Course: B.Tech. Semester: VII Time: 03 Hours
Code: 100713 Subject: Soft skills and interpersonal communications Full Marks: 70

Instructions:-
(i) The marks are indicated in the right-hand margin.
(ii) There are NINE questions in this paper.
(iii) Attempt FIVE questions in all.
(iv) Question No. 1 is compulsory.

Q.1 Answer of the following Questions (any seven): [2 x 7 = 14]
   (a) What is SWOT analysis?
   (b) Define attitude.
   (c) What is motivation?
   (d) List two sources of motivation.
   (e) What is etiquette in simple words?
   (f) List any two soft skills.
   (g) Define values.
   (h) Describe time management.
   (i) What do you understand by short terms goals?
   (j) State any four characteristics of a good leader.

Q.2 What do you understand by Soft skills? Mention it's importance at work place. [14]

Q.3 What are the factors of motivation for an individual? Explain Maslow's need hierarchy theory of motivation. [14]

Q.4 What is Time Management? Write about benefits of managing time. [14]

Q.5 What is importance of Self-confidence and How can one Improve Self-confidence? [14]

Q.6 What are the Interpersonal skills? Describe any five of them. [14]

Q.7 Explain the importance of positive & negative attitude in context to the workplace. [14]

Q.8 Write a note on out of the box thinking using examples from real-life situations. [14]

Q.9 Write notes on **any two** of the following: [7x2=14]
(a) Self esteem
(b) Etiquette
(c) Time management

Course: B.Tech.   Semester: VII   Time: 03 Hours

Code: 105713   Subject: Cyber Security   Full Marks: 70

Instructions:-
(i) The marks are indicated in the right-hand margin.
(ii) There are NINE questions in this paper.
(iii) Attempt FIVE questions in all.
(iv) Question No. 1 is compulsory

Q.1 Choose the correct answer of the following: (Answer any Seven)   [2 x 7 = 14]

(a) Which of the following is not a type of cybercrime?
    I. Data Theft
    II. Forgery
    III. Damage to data and systems
    IV. Installing antivirus for protection

(b) Which of the following is considered as the unsolicited commercial email?
    I. Malware
    II. Spam
    III. Virus
    IV. All of the above

(c) _____ is the act of determining whether a particular user (or computer system) has the right to carry out a certain activity, such as reading a file or running a programme.
    I. Non-repudiation
    II. Authorization
    III. Authentication
    IV. All of the above

(d) Among the following, identify the one which does not need any host program and is independent.
    I. Trap door
    II. Virus
    III. Trojan Horse
    IV. Worm

(e) Identify the element which is not considered in the triad, according to the CIA.
    I. Availability
    II. Authenticity
    III. Integrity
    IV. Confidentiality

(f) When information is modified in authorized ways, the result is known as_____
    I. Loss of confidentiality
    II. Loss of integrity
    III. Loss of availability
    IV. All of the above

(g) Under which section of IT Act, stealing any digital asset or information is written as cyber crime.
    I. 65
    II. 65-D
    III. 67
    IV. 70

(h) What is the full form for ITA-2000?
    I. Information Tech Act-2000
    II. Indian Technology Act-2000
    III. International Technology Act-2000
    IV. Information Technology Act-2000

(i) _____ is a technique used by penetration testers to compromise any system within a network for targeting other systems.
  I. Exploiting
  II. Cracking
  III. Hacking
  IV. Pivoting

(j) Which of the following is not a vulnerability of the network layer:
  I. Route spoofing
  II. Identity & Resource ID vulnerability
  III. IP address spoofing
  IV. Weak or non-existent authentication.

Q.2 (a) Consider a scenario where you receive the following email from an email ID: **[7]**

Dear XYZ Email user,

Beginning next week, we will be deleting all inactive email accounts in order create space for more users; You are required to send the following information in order to continue using your email account. If we do not receive this information from you by the end of the wee, your email account will be closed.

- *Name (first and last)*
- *Email Id:*
- *Password:*
- *Alternate Email:*

Please contact the Webmail Team with any questions.

Thank you for your immediate attention.

What should you do? What type of cybercrime is it? List and explain in detail with major risks associated with this scenario.

(b) What is digital signature? How it is different from digital certificate? Explain in detail. **[7]**

Q.3 (a) Define an insider attack? Explain it with an example. **[7]**
  (b) Explain the impact of cybercrime on cloud computing. **[7]**

Q.4 (a) What is credit card fraud? Mention the tips to prevent credit card frauds. **[7]**
  (b) Give an overview of National Cyber security policy. **[7]**

Q.5 (a) Explain about Trojan Horses and Backdoors in details with examples. **[7]**
  (b) Differentiate between Worms and Virus with examples. **[7]**

Q.6 (a) How should risk management in Information security systems be improved on social media portals. **[7]**
  (b) What steps will you take to secure a server? **[7]**

Q.7 (a) What are DDoS attacks? Explain how to protect from DDoS attacks. **[7]**
  (b) Discuss about the Intrusion Detection and Prevention Techniques in detail. **[7]**

Q.8 (a) Describe Access Control. Differentiate between Discretionary Access Control (DAC) and Mandatory Access Control (MAC) **[7]**
  (b) Discuss about SQL Injection in detail. **[7]**

Q.9 (a) Write short notes on any two of the following:- **[7 X 2]**
  I. Firewall
  II. Steganography
  III. Cyber security safeguards
  IV. Cyber forensics.

