Seat No. _____ Enrolment No. _____

THE CHARUTAR VIDYA MANDAL UNIVERSITY

M. Sc. ENVIRONMENTAL SCIENCE & TECHNOLOGY – SEMESTER 2

SUMMER 2023 EXAMINATION

Course Title: REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEM

Course Code: 201350201

Total Printed Pages : 2

Date: 17 / 04 / 2023 **Time: 10:00 AM to 12:00 PM** **Maximum Marks: 50**

Instructions:

- Attempt all questions.
- Numbers to the right indicate full marks for each question.
- Make suitable assumptions wherever necessary.

Q. 1 **Answer the following multiple choice questions.** **(04)**

(1) The relationship between energy and frequency is .....proportionality.
(a) inverse (b) direct (c) equally (d) no

(2) The finer the radiometric resolution of a sensor, the more sensitive to detect small differences in reflected or emitted energy.
(a) True (b) False

(3) Degree of correspondence between data and the real world is known as ....
(a) Time (b) Accuracy (c) Both a & b (c) None of them

(4) Which of the following could be represented as an example of format error?
(a) Dongle nodes (c) Silver polygons
(b) Changing from Raster to Vector (d) None of above

Q.2 **Answer in brief and to the Point (2 marks each)** **(06)**

(1) Define Atmospheric Window. What factors cause atmospheric interferences?

(2) What are the factors governing interpretability of image?

(3) What is GIS? List out M's of GIS

Q.3 (a) Define Remote Sensing. Discuss its advantages and applications. **(05)**

(b) What is Resolution? Discuss Spectral and Temporal resolution in context with remote sensing. **(05)**

OR

(b) Write a note on LiDAR Technique for remote sensing. **(05)**

Q.4	(a)	Differentiate between Supervised and Unsupervised Classification.	**(05)**
	(b)	Explain methodology of urban sprawl mapping with appropriate flow chart.	**(05)**
		OR	
	(b)	Explain each element for Image Interpretation.	**(05)**
Q.5	(a)	Write a note on GIS-GPS unification.	**(05)**
	(b)	What is Map? Enlist and explain all elements of map.	**(05)**
		OR	
	(b)	Describe components of GIS.	**(05)**
Q.6	(a)	Explain components of data quality.	**(05)**
	(b)	Define spatial analysis. Explain different types of spatial analysis with diagram in brief.	**(05)**
		OR	
	(b)	Enlist and explain various types of digitizing errors in GIS with diagram.	**(05)**

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THE CHARUTAR VIDYA MANDAL UNIVERSITY
M.SC. ENVIRONMENTAL SCIENCE & TECHNOLOGY – SEMESTER II
April - 2023 (REGULAR) EXAMINATION

Course Title: Meteorological and Environmental Instruments
Course Code: 201350202
Total Printed Pages : 02 (two)
Date: 19/04/2023 **Time: 10.00 am to 12.00 pm** **Maximum Marks: 50**

Instructions:

- Attempt all questions.
- Numbers to the right indicate full marks for each question.
- Make suitable assumptions wherever necessary.
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Q.1 **Answer the following multiple-choice questions.** **(04)**

(I) The interpretations of soil- tensiometer readings having shown ranges from 10-30 psi .What it indicates.
(a) Saturated soil (b) Field capacity (c) starting irrigations (d) Stress range

(II) The plasma in ICP–AES consists of.....
(a) Positive ions only (b) Electrons only (c) Neutral molecules only
(d) Electrons, positive ions and neutral molecules

(III) Which of the following gases is unsuitable for use as a GC carrier gas?
(a) Nitrogen (b) Helium (c) Oxygen (d) all of the above

(IV) Calculate the standard deviation of the given numbers 5,6,4,2
(a) 2.7 (b) 1.7 (c) 1.2 (d) 2.2

Q.2 **Answer in brief and to the point.** **(06)**

(I) Working of Aneroid Barometer
(II) Basic principle of Centrifuge
(III) Function of objective lens and fine adjustment knob

Q.3 (a) Define dew point temperature and humidity. Explain the different types of measurement techniques for humidity in details. **(05)**

(b) What do you mean by Beaufort's scale? Mention working and construction for cup anemometer and wind vane. **(05)**

OR

(b) Describe the sampler used for the collection of water and sediment. **(05)**

Q.4 (a) Write the Principle and instrumentation parts for IR Spectroscopy with diagram. **(05)**

(b) Describe about the working of hollow cathode lamp. Explain atomization process in details for AAS. **(05)**

OR

(b) Describe sources, monochromators, and detectors used for the UV-Visible spectroscopy. **(05)**

Q.5 (a) What do you mean by normal phase of HPLC? Describe the principle and sample injection system of HPLC. **(05)**

(b) Describe about the working principle of microscope with ray diagram. Explain the difference between bright field and dark field microscopy. **(05)**

OR

(b) Explain the different types of detectors used for the Gas Chromatography techniques with diagram. **(05)**

Q.6 (a) Find out S.D. of Simple Series (16, 13, 17, 22), and Continuous Series (10, 11, 12, 13, 14, 15, 16; Frequency: 2, 7, 11, 15, 10, 4, 1). **(05)**

(b) In a school, an Intelligent Test (IT) was given to a small group of students. The results obtained are as follows. Student No.: 1,2,3,4,5,6,7,8; IT Score: 7,6,5,7,8,9,6,8; Marks: 10,7,4,5, 4,7,4,7. From these observations, find out the degree of correlation.

