Shri Vile Parle Kelavani Mandal's

Shri Bhagubhai Mafatlal Polytechnic

TIME ALLOWED : **3 HOURS**

PROGRAMME: **Diploma in Computer Engineering**

MAXIMUM MARKS : **70**

SEMESTER : **II**

COURSE NAME : **Fundamentals of Scripting Language**

COURSE CODE: **FSL220802**

DATE: - 6 JUN 2023

TIME: **09.00 AM TO 12.00 NOON**

SEAT NO.: _____

Instructions:

1. All the answers should be written in the single answer book.
2. All questions are compulsory.
3. Use of mathematical tables and non-programmable calculator is permissible.
4. Illustrate your answers with neat sketches, where necessary.
5. Figures to right indicates marks.
6. Assume suitable data, if necessary.

Q.1		**Attempt any SIX of the following:**	**12M (6*2)**	**CO**
	a)	Enlist any four features of JavaScript.		CO1
	b)	State the importance of javascript 'const' with example		CO1
	c)	Write JavaScript to print hello using double click event.		CO2
	d)	Write a javascript to open a new browser window.		CO3
	e)	Enlist any 2 frontend and backend development frameworks		CO4
	f)	Compare inline and block level tags in html.(any 2 parameter)		CO4
	g)	Define array. give one example of array.		CO2
	h)	Write a syntax to create cookie with all parameters.		CO3
Q.2		**Attempt any THREE of the following:**	**12 M (3*4)**	**CO**
	a)	Write a javascript to check whether the entered number is palindrome or not using while loop.		CO1
	b)	Write javascript to compute the sum of each element of an array using for each.		CO2
	c)	Write javascript event to concatenate the input of first and second text box and display the result in third text box.		CO2
	d)	Write a program for Blurr and focus on a new window.		CO3
	e)	Enlist any four meta character. Give an example for any 2 meta character with output.		CO4
Q.3		**Attempt any THREE of the following:**	**12 M (3*4)**	**CO**
	a)	Write a javascript to call Child Window from a parent window using frame.		CO4

	b)	Explain any two logical operators with example.		CO1
	c)	Explain any four location object property with example.		CO3
	d)	Write a javascript to sort a number in ascending order using array.		CO2
	e)	Explain associative array with the help of example		CO2
Q.4		**Attempt any THREE of the following:**	**18M (3*6)**	**CO**
	a)	Write a javascript to print 1 to 10 numbers using while and do-while loop.		CO1
	b)	Write a javascript to 1) Convert temperature from Fahrenheit to Celsius 2) Add an element in an array using text box		CO2
	c)	Write java script to Create rollover effect which involves text and images. When the user places his or her mouse pointer over a book title, the corresponding book image appears.		CO4
	d)	Design a webpage to demonstrate dynamically changing menu.		CO4
Q.5		**Attempt any TWO of the following:**	**16M (2*8)**	**CO**
	a)	Write a script for the following 1) To disable right-clicking on a website using JavaScript 2) To concealing email address using JavaScript		CO4
	b)	Write a JavaScript to change the content of a child window from parent window using frames.		CO4
	c)	Explain the following example with the help of example 1) onmouseup -onmousedown Event 2) Onmouseenter- onmouseleave Event		CO2

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TIME ALLOWED : **03 HOURS**

PROGRAMME: **Diploma in Computer Engg**

MAXIMUM MARKS : **70**

SEMESTER : **II**

COURSE NAME : **Programming in C**

COURSE CODE: **PRC228912**

DATE: 30 MAY 2023

TIME: **09.00 AM TO 12.00 NOON**

SEAT NO.: _____

Instructions:

1. All the answers should be written in the single answer book.
2. All questions are compulsory.
3. Use of mathematical tables and non-programmable calculator is permissible.
4. Illustrate your answers with neat sketches, where necessary.
5. Figures to right indicates marks.
6. Assume suitable data, if necessary.

Q.1	**Attempt any SIX of the following:**	**12M (6*2)**	**CO**
a)	Difference between entry controlled loop and exit controlled loop(Any 2 points)		CO2
b)	Define following terms: 1) Structure 2) Array		CO4
c)	Write the syntax of one dimensional and two dimensional array declaration.		CO4
d)	Define the following term: 1) Reference operator 2) Dereference Operator		CO4
e)	State any 2 advantages and disadvantages of recursion		CO3
f)	State the significance of shift operator with suitable example		CO1
g)	State any 4 application of C programming		CO1
h)	Write the syntax of conditional operator with example code		CO1
Q.2	**Attempt any THREE of the following:**	**12 M (3*4)**	**CO**
a)	Write a program to sort an array in ascending order. Read the array elements from user.		CO4
b)	Write a program to swap two numbers using call by value. Justify the output		CO3
c)	Explain process of executing C programs using flowchart		CO1

