



B.Tech(Honours)CSE(AI)
University Teaching Department, CSVTU, Bhilai
Subject – Learning Programming Concept with C
Class Test 1-February 2022

Time: 1:30 hrs.

Max. Marks: 40

Attempt all questions from each section.

Section A: Multiple Choice Questions:

(1×10)

- I. The range of "unsigned int" data type is
a) -32768 to 32767 b) 0 to 65535 c) -65536 to 65535 d) -128 to 127
- II. $10 << 3$ gives
(a) 40
(b) 1
(c) 80
(d) 30
- III. If $a=3$, $b=5$ then the value of the expression $++a+b++$ is
(a) 10
(b) 9
(c) 8
(d) None of the above
- IV. The minimum number of time that a do while loop executes
(a) 0
(b) 1
(c) Infinitely
(d) Variable
- V. C provides as a convenient alternative to the traditional if else for two way selection
(a) Conditional operator
(b) Short hand assignment
(c) Increment
(d) None
- VI. The minimum number of times for loop executes
(a) 2
(b) can't be predicted
(c) 0
(d) 1
- VII. `int a[10]` will reserve how many locations in memory
(a) 10
(b) 9
(c) 11
(d) None of the above

- VIII. To store a table of values, which of the following is used.
- (a) 1D Array
 - (b) 2D Array
 - (c) 3D Array
 - (d) None of the above
- IX. break statement in a loop is used for?
- (a) terminating the loop
 - (b) deallocating memory
 - (C) terminating the program
 - (d) terminating the memory
- X. sizeof() operator returns the size of an operand in
- (a) bits
 - (b) nibble
 - (c) bytes
 - (d) none

Section B: Descriptive Type Questions:

(5x6)

1. Write a C program to find the maximum element in an array.
2. How to declare and initialize a 2D array? Discuss with examples.
3. How does nested if...else work? Explaing with an example.
4. Write about various operators used in C programming language.
5. Write a program to print Fibonacci series 0 1 1 2 3 5 8 13 21.
6.
 - a. Explain C data types.
 - b. Structure of C program.

-----x-----x-----



B.Tech. Artificial Intelligence AI- "A"
University Teaching Department, CSVTU, Bhilai
Subject -Language and Writing Skills
Class Test 1-January 2022

Time: 1:30 hrs.

Max. Marks: 40

Attempt all question from each section.

Section A: Multiple Choice Questions:

(1×10)

- I. Give me something to drink,___ I shall die of thirst.
a. else
b. because
c. for
d. whether
- II. Two months have passed ___ he left college.
a. for
b. since
c. as
d. else
- III. He is slow ___ he is steady.
a. as
b. and
c. because
d. but
- IV. _____ you apologize, I shall punish you
a. else
b. if
c. nor
d. unless
- V. He ___ to Agra, yesterday.
a. went
b. has gone
c. was going
d. goes
- VI. It ___ raining all day.
a. is
b. has

- c. has been
- d. will be

VII. Siddharth _____ coffee after dinner.

- a. Takes
- b. Taken
- c. Took
- d. Taking

VIII. His father _____ us back home very fast.

- a. Driving
- b. Drives
- c. Drove
- d. Driven

Pick out the error part of the following sentences:-

IX. a. You must either
b. Inform the police
c. else be prepared
d. to suffer any loss.

X. a. I have come
b. to know that your
C. father has died
d. last week.

Section B: Descriptive Type Questions:

(6×5)

1. How to choose the channel of communication and on what factors does it depend?
2. What are the keys for a successful communication?
3. Fill in the following blanks using the correct forms of the verbs in brackets. Using Tenses:
 - 1) They (have) breakfast at the moment.
 - 2) He (buy) a new bicycle yesterday.
 - 3) When I (see) him, he (study) English.
 - 4) We (live) in Faith.
 - 5) I (do) my Turkish homework tonight.
 - 6) Be careful! Somebody (follow) us.
 - 7) My father never (drink) before he (go) to bed.
 - 8) Where you (go) last Sunday?
 - 9) I hate him. I (not talk) to him again.

10) Don't worry. I (phone) you when he (come) .

11) I (not see) them last night.

12) While the man (repair) my radio, his son (play) with the tools.

4. What is essential to acquire a good foundation in English language?

5. Define Present Perfect Continuous tense with examples?

-----x-----x-----



B.Tech(honours) In Data Science Department
University Teaching Department, CSVFU, Bhilai
Subject –EM-1
Class Test 1-February 2022

Time: 1:30 hrs.

Max. Marks: 40

Attempt all equestrian from each section.

