MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

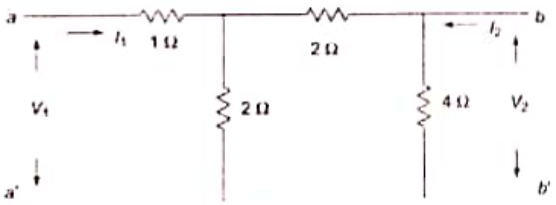
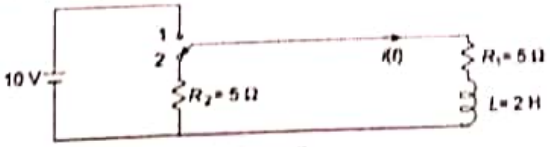
DEPARTMENT OF ECE

"T3 Examination, December-2021"

SEMESTER	III	DATE OF EXAM	06.12.2021
SUBJECT NAME	NETWORK THEORY	SUBJECT CODE	ECH202B-T
BRANCH	ECE	SESSION	1ST
TIME	09.00AM-12.00NOON	MAX. MARKS	100
PROGRAM	ECM	CREDITS	5
NAME OF FACULTY	BHANU PRATAP CHAUDHARY	NAME OF COURSE COORDINATOR	BHANU PRATAP CHAUDHARY

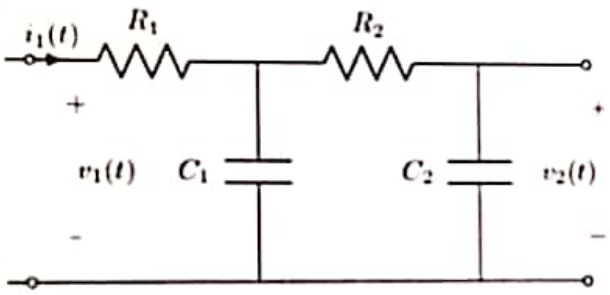
Note: *Part A and Part B: All questions are compulsory*

Part C and Part D: Attempt any two questions from each part.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Solve the network shown in Fig. 1 for the Y-parameters.  Fig. 1	5	CO1	BT3	1.2.1,1.4.1,2.1.1,3,1,1
	1(B)	Demonstrate the condition of reciprocity for T parameters.	5	CO1	BT2	1.2.1, 2.2.2,2.3.1,
PART-B	Q2	The network shown in Fig. 2 is initially under steady-state condition with the switch in the position 1. The switch is moved from the position 1 to the position 2 at t≠ 0. Identify the current *i(t)* through R1 after switching.  Fig. 2	10	CO2	BT3	1.2.1,1.4.1,2.1.1,3,1,1

****

Scanned with CamScanner

PART-C	Q3	Construct a m-derived low-pass filter having cut-off frequency of 1 kHz, design impedance of 400 ohm, and the resonant frequency of 1100 Hz.	20	CO3	BT6	1.2.1,1. 4.1,2.1. 1,3,1,1
	Q4	Construct a T-section constant-K high-pass filter having cut-off frequency of 10 kHZ and design impedance Ro = 600 ohms. Find its characteristic impedance and attenuation constant at 25 kHz.	20	CO3	BT6	1.2.1,1. 4.1,2.1. 1,3,1,1
	Q5	Construct a k-type band-pass filter having a design impedance of 500 V and cut-off frequencies 1 kHz and 10 kHz.	20	CO3	BT6	1.2.1,1. 4.1,2.1. 1,3,1,1
PART-D	Q6(A)	Test whether the given polynomial is Hurwitz or not. $P(S) = S^4 + 2S^3 + 2S^2 + 6S + 10$	5	CO4	BT3	1.2.1, 2.2.2,2. 3.1,
	Q6(B)	Identify the driving Point Impedance and transfer function for two port network shown in Fig. 6  Fig 6	10	CO4	BT3	1.2.1, 2.2.2,2. 3.1,
	Q6(C)	Explain necessary condition for a function to be a driving point function.	5	CO4	BT2	1.2.1, 2.2.2,2 3.1,
	Q7	The driving-point impedance of an LC network is given by $Z(S) = (\frac{2S^5 + 12S^3 + 16S}{S^4 + 4S^2 + 3})$ Determine the first and second Cauer form of the network.	20	CO4	BT5	1.2.1,1. 4.1,2.1. 1,3.1,1
	Q8	Determine the first and second Foster form of the network whose driving-point function is given by $Z(S) = (\frac{4(S^2+1)(S^2+16)}{S(S^2+4)})$	20	CO4	BT5	1.2.1,1. 4.1,2.1. 1,3.1,1