d) Write 'C' program for the given pattern CO2

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    *
   * *
  * * *
 * * * *
* * * * *
```

e) Using diagrammatic representation describe the basic structure of C program CO1

Q.3 Attempt any THREE of the following: **12 M (3*4)** **CO**

a) Write a program in C to find the minimum number between two numbers using pointers. CO4

b) Define storage classes Classify and briefly explain Storage classes in C Programming CO1

c) Define Recursion. Write a 'C' program to Fibonacci series using recursion CO3

d) Explain arrays of pointer with an appropriate example program CO4

e) Write a 'C' Program to check whether entered number is Armstrong number or not (Use while loop only) CO2

Q.4 Attempt any THREE of the following: **18M (3*6)** **CO**

a) Explain the use of following string functions with appropriate example program: i) strcmp() ii) strcat() iii) strlen() CO4

b) Write a 'C' program to create structure employee with 3 data members as id, name, salary to read data for 4 employees and print the data using array of structures. CO4

c) Describe the following operators with syntax and code snippet i)sizeof ii)Logical OR iii)bitwise AND CO1

d) Explain nested structure with any example program. CO4

Q.5 Attempt any TWO of the following: **16M (2*8)** **CO**

a) Explain different categories of user defined Function with example programs CO3

b) Explain Arrays of Structure. Write 'C' program using Arrays of structure with data members as staff-id, staff-name, staff-age & staff-salary and display the information for three Staff. Draw the output for the same. CO4

c) Write the syntax of switch –case statement. Write a program using switch-case to find the area of triangle, rectangle, square and circle. Display "Invalid Input" if the input is out of the range. CO2

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TIME ALLOWED : **3 HOURS** PROGRAMME: **Diploma in CSE/IT**

MAXIMUM MARKS : **70** SEMESTER : **II**

COURSE NAME : **APPLIED MATHEMATICS** COURSE CODE: **AMT228908**

DATE: - 1 JUN 2023 TIME: **09.00 AM TO 12.00 NOON**

SEAT NO.: _____

Instructions:

1. All the answers should be written in the single answer book.
2. All questions are compulsory.
3. Use of mathematical tables and non-programmable calculator is permissible.
4. Illustrate your answers with neat sketches, where necessary.
5. Figures to right indicate marks.
6. Assume suitable data, if necessary.

Q.1 **Attempt any SIX of the following:** **12M (6*2)** CO

a) Find Modulus and argument of complex number $z = -2 - i\,2\sqrt{3}$ CO4

b) Find $\frac{dy}{dx}$, If $y = x\,e^x$ CO1

c) If $Z_1 = -3 + i4$ *and* $Z_2 = 5 - i3$ then find $2Z_1 + 3\,Z_2$. CO4

d) If $P(A) = \frac{3}{10}, P(B) = \frac{2}{5}, P(A \cap B) = \frac{1}{25}$ find $P(A \cup B)$ & $P(B')$ CO2

e) Find $\int \frac{1}{\sqrt{5-4x^2}}\,dx$ CO3

f) Express the given complex number $Z = \frac{2+i}{1-i}$ in form of a + ib. CO4

g) If $A = (3,-2,5), B = (0,3,9)$ & $C = (1,1,1)$. Find $\overrightarrow{AB}$ & $\overrightarrow{AC}$ in terms of $\hat{i}, \hat{j}, \hat{k}$. CO4

h) If $\vec{a} = \hat{i} - \hat{j} + \hat{k}$ & $\vec{b} = 2\hat{i} - 3\hat{j} + 5\hat{k}$ find projection of $\vec{a}$ on $\vec{b}$. CO4

Q.2 **Attempt any THREE of the following:** **12 M (3*4)** CO

a) If $x = a(\theta - \sin\theta)$ *and* $y = a(1 - \cos\theta)$ then find $\frac{dy}{dx}$. CO1

b) Find the vector moment of force $3\hat{i} + 2\hat{j} - 4\hat{k}$ acting at a point (1,-1, 2) about the point (2.-1.3). CO4

c) Find Mean, Median, Mode of the following data. CO2

Marks obtained	0-20	20-40	40-60	60-80	80-100
No. of students	5	10	12	6	3

d) If $\vec{a} = 2\hat{\imath} + \hat{\jmath} + 2\hat{k}, \vec{b} = \hat{\imath} + 2\hat{\jmath} + 3\hat{k}$ & $\vec{c} = 2\hat{\imath} + 3\hat{\jmath} + \hat{k}$ find $(\vec{a} \times \vec{b}).(\vec{a} + \vec{c})$ CO4

e) Find $\frac{dy}{dx}$ if $y = e^{x \sin^{-1} x}$. CO1

Q.3 **Attempt any THREE of the following:** **12 M (3*4)** CO

a) Find $\int_4^5 \frac{\sqrt{5-x}}{\sqrt{x-4}+\sqrt{5-x}}\, dx$ CO3

b) An unbiased coin is tossed 5 times. Find the probability of getting a) three heads b) At least 4 heads. CO2

c) Find $\int \frac{1}{x \log x}\, dx$ CO3

d) Simplify using De Movire's Theorem CO4

