

*Note: Figures to the right indicate maximum marks.*

- Q1. **Multiple Choice Questions-** [8]
- (1) Time conservation is the ..... of RS. [1]  
(a) disadvantage (b) application (c) advantage (d) all
  - (2) Wavelength of the Red spectrum lies in the ..... range. [1]  
(a) 400 to 440 nm (b) 500 to 578 nm (c) 620 to 700 nm (d) all
  - (3) How close sensor measured data to a primary standard of radiance is the measure of .....accuracy. [1]  
(a) absolute (b) relative (c) no (d) blur
  - (4) The radiometric resolution of an imaging system describes its ability to discriminate every slight difference in ..... [1]  
(a) wavelength (b) frequency (c) time (d) energy
  - (5) The .....approximation provides a simple linear relationship between measured spectral radiance temperature and emissivity. [1]  
(a) Rayleigh-Jeans (b) Rayleigh-Planks (c) Rayleigh-Weins (d) all
  - (6) .....radar imagery is displayed in slant range geometry. [1]  
(a) corrected (b) uncorrected (c) processed (d) none
  - (7) ..... indicates type of objects and their physical, biological, and cultural relationships. [1]  
(a) pixel (b) pattern (c) photo (d) pie
  - (8) ..... refers to relative brightness or colour of objects in an image. [1]  
(a) pattern (b) shape (c) texture (d) tone
- Q2. **Short answer type questions — attempt any 7** [14]
- (1) Which sensors are deployed on the platform? [2]
  - (2) Write Wein's displacement law for remote sensing? [2]
  - (3) What do you understand by Modulation Transfer Function? [2]
  - (4) What are three aspects of selecting spectral band? [2]
  - (5) List advantages and disadvantages of Passive Microwave remote sensing. [2]
  - (6) What services are provided by INSAT? [2]
  - (7) What are the features of RISAT -1? [2]
  - (8) On what points image interpretation methodology depends? [2]
  - (9) What is the objective of Seasat? [2]

**Descriptive questions-**

**[48]**

- Q3. (a) Explain: Atmospheric interaction with Electromagnetic radiation. [6]  
(b) What do you understand by Blackbody radiation? Which different laws are associated with it? Write formula and interpretation for each one. [6]  
**OR**  
(c) Write the principle of Remote sensing. Discuss its advantages and applications in various fields. [6]
- Q4. (a) What is Resolution? Discuss spectral and spatial resolution with suitable examples. [6]  
(b) Discuss geometric characteristics of across track and along track scanners. [6]  
**OR**  
(c) Write a note on Thermal scanning. [6]
- Q5. (a) What is basic principle of RADAR? Explain the importance of Synthetic Aperture Radar. [6]  
(b) Explain basic components of LiDAR technique in remote sensing. [6]  
**OR**  
(c) What are the factors affecting microwave measurement? [6]
- Q6. (a) What are the elements of Image Interpretation? Explain each one. [6]  
(b) Discuss methods of analysis and reference levels. [6]  
**OR**  
(c) Explain with suitable flowchart image interpretation keys. [6]

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SEAT No. \_\_\_\_\_

No. of PAGES : 2

[13]

**SARDAR PATEL UNIVERSITY**

**M. Sc. (GEOINFORMATICS)**

**SEMESTER – I**

**PS01CGIN22 (PRINCIPLES OF GEOGRAPHICAL INFORMATION SYSTEM)**

**6<sup>TH</sup> NOVEMBER, 2017**

Time: 10:00 a.m. to 1:00 p.m.

Marks: 70

Note : Answers of all the questions (including multiple choice questions) should be written in the provided answer book only.