********** END **********

****

MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF Electronics and Communication Engineering

"T3 Examination, Dec-2021"

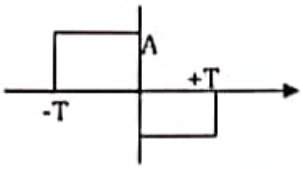
SEMESTER	**III**	**DATE OF EXAM**	**13/12/2021**
SUBJECT NAME	**Signals and Systems**	**CODE**	**ECH204B**
BRANCH	**ECE**	**SESSION**	**I**
TIME	**9:00 AM – 12:00 noon**	**MAX. MARKS**	**100**
PROGRAM	**B.Tech**	**CREDITS**	**4**
NAME OF FACULTY	**Lokesh Bhardwaj**	**NAME OF COURSE COORDINATOR**	**Lokesh Bhardwaj**

Note: *All questions are compulsory.*

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-	1(A)	Draw the following signal: $2rect(t/6T)$	2	CO1	BT3	1.1.1
	1(B)	What is the relevance of Fourier transform with modulation?	2	CO2	BT2	1.3.1
	1(C)	Explain how Laplace transform can converge with Fourier transform.	2	CO3	BT1	1.1.1
	1(D)	What is the Nyquist frequency for the following signal: $x(t) = 2cos^2(400t)$	2	CO3	BT1	1.1.1
	1(E)	What is the condition of stability in the Z-transform?	2	CO4	BT2	1.1.1
	1(F)	What are Time variant and Tine-Invariant systems? Give one example for each.	2	CO1	BT3	1.1.3
	1(G)	Prove that Phase spectrum is always an odd function of frequency.	2	CO2	BT2	2.1.1
	1(H)	Write an expression that shows a two sided sequence in discrete time.	2	CO4	BT1	1.1.3

Selected

****

	1(I)	What is the Fourier Transform of a continuous time periodic signal? Give one example.	2	CO2	BT5	3.1.1
	1(J)	Express the following signal is time domain: $X(S) = \frac{1}{s+1}, Re(s) < 1$	2	CO3	BT4	1.1.1.
PART-B	Q2(A)	(i). Using Fourier series expansion, find the frequency domain representation of a periodic pulse train. (ii). Convert the following time domain signal into a frequency domain signal.  	10	CO2	BT4	2.1.1.
	2(B)	(i) Evaluate the following integral using Fourier Transform : $x(t) = \int_{-\infty}^{+\infty} \text{ASinc}(2\text{Wt})dt$ (ii). For the following signals, determine the Fourier Transform. (a). $x(t) = \exp(-at^2/\sigma^2)$ (b). $x(t) = 3\text{rect}(t/T)$ (c). $x(t) = 2u(t)$	10	CO2	BT4, BT1, BT4	3.1.1
	Q3(A)	Obtain the Z-Transform of following signal: $x[n] = [1,2,\underset{\uparrow}{1},2,2]$ Find the ROC.	10	CO4	BT3	4.1.1.
	3(B)	The Z-Transform of a causal LTI system is given below: $H(z) = \frac{1-z^{-1}}{1+\frac{3}{4}z^{-1}}$ If the input given to the system is: $x[n] = \left(\frac{1}{3}\right)^n u[n] + u[-n-1]$, Determine the output $y[n]$.	10	CO4	BT4	2.1.1
	Q4(A)	For the following discrete time system given below: $x[n] = -\left(\frac{1}{2}\right)^n u[-n-1] + \left(\frac{1}{3}\right)^n u[n]$ Obtain the Z-Transform and draw the ROC.	10	CO4	BT4	3.1.1.

