

DEPARTMENT OF INFORMATION TECHNOLOGY
UNIVERSITY INSTITUTE OF ENGINEERING AND TECHNOLOGY
CSJM UNIVERSITY, KANPUR

Second Mid Semester Examination
B. Tech (IT)
Programming and Computing using C (ISC- S 101)

Semester: 1st
Time: 1.5 h

Year: 1st (2023)
Maximum marks: 30

Instructions: All questions are compulsory. The candidates are required to answer only in serial order. If there are many parts of a questions, answer them in continuation.

Section A

(9 * 1 = 9 Marks)

1. In a switch case statement, the expression inside the parentheses is typically of type _____.
2. A for loop consists of three parts: initialization, condition, and _____.
3. In a while loop, the loop continues executing as long as the _____ is true.
4. The primary advantage of a do-while loop over a while loop is that it guarantees the loop body is executed _____.
5. In a switch case statement, each case label must be a _____ value.
6. In a for loop, the initialization statement is executed _____ before entering the loop.
7. The condition in a while loop is evaluated _____ entering the loop.
8. In a do-while loop, the loop body is executed _____ checking the condition.
9. The "break" statement is commonly used to exit a switch case or loop. It is used to _____ the normal flow of execution.

Section B

(3 * 3 = 9 Marks)

Attempt all the questions

1. Write a program to calculate sum of cubes of first n numbers.
2. Write a program to enter two points and then calculate the distance between them.
3. Write a program to calculate the sum of first N natural numbers.

P.T.O.

Section C

(2 *6 =12 Marks)

Attempt all the questions

1. Write a program for the following patterns:

[3+3]

```
* * * * *
* * * *
* * *
* *
*
      A
      B C
      D E F
      G H I J
      K L M N O
```

2. Write the output for the following codes with explanation:

[3+3]

<pre>#include <stdio.h> #include <conio.h> void main() { int p = 800, q, r; clrscr(); if (p >= 700) { q = 600; } r = 500; printf("%d %d \n", q, r); getch(); }</pre>	<pre>#include<stdio.h> #include<conio.h> void main() { int p = 4 , q , r ; clrscr(); q = p = 15; r = p < 15; printf(" p = %d q = %d r = %d \n ", p , q , r); getch(); }</pre>
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DEPARTMENT OF MATHEMATICS
C.S.I.M. UNIVERSITY, KANPUR.

Mathematics-I (MTH-S101)
Branch: Information & Technology (IT)

Semester: 2023-24(Odd Sem)

Year: Ist Year

SECOND MID SEMESTER EXAMINATION

Time: 1.5 h

Maximum marks: 30

All questions are compulsory

Section A

1. Attempt all questions and each question contain 1 marks:

- If z is a homogeneous function of degree 1 in x and y , then $x^2 \frac{\partial^2 z}{\partial x^2} + 2xy \frac{\partial^2 z}{\partial x \partial y} + y^2 \frac{\partial^2 z}{\partial y^2} = ?$
- Find the vertical asymptote of the curve $(x - y)(x + y) = 0$ (if any). Justify your answer.
- In $u = x + 3y^2$, $v = 4x^2y$, evaluate $\frac{\partial(v,u)}{\partial(x,y)}$ at $(x, y) = (1, -1)$.
- Find the value of $\frac{du}{dt}$ given $u = y^2 - 4ax$, $x = at^2$, $y = 2at$.
- Draw the region over which the integral will be evaluated $\int_{-1}^0 \int_0^x f(x, y) dx dy$.
- Define maxima and minima of functions of two variables.
- Define double point of a curve and also give an example.
- Define Saddle point.
- Define Stationary value of a function of two variables.

Section B

2. Attempt all questions and each question contain 3 marks:

- Expand $f(x, y) = x^2y + 3y - 2$ in the powers of $(x - 1)$ and $(y + 2)$ using Taylor's theorem upto third-degree terms.
- Change the order of integration in $I = \int_0^1 \int_{x^2}^{2-x} xy dx dy$ and hence evaluate the same.
- Evaluate $\int \int_R (x+y)^2 dx dy$, where R is the parallelogram in the xy -plane with vertices $(1, 0)$, $(3, 1)$, $(2, 2)$, $(0, 1)$ using the transformation $u = x + y$ and $v = x - 2y$.

Section C

3. Attempt all questions and each question contain 6 marks:

- Find the volume of the positive octant of the ellipsoid $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$.
- Find the absolute maxima and minima of the function $f(x, y) = x^2 - xy + y^2 + 1$ on the first quadrant bounded by the lines $x = 0$, $y = 4$, $y = x$.

