UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, May 2021

Course: Computer Applications   Semester: 2nd
Programme: BSc.(FND)/ BSc. (Microbiology)/BSc.(Clinical Research)/B.Tech (Food Technology)
Time: 03 hrs.   Course Code: HSCC 1009
Max. Marks: 100

SECTION A

1. This section consists of 20 questions and each question will carry 1.5 marks
2. Complete the statement / Select the correct answer(s)

S. No.	Question	Marks	CO
Q1	Convert the binary number (11111111) to its hexadecimal equivalent. a) FF b) FFFF c) 1FFF d) 0FFF	1.5	CO1
Q2	The corresponding decimal number of the given binary number (1010101010) is: a) 622 b) 682 c) 684 d) 680	1.5	CO1
Q3	The other name given to context diagram is: a) Level-0 DFD b) Level-1 DFD c) Level-2 DFD d) All of the mentioned	1.5	CO1
Q4	Which of the following provides ability to query data from the database and to insert tuples into, delete tuples from, and alter tuples in the database? a) DML(Data Manipulation Language) b) DDL(Data Definition Language) c) Query d) Relational Schema	1.5	CO2
Q5	Which is a multivalued attribute out of these? a) Phone_number b) Name	1.5	CO2

	c) Date_of_birth d) All of the mentioned		

Q6	"Consider a system where, a heat sensor detects an intrusion and alerts the security company." What kind of a requirement the system is providing?
	    a) Functional
	    b) Non-Functional
	    c) Known Requirement
	    d) None of the mentioned
		1.5	CO2

Q7	Which proclamation is right regarding E-prescribing facilitates:
	    a) Decrease medication errors and improves efficiency
	    b) Increase medication errors and improves efficiency
	    c) Increase medication errors and reduce efficiency
	    d) Decrease medication errors and reduce efficiency
		1.5	CO3

Q8	mHealth closely refers to which of the following?
	    a) Mobile healthcare device
	    b) To check health issues related to Respiration
	    c) To provide healthy tips at your doorsteps
	    d) None of the above
		1.5	CO3

Q9	The primary need for studying Bioinformatics is:
	    a) Design and implementation of new algorithms and statistics which assess relationship among members of large data sets
	    b) Analysis and interpretation of various data types, which includes nucleotide and amino acid sequences and structure of protein
	    c) To develop computational tools and databases that enables efficient analysis, access and management of biologically significant information
	    d) All of the above
		1.5	CO4

Q10	Out of the following, identify the protein sequence database.
	    a) DDBJ
	    b) EMBL
	    c) PIR
	    d) GenBANK
		1.5	CO4

Q11	Alignment method suitable for aligning closely related sequence is:
	    a) Multiple sequence alignment
	    b) Pairwise alignment
	    c) Global alignment
	    d) Local alignment
		1.5	CO4

Q12	Information of all known nucleotide and protein sequence are available on:
	    a) EMBL
	    b) DDBT
		1.5	CO4

	c) NCBI's GenBANK d) All of these		

Q13	In chromatography, which of the following can be the mobile phase be made of:
	    a) Solid or liquid
	    b) Liquid or gas
	    c) Gas only
	    d) Liquid only
		1.5	**CO5**

Q14	In which type of chromatography the stationary phase held in a narrow tube and the mobile phase is forced through it under pressure?
	    a) Column Chromatography
	    b) Planar Chromatography
	    c) Liquid Chromatography
	    d) Gas Chromatography
		1.5	**CO5**

Q15	The visual output of chromatography is known as:
	    a) Chromatograph
	    b) Chromatogram
	    c) Electropherogram
	    d) Autoradiogram
		1.5	**CO5**

Q16	The paper is non-polar in paper chromatography:
	    a) True
	    b) False
		1.5	**CO5**

Q17	Which tag is used for the largest heading in HTML
	    a) h6
	    b) heading
	    c) h1
	    d) head
		1.5	**CO2**

Q18	Preformatted text is defined by which element?
	    a) <p>
	    b) <pre>
	    c) <hr>
	    d) <ins>
		1.5	**CO2**

Q19	Which of the following system ensures that proper stock of each item are maintain in an organization.
	    a) Human resource information system
	    b) An inventory control system
	    c) Manufacturing information system
	    d) Marketing information system
		1.5	**CO4**

Q20	A relational database comprises of a collection of:	**1.5**	**CO3**

	a) Tables b) Fields c) Records d) Keys		

SECTION B

1. **This section consists of 4 questions and each question will carry 5 marks**
2. **Write short notes**

Q21	What is database? Enlist various types of bioinformatics database with example.	5	CO4
Q22	Discuss the role and impact of bioinformatics as data analysis in preclinical development.	5	CO4
Q23	How the evolution of mobile technology impacted the patient healthcare monitoring system? Explain.	5	CO3
Q24	What do you mean by the process of information gathering? State various methods of the information acquisition in the healthcare sector.	5	CO1

SECTION C

1. **This section consists of 2 questions and each question will carry 15 marks**
2. **Write brief notes**

Q25	Mr. Henry is handling the position of Chief Administrator of a Hospital. He has a responsibility to manage the following: 　1. Patient Information System 　2. Billing System 　3. Pharmacy Inventory System 　4. OPD Information System 　5. Laboratory Management System In your opinion, Mr. Henry should follow which architecture/processes so that each of the responsibility can be effectively and efficiently managed. Justify your answer by providing suitable illustrations.	15(3+3 +3+3+ 3)	CO5
Q26	A teacher Mr. XYZ is required to maintain the record of marks of the students studying in the Computer Applications subject. As a database administer, Mr. XYZ has decided that • Name of the database – Student • Name of the table – RECORD • The attributes of RECORD are as follows: RNo - numeric Name – character of size 20 Marks – numeric **Table: RECORD** <table><tr><td>RNo</td><td>Name</td><td>Marks</td></tr><tr><td>1</td><td>Ajay</td><td>90</td></tr><tr><td>2</td><td>Om</td><td>85</td></tr><tr><td>3</td><td>Mehar</td><td>85</td></tr><tr><td>4</td><td>Ronny</td><td>95</td></tr><tr><td>5</td><td>Kirat</td><td>92</td></tr></table>	15 (2.5+5 +2.5+5)	CO2

	(1) Identify the attribute best suitable to be declared as a primary key. (2) Write the query in SQL to insert the following data into the attributes RNo, Name and Marks respectively in the given table RECORD. RNo = 6, Name = "Romi" and Marks = 75 (3) Mr. XYZ want to remove the table RECORD from the database Student. Which command will he use? (4) Now Mr. XYZ wants to display the structure of the table RECORD, i.e, name of the attributes and their respective data types that he has used in the table. Write the query in SQL to display the same.		

SECTION-D

1. **This section consists of 2 questions and each question will carry 10 marks**
2. **Write long notes**

Q27	How hospital information system can facilitate the activities of a hospital? Explain in steps how patient information system and clinical information system can be effectively managed.	**10**	**CO3**

Q28	Convert:
	    a) $(1101001101110111)_2 \rightarrow (\ )_8$
	    b) $(12AE5)_{16} \rightarrow (\ )_{10}$
	    c) $(1601)_8 \rightarrow (\ )_{10}$
	    d) $(1764)_8 \rightarrow (\ )_2$
	    e) $(897)_{10} \rightarrow (\ )_8$
	
	    OR
	
	What do you mean by computer number system? Explain octal number system and hexadecimal number system and their interconversions steps in detail with the help of an example.
		10	**CO1**