****

MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF ECE

"T3 Examination, December-2021"

SEMESTER	3rd	DATE OF EXAM	13-12-2021
SUBJECT NAME	DIGITAL ELECTRONICS	SUBJECT CODE	ECH 213 B-T
BRANCH	ECE	SESSION	1ST
TIME	9:00-12:00pm	MAX. MARKS	100
PROGRAM	B.TECH	CREDITS	4
NAME OF FACULTY	Mr.Shashank Kacker	NAME OF COURSE COORDINATOR	

Note: Part A & Part B: All questions are compulsory.

Part C & Part D:Attempt any two questions from each section.

			Marks
PART-A	1(A)	Design 2:4 decoder?	1
	1(B)	Design a full adder using 3:8 decoder?	1
	1(C)	Design 3:6 decoder using 1:2 & 2:4 decoder?	1
	1(D)	Design 3:6 decoder using only 2:4 decoder?	1
	1(E)	Design 3:8 using 2:4 decoder?	1
	1(F)	Design 4:16 using 3:8 decoder?	1
	1(G)	Implement the gates (AND, OR, NAND, NOR, XOR, XNOR) using Decoder?	1
	1(H)	Design a full adder using decoder	1
	1(I)	Design a 2:4 Decoder using basic gates and then design the 3:8 decoder using only 2:4 Decoders.	1
	1(J)	Design a 3:6 decoder using only 2:4 decoder and 1:2 decoder.	1
PART-B	Q2(A)	Convert one ff to another a) D → T, T → D, D → JK, JK → D, T → Jk	2.5
	2(B)	Design 4:1 mux using tristate buffer.	2.5
	Q3(A)	Design a circuit whose output Z goes high whenever its present input on the serial line toggles from the previous input. Give both Mealy and Moore state diagrams.	2.5
	3(B)	Design positive edge D flip-flop using tristate gate.	2.5
PART-C	Q4(A)	Design a 3-bit up-down counter. The counter will have an up/down i/p when i/p is 1. the counter will count up and if 0 it will count down.	10
	4(B)	Convert binary to decimal 1010101010	10

******

(HOD-ECE).

		1111111111 10101.1111 111000.11 1001100.01	
	Q5(A)	Convert octal to decimal b) 345 c) 165.12 d) 342.00 e) 2332 f) 5453.32	10
	5(B)	Convert decimal to binary g) 09 h) 43 i) 55.16 j) 100 k) 102	10
	Q6(A)	Convert decimal to octal l) 08 m) 90.66 n) 100.10 o) 121.67	10
	6(B)	Find 1's complement of following p) 1011.1111 q) 11110000 r) 10101010 s) 00000000	10
PART-D	Q7(A)	Find Dual of following: (a) Give the relationship that represents the dual of the Boolean property A + 1 = 1?	10
	7(B)	(b) Which of the following relationships represents the dual of the Boolean	10
	Q8(A)	Convert the following SOP expression to an equivalent POS expression. ABC + AB'C' + AB'C + ABC' + A'B'C	10
	8(B)	Prove that (A+B) (A+C) = A+BC	10
	Q9(A)	Prove that (((A^B) C) ^AB) = AB + (A^B) C?	10
	9(B)	For the SOP expression A'BC + AB'C + ABC', how many 1s are in the truth table's output column?	10

(HOD-ECE)

****

MANAV RACHNA UNIVERSITY

DEPARTMENT OF ELECTRONICS & COMMUNICATION

ODD SEMESTER (July-December-2021)

T3 QUESTION PAPER STRUCTURE (QPS)

FACULTY NAME: DR. MEENAKSHI GUPTA | NAME OF COURSE COORDINATOR: DR. MEENAKSHI GUPTA

COURSE NAME: Analog Electronics | COURSE CODE: ECH 203B | CREDIT: 5 | MAX. MARKS:100 | TIME DURATION:3 HRS | DATE OF EXAM: 2/12/21