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Course: B.Tech. Semester: VII Time: 03 Hours
Code: 100708 Subject: BIOLOGY FOR ENGINEERS Full Marks: 70

Instructions:-
(i)   The marks are indicated in the right-hand margin.
(ii) There are NINE questions in this paper.
(iii) Attempt FIVE questions in all.
(iv) Question No. 1 is compulsory.

Q.1 Choose the correct answer of the following (any seven Question): [2 x 7 = 14]

(a)   Denaturation of protein involves breaking of several bonds except:
(i) Electrostatic bond
(ii) Disulfide bond
(iii) Hydrogen bond
(iv) Peptide bond

(b)   Name the process of gaseous exchange in the body?
(i) Lymphatic System
(ii) Respiration
(iii) Cardiovascular System
(iv) Reproduction

(c)   'ABO' system of blood measures the
(i) protein
(ii) sugar
(iii) antibody
(iv) antigen

(d)   Which of the following is protein hormone?
(i) Oxytocin
(ii) Insulin
(iii) TSH
(iv) Antidiuretic Hormone

(e)   The term 'biology' was introduced by
(i) Lamarck and Traviranus
(ii) Drawin
(iii) John Ray
(iv) Aristotle

(f)   An organism carrying two identical alleles is
(i) recessive
(ii) heterozygous
(iii) homozygous
(iv) dominant

(g)   Which enzyme join DNA molecules together?
(i) Polymerase
(ii) Nucleases
(iii) Ligases
(iv) Linkers

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(h) Exception to Mendal's law of genetics is / are
(i) Linkage
(ii) Pleiotropism
(iii) Polyploidy
(iv) All of the above

(i) The longest part of the cell cycle is
(i) prophase
(ii) metaphase
(iii) interphase
(iv) telophase

(j) COVID-19 (Coronavirus) contains genetic material as
(i) Single stranded DNA
(ii) Double stranded RNA
(iii) Single stranded RNA
(iv) Double stranded DNA

Q.2 (a) Distinguish between Meiosis and Motisis? Describe Mendel's Law. [7]
(b) Describe the mechanism of mitosis cell division. [7]

Q.3 (a) What do you mean by Respiration? Explain the types of Respiration. [7]
(b) Differentiate between autotroph and heterotroph organisms. [7]

Q.4 (a) Write in brief properties and examples of all three major kingdoms of life. [7]
(b) What is glycolysis? Draw the flow diagram of different stages of glycolysis showing preparatory and payoff phase. [7]

Q.5 (a) Explain the structure of DNA in details. [7]
(b) Differentiate between gene interaction and epistasis. [7]

Q.6 (a) Define metabolism and differentiate between endergonic and exergonic reaction. [7]
(b) What is the difference between unicellular and multi-cellular organisms? [7]

Q.7 Draw a well-labelled diagram of animal and plant cell and list specific functions of each cell organ. [14]

Q.8 (a) Explain hierarchy of DNA structure for monomeric nucleotide to double helical polymeric form associated with histone proteins of nucleosome. [7]
(b) Draw the Krebs / TCA Cycle diagram and mark the net source and total number of ATP generated in Krebs/TCA cycle. [7]

Q.9 What is modern biology ? Distinguish between traditional and modern biology. [14]

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Course: *B.Tech.* Semester: *7* Time: *03 Hours*
Code: *105701* Subject: *Data Science* Full Marks: *70*

Instructions:-
(i) The marks are indicated in the right-hand margin.
(ii) There are **NINE** questions in this paper.
(iii) Attempt **FIVE** questions in all.
(iv) Question No. **1** is compulsory.

Q.1 Answer in brief any seven questions: [2 x 7 = 14]
  (a) Define Data Science.
  (b) Point out the rules for dot product of two vectors.
  (c) What is Machine Learning?
  (d) What is the reason for the word "Naïve" in Naïve Bayes classification?
  (e) Define data visualization in machine learning.
  (f) Point out the component of Data Science.
  (g) What is Object Recognition?
  (h) Compare Big data with Data Science.
  (i) Differentiate Data Mining and Data Science.
  (j) Compare various data science languages.

Q.2 (a) What is Bigdata? [4]
  (b) Describe the main features of a big data in detail. [10]

Q.3 Describe life cycle of Data Science with neat diagram. [14]

Q.4 Explain the following in detail.
  (a) Map Reduce [7]
  (b) YARN [7]

Q.5 Describe vectors and various operations on vectors with routines, example and diagram. [14]

Q.6 Develop a routine to demonstrate Binomial Distribution and Normal Distribution. [14]

Q.7 Explain the following with suitable example.
  (a) Simple Linear Regression [7]
  (b) Multiple Regression [7]

Q.8 (a) Describe numpy in detail. [7]
  (b) Write a python program that uses numpy and explain it. [7]

Q.9 Discuss various sub-processes involved in the complete process of data science for weather prediction. [14]

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