR** 16 Mark

a. Write a procedure to disable an user account of Windows 2000 server.
b. How to set network printer?
c. Describe windows network printing.
d. Differentiate VPN & SSL VPN.
e. What are different types of hardware tools?
f. Elaborate the process of segmenting the problem.

Q. 6 **Attempt any TWO** 12 Mark

a. Write down the backup procedure of Windows 2000 server.
b. Explain (i) Need of remote network access (ii) PSTN (Public Switched Telephone Network).
c. Explain (i) File & directory permissions (ii) Front door threats.

IT16316

GOVERNMENT POLYTECHNIC MUMBAI
TERM END EXAMINATION

Programme : **Information Technology**
Course Title : **Software Testing and Quality Assurance**

E-18-19

03Hours / 70 marks Enrolment No.

Instructions:
1. Attempt all the questions.
2. Illustrate your answers with neat sketches wherever necessary.
3. Use of Mathematical Tables, Steam Table and Pocket Calculator (non-programmable) is permissible.
4. Marks on Right Hand Side indicate full marks for the question.
5. Assume suitable additional data, if necessary
6. CO=COURSE OUTCOMES, L=LEVELS

Q.1 **Attempt any SIX** **12 Marks**

a. Define following terms (i) Defect (ii) Bug [CO1, L-R]
b. Enlist any four objectives of software testing. [CO1, L-R]
c. Define the term Driver. [CO3, L-R]
d. Define Test management. [CO4, L-R]
e. Enlist techniques for finding defects. [CO5, L-R]
f. Enlist any four limitations of manual Testing. [CO6, L-R]
g. List any four Automation testing tools. [CO6, L-R]

Q.2 **Attempt any THREE** **12 Marks**

a. Describe code Inspection under static testing. [CO2, L-A]
b. Describe following testing (i) GUI Testing (ii) Usability Testing. [CO3, L-U]
c. Explain software resource requirements in test planning. [CO4, L-U]
d. Enlist any six attributes of defect. Describe any four with example. [CO5, L-U]

Q. 3 **Attempt any THREE** **12 Marks**

a. Differentiate between quality control and quality assurance. [CO1, L-U]
b. Explain Bi-directional Integration approach. [CO3, L-U]
c. Prepare test case for library management. (Any four) [CO4, L-A]
d. Explain techniques of finding bugs. [CO5, L-U]
e. Describe defect life cycle. [CO5, L-U]

Q. 4 **Attempt any FIVE** **10 Marks**

a. Enlist phases of SDLC. [CO1, L-R]
b. List advantages of human testing. [CO2, L-R]
c. Define Web based testing. [CO3, L-R]
d. List different defect management process. [CO5, L-R]
e. Define the defect template. [CO5, L-R]
f. Differentiate between manual testing and Automation testing. [CO6, L-U]
g. Enlist types of metrics. [CO6, L-R]

Q. 5 **Attempt any THREE** **12 Marks**

a. Explain Entry and Exit model. **[CO1, L-U]**

b. Explain Equivalence partitioning with example. **[CO2, L-U]**

c. Enlist types of system testing. Explain any two. **[CO3, L-U]**

d. Differentiate between Driver and Stub. **[CO3, L-U]**

e. Prepare test cases for online shopping system. (Any four) **[CO4, L-A]**

Q. 6 **Attempt any TWO** **12 Marks**

a. Explain following white box testing. **[CO2, L-U]**

(i) Decision Table.

(ii) User Documentation testing.

b. Describe Test management process and give details of following internal standards for process and method. **[CO4, L-U]**

(i) Naming and storage contention

(ii) Documentation standard

c. Explain following metrics **[CO6, L-U]**

(i) Project metrics

(ii) Progress metrics