



**PES University, Bangalore**  
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**UE16CS151**

**May 2017: END SEMESTER ASSESSMENT (ESA) B.TECH. II SEMESTER**

**UE16CS151- Problem Solving with C**

Time: 3 Hrs		Answer All Questions	Max Marks: 100
1.	a)	Write a C program to print a table of degrees to radians conversion for every 10 degree upto 360 degrees.	06
	b)	Assume that the first record in the sensor data file contains an integer that specifies the number of records of sensor information that follow. Each of the following lines contains a time and sensor reading in a file named sensor1.txt. Ex data is shown below: 10 0.0 132.5 0.1 147.2 0.2 148.3 0.3 157.3 0.4 163.2 Write a C program to generate the summary information from the file. The summary should contain min,max and the avg sensor reading.	06
	c)	Bring out the purpose of using fscanf and fwrite functions.	04
	d)	Describe the three ways of providing input to the program.	04
2.	a)	Write a C program to check if the given number is automorphic or not. Note: A number n whose square ends in n is automorphic. For instance 5 is automorphic, because $5^2 = 25$ , which ends in 5	04
	b)	Given two strings, the task is to check whether these strings are meta strings or not. Meta strings are the strings which can be made equal by exactly one swap in any of the strings. Equal strings are not considered here as Meta strings. Examples: Input : str1 = "neat" str2 = "tean" Output : Yes By just swapping 'n' and 't' in any of string, both will become same. Input : str1 = "rsting"                      Input : str1 = "Converse" str2 = "string"                     str2 = "Conserve" Output : No                                    Output : Yes	12
	c)	Bring out the differences and similarities between arrays and pointers.	04
3.	a)	Write a C program to implement priority queue using arrays.	06
	b)	Bring out the differences between static allocation and dynamic allocation of memory.	06
	c)	List the four storage classes along with an example.	08
4.	a)	Write a C program to sort the set of records stored in a file . The record contains information on different brands of laptop. The attributes are laptop brand name, price and the Ram capacity. Display the records in order based on user's choice attribute.	10
	b)	Write small snippets of code to demonstrate the following: a) Passing array of structures to a function b) Accessing a pointer member present as an attribute within a structure c) Defining a pointer to structure and accessing structure members d) Array of pointers pointing to array of structures e) Function receiving double pointer	10
5.	a)	Write a C program to store the months in an year using enum. Store in the enum variable the value presented by the user. Display some suitable message for people born in various months.	04
	b)	Write a c program using conditional compilation to define the currency array with suitable initialization of the array based on the active country's definition . For ex if country defined is India, currency array should contain rupee.	04
	c)	Write a snippet of code to show the conservation of memory using bit fields	04
	d)	Write about: i) #include ii) #pragma pack (2) iii) Structure alignment for the fields iv) bit operators	08