Section A: Multiple Choice Questions:

(1×10)

1. Which of the following statement is/are correct.

- a. Every polynomial function is differentiable function.
- b. The modulus function $f(x)=|x-1|$, is differentiable at $x=1$.
- c. A function $f(x) = x \sin(1/x)$, is differentiable at $x=0$.
- d. All of above.

2. If $x = \cos \theta$, $y = \sin \theta$ then $\frac{\partial(x,y)}{\partial(r,\theta)} =$

- a. r
- b. 1
- c. 0
- d. -1

3. The value of $\int_0^\pi \cos x \, dx =$

- a. 0
- b. 1
- c. 2
- d. -1

4. If $y = \sin^{-1}(x)$ then value of $(y_2)_{x=0}$, where y_2 is second derivative of y .

- a. 0
- b. 1
- c. 2
- d. -1

5. n^{th} derivative of $\sin x$

- a. $\sin(n\pi + x)$
- b. $\cos(n\pi + x)$
- c. $\sec(n\pi + x)$
- d. $\sin(n\frac{\pi}{2} + x)$

6. If $I_n = \int_0^{\pi/4} \tan^n x \, dx$, $(n-1)(I_n + I_{n-1}) =$

- a. 0
- b. 1
- c. 2
- d. -1

7. $\int_0^{\pi/2} \sin^4 x \, dx =$

- a. $\frac{\pi}{4}$
- b. $\frac{\pi}{8}$
- c. $\frac{\pi}{32}$
- d. $\frac{3\pi}{16}$

8. The value of the series $\sum_{r=0}^{n-1} \frac{1}{n^2 + r^2}$

- a. $\frac{\pi}{2}$
- b. $\frac{\pi}{4}$
- c. $\frac{\pi}{3}$
- d. $\frac{\pi}{6}$

9. If $y = \log(\sin x)$ then value of $(y_2)_{x=1}$, where y_2 is second derivative of y .

- a. $\cot(2)$
- b. $\operatorname{cosec}(2)$
- c. $-\operatorname{cosec}^2(2)$
- d. $\operatorname{cosec}^2(2)$

10. In which statement is incorrect

- a. Every proper integral is convergent.
- b. Every improper integral is convergent .
- c. Gamma function is convergent for $n > 0$.
- d. $I = \int_0^1 \frac{dx}{x}$ is improper integral of second kind

Section B:

Descriptive Type Questions:

(6×5)

1. Prove that $\beta(n, m) = \frac{\Gamma(n)\Gamma(m)}{\Gamma(n+m)}$

2. If $y = \{x + \sqrt{x^2 - 1}\}^m$, show that

$$(x^2 - 1)y_{n+2} + (2n + 1)xy_{n+1} + (n^2 - m^2)y_n = 0.$$

3. Prove that $\int_0^{2a} x^2 \sqrt{2ax - x^2} dx = \frac{5\pi a^4}{8}$.

4. Change the order of integration in $I = \int_0^{4a} \int_{x^2/4a}^{2\sqrt{ax}} dy dx$.

And hence evaluate.

5. If $u = x^2 \tan^{-1}\left(\frac{x}{y}\right) - y^2 \tan^{-1}\left(\frac{y}{x}\right)$ then prove that $\frac{\partial^2 u}{\partial x \partial y} = \frac{\partial^2 u}{\partial y \partial x}$.

-----X-----X-----



B.tech in Computer Science, Branch AI
University Teaching Department, CSVTU, Bhilai
Subject –Environmental Science
Class Test 1-January 2022

Time: 1:30 hrs.

Max. Marks: 40

Attempt all question from each section.

(1×10)

Section A: Multiple Choice Questions:

- I. Which ecosystem has maximum biomass?
 a) Forest ecosystem b) Pond ecosystem c) Grassland ecosystem d) Lake ecosystem
- II. 2) The term ecosystem was coined by ?
 (a) Warming
 (b) Tansley
 (c) Odum
 (d) Haeckel
- III. 3) Which one occupies more than one trophic level?
 (a) Zooplankton
 (b) Fish
 (c) Phytoplankton
 (d) Frog
- IV. 4) When number of food chain is interlocked this is called ?
 (a) Food link
 (b) Food chain
 (c) Food web
 (d) Food Pyramid
- V. 5) Which of the following statements is/are true about Ecotone?
 (a) It is a region of transition between two biological communities.
 (b) Both mangrove forest and grasslands are the example of Ecotone.
 (c) Edge effect occurs when the number of species and the population density of some of species in the ecotone is much greater than either community
 (d) All of the above
- VI. 6) The Taj Mahal is being affected by?
 (a) Noise pollution
 (b) Air pollution
 (c) Water pollution
 (d) None of these
- VII. 7) Which one of the following is not a greenhouse gas found naturally in the atmosphere?
 (a) Nitrogen oxide
 (b) Carbon dioxide
 (c) Methane
 (d) Ozone
- VIII. 8) Acid rain is mainly a mixture of