PROGRAM:B.TECH ECE | SEMESTER: 3RD Session -I

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What are the types of distortion in amplifiers?	2	CO1	L2	2.1
	1(B)	Classify the amplifiers according to the method of coupling.	2	CO2	L3	2.3
	1(C)	What is cascode amplifier?	2	CO2	L1	3.2
	1(D)	State the Barkhausen criterion for oscillations.	2	CO1	L3	3.2
	1(E)	What are the requirements of a tuned amplifier?	2	CO1	L1	5.1, 8.1
	1(F)	Give the definition of power amplifier. Also list the types in it based on location of Q point.	2	CO1	L2	9.1
	1(G)	What is meant by positive and negative feedback?	2	CO2	L1	5.4
	1(H)	State the advantages and disadvantages of the source follower.	2	CO1	L2	7.2
	1(I)	What is meant by loaded and unloaded Q.	2	CO2	L3	6.2
	1(J)	Classify the various negative feedback amplifers.	2	CO2	L3	5.1
PART-B	Q2(A)	Discuss the MOSFET characteristics in depletion mode.	5	CO2	L3	5.1, 8.2
	2(B)	Discuss the low frequency response of BJT amplifier and the effect of coupling and bypass capacitors.	10	CO1	L4	9.1, 10.1
	Q3	Explain the different coupling schemes used in amplifiers.	5	CO3	L4	10.2, 8.1, 7.2
PART-C	Q4(A)	Draw the circuit diagram of class B push pull amplifier and explain its operation. Also prove that its conversion efficiency is 78.5%.	10	CO3	L2	9.2
	4(B)	Explain the principle of operation of the wein bridge oscillator.	5	CO4	L4	8.3
	Q5(A)	Show that the transformer coupled class A amplifier maximum efficiency is 50%.	5	CO3	L4	7.2, 6.1
	5(B)	Compare the push-pull class B and complementary symmetry class B amplifier.	5	CO4	L4	5.3
	Q6	Mention the features and advantages of the crystal oscillator.	5	CO4	L2	4.1
PART-D	Q7(A)	Compare the characteristics of ideal Op-Amps and practical Op-Amps.	5	CO3	L2	3.2
	7(B)	Give the typical values of above parameters for 741 IC and also draw the pin configuration of 741.	5	CO4	L2	2.2, 5.1, 8
	Q8(A)	Explain the working and design of a triangular wave generator circuit with necessary diagrams.	5	CO3	L2	3.4, 2.7.1
	8(B)	Discuss how lograthmic amplifier is realized with operational amplifier circuitry.	5	CO3	L4	3.2, 9.1, 10
	Q9(A)	What is the function of precision rectifier circuits? What is the significance of UTP and LTP in schmitt trigger circuits?	5	CO4	L4	4.1, 10.2, 11.1
	9(B)	What are the features of instrumentation amplifier? Derive the expression for output voltage of an instrumentation amplifier	5	CO3	L3	2.2, 5.1

Selected

MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF CST

"T3 Examination, Dec-2021"

SEMESTER	**3rd**	**DATE OF EXAM**	**9 Dec 2021**
SUBJECT NAME	**Data Structures &Algorithms**	**SUBJECT CODE**	**CSH103B- T**
BRANCH	**AIML/CDA/CSTI/ECE**	**SESSION**	**I**
TIME	**3 hrs**	**MAX. MARKS**	**100**
PROGRAM	**B tech**	**CREDITS**	**5**
NAME OF FACULTY	**Hanu Bhardwaj,Parneeta Dhaliwal, Meena Chaudhary**	**NAME OF COURSE COORDINATOR**	**Meena Chaudhary**

Hanu

***Note**: All questions are compulsory.*

Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
1(A)	Consider a two dimensional array A[20][10]. Assume 4 words per memory cell, the base address of array A is 100, elements are stored in row-major order and first element is A[0][0]. What is the address of A[11][5] ?	6	CO1	BT1	2.2.4
1(B)	Which data structure is used to store file in a system? Define a structure book which includes book name, total_no_pages and book_prize. Also declare a variable of book data structure.	1+3	CO1	BT2	2.4.1
Q2(A)	In an institution, stud _id of all the students is being stored using doubly linked list in ascending order. Write an algorithm for printing all stud_id in descending order.	5	CO2	BT2	2.4.1
Q2(B)	A circular linked list is being used to store the ids of the customer coming for shopping in a departmental store. Write an algorithm for adding id 25 at 6th position in circular linked list.	5	CO2	BT1	2.4.1
Q3	Convert the infix expression **2*3/(2-1)+5*3** into postfix expression using infix to postfix conversion algorithm. Also write the algorithm for converting infix expression to prefix expression.	5+5	CO3	BT3	2.3.2
Q4	Evaluate the following prefix and postfix expressions. i) * + 3 4 + 1 2	4*2.5	CO3	BT2	2.2.3