**Q-1 Pick up the most appropriate answer from the given alternatives and write in your answer book. (8)**

- (1) In the world of GIS, another term for the property of connectivity is  
(a) proximity (b) neighborhood (c) topology (d) boolean identity
- (2) TIN stands for  
(a) Traffic Internet Network (b) Triangulated Irregular Network  
(c) Temporal Interest Network (d) Temperature Interface Node
- (3) SDI stands for  
(a) Spatial Data Interface (b) Spatial Data Infrastructure  
(c) Spatial Data Intention (d) Spatial Data International
- (4) What is 'Metadata' ?  
(a) 'contour data' (b) 'meteorological data'  
(c) 'oceanic data' (d) 'data about data'
- (5) Most difficult error to detect is \_\_\_\_  
(a) Scale (b) Attributes (c) Entity (d) Logical
- (6) Degree of correspondence between data and the real world can be known as \_\_\_\_  
(a) Accuracy (b) Lineage (c) Precision (d) Time
- (7) "What is the population of Anand City?" This is the example of \_\_\_\_ query.  
(a) Spatial Query (b) Non-Spatial Query (c) Both (d) None.
- (8) Spatial databases are also known as  
(a) Geodatabases (b) Monodatabases (c) Concurrent databases (d) None

**Q-2 Attempt the following: (ANY SEVEN) (14)**

- 1) List down applications of GIS.
- 2) What is GIS? List out M's of GIS.
- 3) Define Datum and Projection.
- 4) What is Topology? List out various types of topologies.
- 5) List out characteristics of Map.
- 6) List out and define four classes of projection.
- 7) What are surfaces? List out different surface models.
- 8) Define: Accuracy, Precision, Lineage, Completeness
- 9) Define: Overshoot, Undershoot

- Q-3 (a) Write a note on components of GIS. [6]  
(b) Differentiate cartographic map and GIS map. [6]

OR

(b) What is Projection? Explain various types of projection with the help of diagram.

- Q-4 (a) Write a note on components of data quality. [6]  
(b) What is datum? Explain local datum and earth centered datum with figure. [6]

OR

(b) Write a note on GIS Data Formats.

- Q-5 (a) What is Map? List out and explain all elements of map. [6]  
(b) Write a note on non-spatial query. [6]

OR

(b) List out and explain basic spatial queries.

- Q-6 (a) List out and define open source and proprietary GIS software for desktop. [6]  
(b) Explain how GIS will be helpful in Disaster management. [6]

OR

(b) Write a note on Technology Trends in GIS.

—X ALL THE BEST X—

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SEAT No. \_\_\_\_\_

No. of Printed Pages : 2 <sup>SC</sup>

**SARDAR PATEL UNIVERSITY**

M.Sc. Geoinformatics

SEM – I, November 2017

**Principles & Application of GPS (PS01CGIN23)**

DATE: 8<sup>TH</sup> Nov. 2017

TIME: 10:00 AM TO 1:00 PM

DAY: Wednesday

TOTAL MARKS: 70

**Q. 1 Choose the correct answer.**

[08]

- (1) MSL height means \_\_\_\_\_ height.  
(A) Mean sea line (C) Mean sea level  
(B) Meridian Sea line (D) Meridian sea level
- (2) IRNSS constellation use \_\_\_\_\_ satellites for India regional navigation.  
(A) 07 (C) 08  
(B) 24 (D) 09
- (3) Global position system (GPS) is made by \_\_\_\_\_.  
(A) India (C) USA  
(B) China (D) None of above
- (4) \_\_\_\_\_ is source of error in GPS Signal.  
(A) Multipath (C) HDOP  
(B) PDOP (D) All of above
- (5) Global position system has \_\_\_\_\_ no. of orbits and each orbit contains minimum \_\_\_\_\_ satellites.  
(A) 07, 08 (C) 12, 32  
(B) 06, 04 (D) 32, 12
- (6) GNSS stand for \_\_\_\_\_.  
(A) Global Navigation Satellite System (C) Globe National Survey System  
(B) Geo National Super System (D) None of above
- (7) GPS cannot be use in \_\_\_\_\_ to find location.  
(A) Deep Underground Tunnels (C) Merchant ship  
(B) Helicopter (D) None of above
- (8) For vehicles tracking \_\_\_\_\_ system required in vehicles.  
(A) GPS receiver (C) Atomic clock  
(B) QGIS software (D) None of above

**Q.2 Answer the following.(attempt any seven, each two marks)**

[14]

- (1) Explain space segment of GPS system.
- (2) What is selective availability in GPS satellite? How its works?
- (3) What is Almanac & ephemeris data?
- (4) Explain height transformation with figure in short.
- (5) Give full form of NMEA, what is use of NMEA?
- (6) What is Ground control point? How it is use in geo-referencing of map.
- (7) What is satellite clock error?
- (8) List five different types of error in GPS signal.
- (9) Enlist different Ten real applications of GPS.