$$\frac{(\cos 5\theta - i\sin 5\theta)^2(\cos\theta + i\sin\theta)^5}{(\cos 7\theta - i\sin 7\theta)^3(\cos 4\theta - i\sin 4\theta)^2}$$

e) Find the mean deviation from mean for the following distribution: CO2

Marks	10-15	15-20	20-25	25-30	30-35	35-40	40-45
No. of students	7	12	16	25	19	15	6

Q.4 **Attempt any THREE of the following:** **18M (3*6)** CO

a) Find the maximum and minimum value of the function $x^3 - 9x^2 + 24x$ CO1

b) Find the value $(1 + i\sqrt{3})^6 + (1 - i\sqrt{3})^6$ using De Movire's theorem. CO4

c) Find $\int \tan^{-1} x\, dx$. CO3

d) A company makes electric motors. The probability an electric motor is defective is 0.01. What is the probability that a sample of 300 electric motors will contain a) exactly 5 defective motors b) At least 2 defective motors. CO2

Q.5 **Attempt any TWO of the following:** **16M (2*8)** CO

a) If $y = \log[x + \sqrt{x^2 + 1}]$ show that $(x^2 + 1)\frac{d^2y}{dx^2} + x\frac{dy}{dx} = 0$ CO1

b) Find $\int \frac{3x-2}{(x^2+4)(x+2)}\, dx$ CO3

c) Calculate S.D, Coefficient of variance of the following table: CO2

Class Interval	70-80	80-90	90-100	100-110	110-120	120-130	130-140	140-150
Frequency	6	7	12	19	21	18	11	6

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Shri Bhagubhai Mafatlal Polytechnic

TIME ALLOWED : **3 HOURS**

PROGRAMME: **Diploma in Computer Engineering**

MAXIMUM MARKS : **70**

SEMESTER : **II**

COURSE NAME : **BASIC ELECTRONICS**

COURSE CODE: **BEX228911**

DATE: 08 JUN 2023

TIME: 09.00 AM to 12.00 NOON

SEAT NO.: _____

Instructions:

1. All the answers should be written in the single answer book.
2. All questions are compulsory.
3. Use of mathematical tables and non-programmable calculator is permissible.
4. Illustrate your answers with neat sketches, where necessary.
5. Figures to right indicates marks.
6. Assume suitable data, if necessary.

Q.1	**Attempt any SIX of the following:**	**12M (6*2)**	**CO**
a)	Define forward bias and reverse biased PN junction .		**CO1**
b)	Draw the diagram of Full-wave bridge rectifier.		**CO1**
c)	Find the value of series resistor required to limit the current through LED to 20 mA with a forward voltage drop of 1.6 V when connected to a 10 V supply.		**CO1**
d)	Define Q point and faithful amplification .		**CO2**
e)	Draw the symbols of NPN and PNP transistor.		**CO2**
f)	In a single stage amplifier, explain the function of emitter bypass capacitor.		**CO3**
g)	Define thermal runaway and heat sink		**CO3**
h)	Write applications of bistable multivibrator		**CO4**
Q.2	**Attempt any THREE of the following:**	**12 M (3*4)**	**CO**
a)	Explain the following terms with help of Energy level diagram: a) Conductor b) Insulator c) Semi-conductor.		**CO1**
b)	Compare maximum efficiency, ripple factor, transformer necessity, and output frequency of half wave and bridge rectifier.		**CO1**
c)	Explain the working of Centre-tap full-wave rectifier with neat diagram.		**CO1**
d)	Explain the output characteristics of CE connection with neat diagram.		**CO2**
e)	With the help of output characteristics explain the switching action of transistor.		**CO4**

Q.3		**Attempt any THREE of the following:**	**12 M (3*4)**	**CO**
	a)	Compare Voltage amplifier with power amplifier		**CO3**
	b)	Sketch the neat circuit diagram of monostable multivibrator and write two applications.		**CO4**
	c)	With the neat diagram, describe the working principle of N-type semiconductors		**CO1**
	d)	In a transistor, $I_B = 68\ \mu A$, $I_E = 30$ mA and $\beta = 440$. Find the value of α. Hence determine the value of I_C.		**CO2**
	e)	Write and explain any two applications of Photodiodes.		**CO1**
Q.4		**Attempt any THREE of the following:**	**18M (3*6)**	**CO**
	a)	Explain V-I characteristics of PN junction diode.		**CO1**
	b)	Define frequency response and bandwidth of the amplifier. Describe frequency response of RC coupled amplifier.		**CO3**
	c)	Describe Class A amplifier with neat sketch		**CO3**
	d)	Discuss the working of Schmitt trigger		**CO4**
Q.5		**Attempt any TWO of the following:**	**16M (2*8)**	**CO**
	a)	Describe the working of voltage divider method of transistor biasing.		**CO2**
	b)	Explain the working principle of Capacitor Filter and Choke input Filter.		**CO1**
	c)	With neat diagram explain Transformer coupled amplifier, list its advantages and disadvantages .		**CO3**

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