****

	ii) * 4 + 3 - 1 2 iii) 2 10 + 9 6 - / iv) 2 4 3 2 * + 5 - *				
Q5	Using a Circular Queue, trace the insert and delete functions to perform sequence of following operations and show the status of queue after every operation: **Insert 3, Insert 4, Insert 5, Insert 6, Delete, Delete, Delete, Delete, Insert 7, Insert 8, Delete, Delete, Insert 7, Delete, Insert 8, Insert 9, Delete**	10	CO3	BT3	2.4.1
Q6	Share your observations on advantage of implementing a queue in form of a circular array instead of a linear array. Also write the algorithm to insert elements in Circular Queue.	5+5	CO3	BT3	2.4.1
Q7	Construct a binary search tree for the following values: **19, 11 ,4 ,15, 17, 18, 8, 20, 32, 14, 60, 3** Once the tree is constructed, implement **Deletion of 14 and 8 values** respectively.	6+2+2	CO4	BT4	4.4.2
Q8	Insert the following values in AVL tree : **65, 2, 15, 26, 13, 100, 97, 85, 78** Clearly depict the status of AVL tree after insertion of new value.	10	CO4	BT4	4.4.2
Q9	Insert the following values in a 5-way B-tree: 3, 7, 9, 23, 45, 1, 5, 14, 25, 24, 13, 11, 8, 19, 4, 31, 35, 56	10	CO4	BT4,BT5	4.4.2
Q10	Represent a directed graph (diagrammatically) with : Vertices A, B, C, D, E ; Edges (A, B), (C, D), (C, A), (A,D), (B,E),(C,E),(A,E) Also show the above constructed graph's representation using Linked List.	5+5	CO4	BT4	2.4.2

********** **END** **********

****

MANAV RACHNA
Vidyantarikshaj

MANAV RACHNA UNIVERSITY
FORMERLY MANAV RACHNA COLLEGE OF ENGINEERING
NAAC ACCREDITED 'B' GRADE INSTITUTION
Declared as State Private University under section 2f of the UGC act, 1956

Name :
Roll No :
Class/Sec :

DEPARTMENT OF FOREIGN LANGUAGE

T3 Examination, December 2021"

Paper ID:.....

Semester: 3rd & 7th
Subject: Spanish - I
Time: 90 Minutes
Program: B.Tech / B.ed / Law / B.Sc / BBA
Invigilator Signature:

Date of Exam: 7/12/2021
Subject Code: FLS101
Max.Marks: 40 Session - I
Signature: HOD/Associate HOD:

Note: All questions are compulsory.

Ques. 1 **Escribe diez líneas sobre ti mismo, tu familia, tu clase etcétera usando nombre/ adjetivo/ nacionalidad/ profesión/ edad etcétera.** **(8)**
Write 10 sentences about yourself, your family, your class etc. using name/adjective/nationality / profession/ age/ etc..)

Ques. 2 Lee el texto y responde las preguntas. **(6)**
Read the text and respond to the questions.

¡Hola! ¡Buenas tardes! Me llamo Rahul, soy indio pero vivo en Francía con mis amigos. Yo tengo 34 años y soy profesor de matemáticas en la escuela Mi número de teléfono es 9393939. Tengo (I have) un amiga en Francía que se llama Eva. Ella es de China, es china, Eva tiene 20 años y es doctora. Tengo otros amigos que son jugadores, ingenieros y profesores. Nosotros vivimos en una casa muy grande. Gracias, ¡chao!

a. ¿Es Rahul de Francía? Verdadero o falso- _____
b. ¿Cuántos años tiene la amiga de Rahul?
_____
c. ¿Cuál es la profesión de Eva?
_____
d. ¿Dónde vive Eva?
_____
e. ¿Cuáles las profesiónes de otros amigos de Raúl?
_____
f. Escribe el contrario (opposite) de grande. _____.