(PTO)

- Q.3 (A) Explain working of GPS triangulation system for precise position measurements. [06]  
What is the no. of minimum satellites required for height determination?
- (B) With neat diagram explain Navigation message system of GPS in detail. [06]  
Write down L1 and L2 frequency value of GPS.
- OR
- (B) What is GNSS? Explain each navigation satellite system concept in world. [06]
- Q.4 (A) State Kepler's law for satellite and explain any two in detail with illustration. [06]
- (B) Explain Multipath and Ionospheric error with block diagram. [06]
- OR
- (B) What is DGPS? Show working of DGPS? What are advantages of DGPS over GPS? [06]
- Q.5 (A) What is software define GPS? What is use of ADC and DAC in Mobile GPS? [06]
- (B) Show GIS –GPS unification system. [06]
- OR
- (B) Explain block diagram of super heterodyne receiver. [06]
- Q. 6 (A) Show how crustal deformation study carried out by GPS system for earthquake and volcano monitoring system. [06]
- (B) Illustrate vehicles monitoring system using GPS. [06]
- OR
- (B) Explain time transfer system and mobile mapping. [06]

-: All The Best:-

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SEAT No. \_\_\_\_\_

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY  
M.Sc.(GeoInformatics)  
SEMESTER-I

External Examination

PS01CGIN24- (Advanced Programming Concepts & Data Structures)

10<sup>th</sup> November, 2017, Friday

Time: 10:00 am to 01.00 pm

Marks:70

Q-1 Give answers of following Multiple choice questions

[8]

- [1] \_\_\_\_\_ is a linear data structure.  
A Queue B Graph  
C Tree D None of these
- [2] \_\_\_\_\_ Traversal algorithm process root first.  
A Preorder B Inorder  
C Postorder D All of these
- [3] In Array Data Structure, \_\_\_\_\_ denotes the size of an element.  
A WORD B SIZE  
C BASE D LENGTH
- [4] Identify the operator that is NOT used with pointers.  
A -> B &  
C \* D >>
- [5] A pure virtual function is equated to \_\_\_\_\_.  
A Zero B -1  
C 1 D NULL
- [6] \_\_\_\_\_ is function called automatically when the object of that class is created.  
A Inline B Void  
C Friend D Constructor
- [7] A node having Zero indegree is known as \_\_\_\_\_ node.  
A Root B Leaf  
C Branch D Terminal
- [8] \_\_\_\_\_ is a mechanism of deriving a new class form an old one .  
A Inheritance B Polymorphism  
C Encapsulation D None of these

Q-2 Do as directed (Any 7)

[14]

- [1] Write a short note on Circular Queue.  
[2] Write a short note on Scope Resolution Operator.  
[3] What is difference between constructor and destructor?  
[4] Define A) Siblings of a Node B) Leaf Node  
[5] Differentiate: Static binding and Dynamic binding.  
[6] List out various modes of file management with their meaning.

- [7] What is class? Describe syntax for define member function inside and outside class.  
[8] Discuss on parameter passing using pass by value and pass by reference.  
[9] What is Data Structure? Write any four application of Data Structure.

- Q-3 [A] Explain characteristics of OOP's (Object Oriented Programming). Explain the basic terminology related to OOP's. List advantages and disadvantages of OOP's. [6]
- Q-3 [B] What do you mean by Command line argument? Explain with an example. [6]
- OR
- Q-3 [B] Explain function overloading with example. [6]
- Q-4 [A] Define inheritance & explain its different forms using example. Explain advantages and disadvantages of inheritance. [6]
- Q-4 [B] What is friend function? Give the syntax of it? why it required in c++? Also Give characteristics of friend function. [6]
- OR
- Q-4 [B] What is operator overloading? Explain Unary operator with example. [6]
- Q-5 [A] What is Linked List? Write an algorithm for insertion of element at the last of the singly Linked List. [6]
- Q-5 [B] What is file? Differentiate between sequential file organization and random file organization. [6]
- OR
- Q-5 [B] Write a brief note on ISAM. [6]
- Q-6 [A] What is Stack? Explain PUSH and POP algorithms. [6]
- Q-6 [B] What is hashing? List out Hashing techniques. Explain the division method and mid square method of hashing. [6]
- OR
- Q-6 [B] What is Queue? Write real life application of Queue. Write An algorithm for deletion operation of Simple Queue. [6]