(b) Following are results of height and weight of 1000 students. Mean height (y) = 180 cm, Mean weight (x) = 60 kg, r = 0.6, σy = 6.5 cm, σx = 5 kg, Anil's weight = 45 kg, Sunil's height = 170 cm. Estimate the height of Anil from his weight and weight of Sunil from his height. **(05)**

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THE CHARUTAR VIDYA MANDAL UNIVERSITY
M.SC. ENVIRONMENTAL SCIENCE &TECHNOLOGY – SEMESTER II
APRIL - 2023 (REGULAR) EXAMINATION

Course Title: OCCUPATIONAL AND ENVIRONMENTAL TOXICOLOGY
Course Code: 201350203
Total Printed Pages : 01 (One)
Date: 21/04/2023 **Time: 10.00 am to 12.00 pm** **Maximum Marks: 50**

Instructions:
- Attempt all questions.
- Numbers to the right indicate full marks for each question.
- Make suitable assumptions wherever necessary.

Q. 1 **Answer the following multiple choice questions.** **(04)**

(I) A herbicide may be used for _____ of plant growth.
(a) Elimination (b) Acceleration (c) Promotion (d) Induction

(II) A tissue is a group of cells that usually have a similar _____ origin.
(a) Embryological (b) Physiological (c) Morphological (d) Anatomical

(III) COPD stands for _____.
(a) Chronic Obstructive Pulmonary Disease
(b) Chronic Ocular Pulmonary Disease
(c) Chronic Optical Pulmonary Disease
(d) Chronic Objective Pulmonary Disease

(IV) RQ value of carbohydrates is _____.
(a) 1 (b) < 1 (c) > 1 (d) ∞

Q.2 **Answer in brief and to the Point (3 questions of 2 marks each)** **(06)**

(I) Endocrine disruptors
(II) Nature of heavy metals
(III) Objectives of acute toxicity

Q.3 (a) Explain the Dose-Response concept in detail with examples. **(05)**
(b) Write a detailed note on disorders of respiratory system. **(05)**
OR
(b) Discuss photoperiodism and types of plants citing examples. **(05)**

Q.4 (a) What is poison? Write a note on classification of poison in detail. **(05)**
(b) Describe glycolysis in detail. **(05)**
OR
(b) Discuss in detail - Krebs cycle. **(05)**

Q.5 (a) Define gland. Write a detailed note on exocrine and endocrine glands. **(05)**
(b) Describe epithelial tissue in detail with examples. **(05)**
OR
(b) Discuss: Myopia, Hypermetropia, Astigmatism, Presbyopia, Glaucoma, Diabetic Retinopathy, Dry Eye Syndrome, Cataracts **(05)**

Q.6 (a) Define toxicity. Write an introductory note on herbicidal toxicity. **(05)**
(b) Write an overview of mode of actions of herbicides on plants. **(05)**
OR
(b) Describe the effects of any three heavy metals on plants in detail. **(05)**

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THE CHARUTAR VIDYA MANDAL UNIVERSITY
M.SC. ENVIRONMENTAL SCIENCE &TECHNOLOGY – SEMESTER II
APRIL - 2023 (REGULAR) EXAMINATION

Course Title: INDUSTRIAL HYGIENE AND OCCUPATIONAL HEALTH
Course Code: 201350206
Total Printed Pages : 01 (One)
Date: 25/04/2023 **Time: 10.00 am to 12.00 pm** **Maximum Marks: 50**

Instructions:
- Attempt all questions.
- Numbers to the right indicate full marks for each question.
- Make suitable assumptions wherever necessary.

Q. 1 **Answer the following multiple choice questions.** **(04)**

(I) Following is not an example of non-ionizing radiation.
(a) IR (b) Microwave (c) X-rays (d) LASER

(II) Following is a causative factor for ionizing radiation.
(a) IR (b) Microwave (c) Neutrons (d) LASER

(III) Following is the most suitable to Bagassosis.
(a) Silicosis (b) Bysinossis (c) Asthma (d) Asbestosis

(IV) Following is not an ancient metal.
(a) Pb (b) Hg (c) Be (d) Zn

Q.2 **Answer in brief and to the Point (3 questions of 2 marks each)** **(06)**

(I) How many schedules are there in The Factories Act, 1948?
(II) What is hand arm vibration? Write example.
(III) What is an OHC?

Q.3 (a) What is evaluation in context of industrial hygiene? **(05)**
(b) What functions industrial hygienists do in industry? **(05)**

OR

(b) Define TLV –TWA. Is it beneficial? Explain. **(05)**

Q.4 (a) What are respirators? Name various types of respirators. Which respirators offer maximum protection? **(05)**
(b) Explain administrative controls. **(05)**

OR

(b) Differentiate between on-site and off-site plans. **(05)**

Q.5 (a) Write an introductory note on title of this paper. **(05)**
(b) Discuss physical hazards in details with examples. **(05)**

OR

(b) Write a detailed note on chemical hazards citing examples. **(05)**

Q.6 (a) Describe health hazards in building and construction industries. Add a note on safety and preventive health measures. **(05)**
(b) Write a detailed note on work physiology with suitable examples. **(05)**

OR

(b) Discuss the types of hazardous effects on workers' health with suitable examples. **(05)**

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