- (a) Sulphuric acid and nitric acid
- (b) Hexane and Methane
- (c) Acetic acid and bromine
- (d) Ascorbic acid and citric acid

IX. 9) Noise pollution is created if sound is in excess to

- (a) 70-75 dB
- (b) 50-60 dB
- (C) 80-99 dB
- (d) 40-65 dB

X. 10) Green Muffler is related to

- (a) Soil pollution
- (b) Air pollution
- (c) Noise pollution
- (d) Water pollution

Section B: Descriptive Type Questions:

(6×5)

1. What is an ecosystem? Explain biotic components of ecosystem.
2. Explain following terms:
(i) Energy flow (ii) Food pyramid
3. Write the name of types of ecosystem ? Explain forest and pond ecosystem with example.
4. What is a disaster? What are some different kinds of disasters.
5. Write down the sources and effects of air pollution.

-----x-----x-----



B.Tech in Artificial Intelligence/Data Science Department
University Teaching Department, CSVTU, Bhilai
Subject –Foundation of Eletronics Engineering
Class Test 1-January 2022

Time: 1:30 hrs.

Max. Marks: 40

Attempt all equestrian from each section.

Section A: Multiple Choice Questions:

(1×10)

- I. For n-type semiconductor, the doping material is
 - (a) Tetravalent
 - (b) Pentavalent
 - (c) Trivalent
 - (d) Bivalent
- II. When a free electron is recaptures by a hole, the process is called
 - (a) Recombination
 - (b) Diffusion
 - (c) Drift
 - (d) Restoration
- III. The FET is essentially a
 - (a) Voltage controlled device
 - (b) Current controlled device
 - (c) Power driven source
 - (d) Solar device
- IV. The cut off frequency of a bipolar junction transistor increases with
 - (a) Increase in base width
 - (b) Decrease in collector width
 - (c) Decrease in base width
 - (d) Increase in temperature
- V. β gain of a transistor signifies
 - (a) Ractification capacity of transistor
 - (b) Amplification capacity of transistor
 - (c) Regulation capacity
 - (d) All option are correct
- VI. The input resistance of the MOSFET is of the order of
 - (a) $100\ \Omega$
 - (b) $1\text{m}\ \Omega$
 - (c) $10\text{ k}\ \Omega$
 - (d) $100\text{M}\ \Omega$
- VII. Relationship between α , β & γ
 - (a) $\alpha\ \beta = \gamma$
 - (b) $\alpha\ \gamma = \beta$
 - (c) $\beta\ \gamma = \alpha$

(d) All option are correct

VIII. For Active region operation of NPN transistor

- (a) Emitter is positive with respect to base
- (b) Emitter is negative with respect to base
- (c) Emitter is at same voltage as base
- (d) Base is at same voltage as collector

IX. In a pure semiconductor electric current is due to

- (a) Holes only
- (b) Electrons only
- (c) Holes and electrons both
- (d) Valence electrons alone

X. MOSFET is a

- (a) Bipolar
- (b) Unipolar
- (c) Either bipolar or unipolar
- (d) None of the above

Section B: Descriptive Type Questions:

(6×5)

1. Explain common emitter npn transistor with their output characteristics.
 2. Explain PN junction diode with its characteristics .
 3. Explain n-channel JFET with its transfer characteristics
 4. Differentiate between Depletion type MOSFET and Enhancement type MOSFET.
 5. How a depletion region is formed in a BJT ? Explain in brief.
-

Department of Artificial Intelligence
University Teaching Department, CSVTU, Bhilai
Subject - Fundamentals of Computational Biology
Class Test 1-January 2022

Max. Marks: 40

Time: 1:30 hrs.

Attempt all questions from each section.

(1×10)

Section A: Multiple Choice Questions:

1. Identify the incorrect statement.
 - a. DNA is the genetic material in eukaryotic cells
 - b. DNA is made up of nucleotides
 - c. RNA is made up of nucleotides
 - d. Plants have RNA as genetic material
2. Fill in the blanks. RNA molecule consists of ----- sugar.
 - a. Three carbon
 - b. Five carbon
 - c. Six carbon
 - d. Four carbon
3. Which model best explain the cancerous behaviour
 - a. Snow drift model
 - b. Hawk and Dove model
 - c. Ball in a jar model
 - d. Fly wheel model
4. Steady state condition is best defined as:
 - a. System should be in equilibrium
 - b. Relative concentration of reactants should remain constant
 - c. Relative concentration of product should remain constant
 - d. All above
5. What will be the probability associated with finding two cards, first card as a heart and other should be king of diamond when drawn randomly from a pack of 52 cards.
 - a. $\frac{13}{52} \times \frac{4}{51}$
 - b. $\frac{13}{52} \times \frac{1}{51}$
 - c. $\frac{4}{52} \times \frac{13}{51}$
 - d. $\frac{13}{52} \times \frac{1}{52}$
6. A Cancer cell is:
 - a. Cell with uncontrolled cell division
 - b. Cell with no terminal functionality
 - c. Only a
 - d. Both a and B
7. Identify the cause of cancer
 - a. X-ray
 - b. DNA damage
 - c. Only b
 - d. Both a and b
8. S phases in cell cycle is characterized by
 - a. Synthesis of proteins