-----ALL THE BEST-----



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SEAT No. \_\_\_\_\_

No. OF PAGES : 2

**SARDAR PATEL UNIVERSITY****M. Sc. (GEOINFORMATICS)****SEMESTER – I****PS01CGIN25 (RDBMS & CLIENT SERVER COMPUTING)****13<sup>TH</sup> NOVEMBER, 2017, Monday****Time: 10:00 a.m. to 1:00 p.m.****Marks: 70**

**Note : Answers of all the questions (including multiple choice questions) should be written in the provided answer book only.**

**Q-1 Pick up the most appropriate answer from the given alternatives and write in your answer book. (8)**

- (1) \_\_\_\_\_ means processed data –  
(A) Data      (B) Information      (C) Knowledge      (D) none of these
- (2) Which ONE of the following statements is used to add one or more rows in a table?  
(A) ADD      (B) INSERT      (C) APPEND      (D) SELECT
- (3) PL/SQL is a \_\_\_\_\_ language.  
(A) procedural      (B) functional      (C) non-procedural      (D) none of these
- (4) The ORDER BY clause can only be used in  
(A) SELECT queries      (B) INSERT queries  
(C) GROUP BY queries      (D) HAVING queries
- (5) Which of the following are supported by transaction control statements?  
(A) Insert, Remove, Delete      (B) Alter, Execute, Drop  
(C) Commit, Rollback, Savepoint      (D) All of the above
- (6) Which of the following SQL operations demands the use of wild cards comparisons?  
(A) IN      (B) BETWEEN      (C) EXISTS      (D) LIKE
- (7) The \_\_\_\_\_ provides command for defining relation schema, deleting relations and modifying relation schema  
(A) DML      (B) DDL      (C) DCL      (D) DQL
- (8) DCL stands for \_\_\_\_\_  
(A) Data Command Language      (B) Domain Control Language  
(C) Data Control Library      (D) Data Control Language

**Q-2 Attempt the following: (ANY SEVEN) (14)**

- 1) What is RDBMS? List down names of any four RDBMS.
- 2) Differentiate DBMS with RDBMS.
- 3) Define the term 'Data Model'. List down names of various data model.
- 4) Write the full-form of : DML, DDL, DCL, SQL
- 5) What is Join? List different types of joins.
- 6) Define Field and Record with example.
- 7) List out and define basic operations on RDBMS.
- 8) What is Trigger? Why is it used?
- 9) What is query? Give an example of SELECT statement.

- Q-3 (a) What is Normalization? Explain 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> normal forms with example. [6]  
(b) Draw a Context Level diagram, 1<sup>st</sup> Level DFD and 2<sup>nd</sup> Level DFD for Library Environment. [6]

OR

- (b) Draw a Context Level diagram, 1<sup>st</sup> Level DFD and 2<sup>nd</sup> Level DFD for Banking Environment.  
Q-4 (a) What is PL/SQL? Explain the basic structure of a PL/SQL block? [6]  
(b) What do you mean by Data Constrains? List only names of various data constraints. [6]  
Explain any two of them by taking suitable example.

OR

- (b) Define the term 'Exception'. How can we define our own exception? Explain any two pre-defined exception with an example.  
Q-5 (a) What is Cursor? Explain explicit and implicit cursor in detail. [6]  
(b) Explain GRANT, REVOKE and SAVEPOINT commands with an example [6]

OR

- (b) Explain Stored Procedure with its syntax and example  
Q-6 (a) Explain 2-tier and 3-tier Client-Server architecture [6]  
(b) List down String related functions. Explain any four of them with syntax and example [6]

OR

- (b) Differentiate between personal and client server database.

— X —  
②