Subject Name-WORKSHOP CONCEPT (TCA-S 102) IT

Semester: (Even Semester)

Mid Semester-2 Examination

Maximum marks: 30

Time: 1.5 h

Section A

(9 questions of 1 mark each)

1	Follow board pattern are used to cast (a)Structurally weak portions (b)Large axi-symmetric or prismatic shapes (c)Product having protruding sections (d)Bell shape or cylindrical shape products
2	The sand in its natural or moist state is called as a. green sand b. loam sand c. dry sand d. none of the above
3	The hot chamber die casting method is used to cast..... a. Brass b. Magnesium c. Aluminium d. Alloys of lead, tin, and zinc
4	Which of the following casting methods utilises wax pattern..... a. Shell moulding b. Plaster moulding c. Slush casting d. Investment casting
5	In centrifugal castings,the impurities are..... a. Uniformly distributed b. Collected in the centre of casting c. Forced outside the surface d. Present in the middle section of casting
6	In centrifugal casting, cores are made of..... a. Steel b. Cast iron c. Hard sand d. None of the above
7	Which property of a material is used for Casting it into a desired shape (a)Strength (b)Fluidity (c)Ductility (d)Formability
8	What is the reason for using unconventional or advanced machining processes? a. Complex surfaces b. High accuracy and surface finish c. High strength alloys d. All of the above
9	The ability of the moulding sand to withstand the heat of melt without showing any sign of softening is called as a. strength or cohesiveness b. refractiveness c. collapsibility d. adhesiveness

Section B (3 questions of 3 marks each)

Q 1. Explain properties of moulding sand.

Q 2. Define (i) hardness (ii) strength (iii) toughness

Q 3. Write down five differences between conventional and unconventional machining process.

Section C 12 marks (6 marks each)

Q 4. Discuss electron beam machining with neat and clean figure.

Q 5. Explain all types of defects develop during casting process.

Department of Information Technology, UIET
C.S.J.M UNIVERSITY, KANPUR
Physics- I (PHY-S101)

Semester: 2023-24 (Odd Semester)

Year: 2023

SECOND MID SEMESTER EXAMINATION

Time: 1.5 hrs

Maximum Marks: 30

All questions are compulsory:

Section A

1. Attempt all questions:

(9×1=9)

a. The spherical polar co-ordinates of a point are $(16, 60^\circ, 30^\circ)$. Find the Cartesian co-ordinates of this point.

A. $(12, 4\sqrt{3}, 8)$

B. $(13, 6, 8)$

C. $(12, 7, 8)$

D. $(14, 5, 8)$

b. Explain physical meaning of the divergence of vector field.

c. Write the statement of Stoke's theorem.

d. Define the work of Nozzle in a rocket.

e. Define unstable equilibrium with example.

Fill in the Blanks:

f. The Zenith angle always lies between and

g. The magnitude of transverse velocity in plane polar co-ordinates.....

h. Rocket works on the principle of

i. To achieve a high final velocity of the rocket it is necessary that, the value of velocity should be large.

Section B

2. Attempt any three of the following:

(3×3=9)

a. If the line integral of a vector \vec{A} around a closed curve is equal to the surface integral of the vector \vec{B} taken over the surface bounded by the given closed curve show that $\vec{B} = \text{curl} \vec{A}$.

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3 b. If $\vec{E} = (x + y)\hat{i} + (y - 2x)\hat{j} - 2z\hat{k}$, prove that $\text{curl } \vec{E}$ and $\text{div } \vec{E}$.

- c. A 5000 kg rocket is set for vertical firing. If the exhaust speed is 500 m/sec, how much gas must be ejected per second to supply the thrust needed (i) to overcome the weight of the rocket (ii) to give the rocket an initial upward acceleration of 19.6 m/sec^2 .
- d. What is two stage rocket? What is the advantage of a two stage rocket over a single stage rocket?

Section C

2. Attempt any two of the following:

(6×2=12)

6 (i) If \hat{r} and $\hat{\theta}$ are unit vectors in the plane polar co-ordinate system, Show that $\frac{d\hat{r}}{d\theta} = \hat{\theta}$ and $\frac{d\hat{\theta}}{d\theta} = -\hat{r}$.

6 (ii) A particle moves from a point (3, -4, -2)m to a point (-2, 3, 5)m under the influence of a force $\vec{F} = (-2\hat{i} + 3\hat{j} + 4\hat{k})$ Newton. Calculate the work done by the force:

(iii) Deduce the expression for final velocity of a rocket.

UIET, CSJMU Kanpur
II Mid Semester Exam- 2023
HSS- 101, Professional Communication
Branch IT, 1st yr

Time 1:30 hrs

Max marks 30

Note: All the questions are compulsory

Section A (9 marks)



Q1. Fill in the blanks: (5)

- a) Precis writing consists of _____ words of the original paragraph.
- b) _____ proposals are individual proposals.
- c) _____ format of writing letters, contains printed addresses on the middle of the page of letter heads.
- d) _____ are short reports written for day-to-day activities in the department.
- e) The mode of payment is discussed in _____ letters.

Q2. Answer in one word/sentence (4)

- a) Write the full form of AIDA plan used in sales letter.
- b) What do you understand by salutation?
- c) What is Appendix in report writing?
- d) What are Enclosures?

Section B (9 marks)

Q3. Differentiate between Informational and Interpretative reports

Q4. What are external and internal proposals?

Q5. Differentiate between notices and circulars.

Section C (12 marks)

Q6. Write a letter of complaint to the General Manager of Amul Dairy Products Ltd complaining about delivery of 50 stale dry milk cans, asking for the adjustment of the bill on the next order of purchase.

Q7. Write a memorandum to General Manager of your company informing about the latest deal of incoming raw material with the shipment company and that the production should be accelerated accordingly.