- b. Synthesis of Nucleic acids
 - c. Synthesis of Amino acids
 - d. Synthesis of cell wall components
9. Identify if the nature of bacterial growth kinetics in stationary phase
- a. Nutrition depletion
 - b. Bacterial death because increase in cell mass/density
 - c. Only a
 - d. Both a and b
10. What is the genetic material in HIV
- a. Double stranded DNA
 - b. Single stranded RNA
 - c. Double stranded RNA
 - d. Both DNA and RNA

(6×5)

Section B: Descriptive Type Questions:

1. In detail explain what is DNA, also state the difference between DNA and RNA? (3+2)
2. What are enzymes? For any enzyme kinetic reaction please derive the expression for velocity? (1+4)
3. Please derive the ODE expression for each components of following reaction? 5



4. Briefly explain the bacterial growth model. What do you understand by logistic equation. Please find out the number of bacterial cells after 6 hours of incubation, when the division time is given as 30 min. Please note that the initial cells were 20 in numbers? (1.5 + 1.5 + 2)
5. Explain what is pray-predator model with an appropriate example? Derive ODE expression for your example. Please use appropriate notation and constants for reference. Solve these ODE equations using steady state assumptions. (1+2+2)
Note: students are free to use any appropriate constant values of their choice.
6. What do you understand by infectious diseases, explain with examples? With examples please state the mathematical modelling of infectious diseases (SIR and SIS model). Briefly explain the basic reproduction rate and its significance. (1+2+2)
Note: Students are free to use any notations and constant.



B.tech (Honours) , AI/Data Science Department
University Teaching Department, CSVTU, Bhilai
Subject -Professional Ethics and Life Skills
Class Test 1-February 2022

Time: 1:30 hrs.

Max. Marks: 40

Attempt all equestrian from each section.

Section A: Multiple Choice Questions:

(1×10)

- I. According to_____, men had a tendency to solve problems by applying abstract moral principles
a) Gilligan"s Theory b) Kohlberg Theory c) Monopoly Theory d) Autonomy theory
- II. Which of these is a factor that affects ethical and unethical behavior?
(a) ethical dilemma
(b) diversity
(c) teamwork
(d) open communication
- III. What is the final level of Kohlberg's model of moral development?
(a) Pre-conventional reasoning
(b) conventional reasoning
(c) Post-conventional reasoning
(d) Social systems morality
- IV. Which sub-stages are in Kohlberg's pre-conventional reasoning?
(a) Social contract and universal ethical principles
(b) Social contract and social systems
(c) Individualism systems and social systems
(d) Heteronomous morality and individualism
- V. Three levels of moral development, comprising six stages, were proposed by
(a) Martin Hoffman
(b) Lawrence Kohlberg
(c) Jean Piaget
(d) Sigmund Freud
- VI. _____includes creativity, communication, recognition of the individual as human being
(a) Spirituality
(b) Honesty
(c) Indivuality
(d) Charity
- VII. _____includes showing respect to the feelings of others, and also respecting and preserving the interests of all others concerned
(a) live peacefully
(b) caring

- (c) honesty
- (d) courage
- VIII. Honesty is a virtue, and it is exhibited in which aspects
 - (a) truthfulness
 - (b) happiness
 - (c) comfortness
 - (d) awareness
- IX. _____ to learning the service policies, procedures, norms, and conditions, other than the technical trade practices
 - (a) Work ethics
 - (b) service learning
 - (C) Integrity
 - (d) truth
- X. _____ means alignment to goals and adherence to ethical principles during the activities
 - (a) Welfare
 - (b) empathy
 - (c) Commitment
 - (d) integrity

Section B: Descriptive Type Questions:

(6×5)

1. write short notes on a) Integrity b) civic Virtue c) Empathy
2. Why yoga and Meditation are essential for professionals' excellence and Stress Management?
3. Define Moral development & Explain the stages of Kohlberg"s theory of moral development?
4. List down the characteristics of the profession as distinct from non-professional occupation?
5. Explain risk benefit analysis and Reducing Risk?

-----X-----X-----