Ques.3 Completa las frases con adjetivo posesivo. **(4)**
Complete the phrases with adjective possessive.

e.g. (Ellas)_____ coche es pequeño. Su coche es pequeño.

a. (Yo) _____ casa es nueva.
b. (Nosotros) _____ universidad es grande.
c. (Usted) _____ ordenador es pequeño.
d. (Ellas) _____ televisión es vieja.
e. (Vosotras) _____ hijas son intelligentes.
f. (Ustedes) _____ libros son interesantes.
g. (Él) _____ profesora de español es simpática.
h. (Tú) _____ perro es muy activo.

Ques. 4 Traduce (translate):- **(6)**

Escribe en inglés o español. Write in English or Spanish.

a. Este es mi hermano, es australiano.
_____.
b. Hay 4 ventanas en la clase.
_____.

c. Tengo clases de español los lunes, los miércoles y los domingos.

_____.

d. That book is blue and red.

_____.

e. Her cousin sister is a lawyer.

_____.

f. My father's car is black and grey

_____.

Ques. 5 Completa con la forma adecuada de los verbos. **(4)**

Complete with the appropriate form of AR, ER and IR ending verbs.

a. Ustedes _____(hablar) español.

b. Ella _____ (vivir) en España.

c. Vosotros _____ (leer) la conjugación.

d. Nosotros _____ (escribir) una carta.

e. Yo _____ (aprender) lingua extranjera.

f. Usted _____ (escuchar) canción.

g. Tú _____ (comer) hamburguesa.

h. Ellas _____(trabajar) en colegio.

Ques. 6 Escribe los números en español. **(4)**

Write numbers in Spanish.

a. 56-

b. 23-

c. 11

d. 100-

e. 57-

f. 93-

g. 16-

h. 44

Ques. 7 Relaciona los meses, días y estaciones a inglés.
Match months, days and seasons. **(4)**

a. Invierno	October
b. Octubre	January
c. Miercoles	Autumn
d. Jueves	Winter
e. Otoño	Wednesday
f. Domingo	Spring
g. Primavera	Thursday
h. Enero	Sunday

Ques. 8 Elige la opción correcta:
Choose the correct option **(4)**

a.	i. Un coche	ii. Una coche	iii. Uno coche	iv. Unas coches
b.	i. Unas casos	ii. Unas casas	iii. Unos cacos	iv. Uno casa
c.	i. El perra	ii. La perro	iii. El perro	iv. El perros
d.	i. Las silas	ii. Las cilas	iii. Las sillas	iv. Los sillas
e.	i. La ordenador	ii. Las ordenadores	iii. Lo ordenadore	iv. El ordenador
f.	i. Una planta	ii. Un planta	iii. Las planta	iv. Los plantes
g.	i. Un madre	ii. Una madre	iii. Los madres	iv. El madre
h.	i. Unos niños	ii. Unas niños	iii. Los niño	iv. Las niños

Buena Suerte

MANAV RACHNA
Vidyanatarikshe

MANAV RACHNA UNIVERSITY
FORMERLY MANAV RACHNA COLLEGE OF ENGINEERING
NAAC ACCREDITED 'B' GRADE INSTITUTION
Declared as State Private University under section 2f of the UGC act, 1956

DEPARTMENT OF FOREIGN LANGUAGES
T3 EXAMINATION, DECEMBER 2021
Paper ID:……

Semester: 3rd & 7th
Subject: German -I
Time: 90 Minutes
Program: All
Invigilator Signature:

Date of Exam: 07/12/2021
Subject Code: FLS102
Max.Marks: 40 Session-I
Signature: HOD/Associate HOD:

***Note**: All questions are compulsory.*

Roll number:_____ Name : _____

Class / Sec _____

I. Schreiben Sie das Datum auf Deutsch.
(Write the date in German.) **[5]**

a) 25.04 _____
b) 01.02 _____
c) 31.12 _____
d) 24.09 _____
e) 03.05 _____

II. Schreiben Sie richtig.
(Frame the correct sentences.) **[5]**

a) spielt - Er - gern - Tennis. _____
b) Ich - gehe - in das Theater - . _____
c) heißen - Sie - Maria – . _____
d) kommen - Woher - Sie - ? _____
e) spielen - Wir - jeden Tag - . _____

III. **Schreiben Sie 5 Sätze über Ihr Lieblingshobby.**
Write 5 sentences about your favourite hobby. **[5]**

_____.

_____.

_____.

_____.

_____.

IV. **Konjugieren Sie die Verben.**
Conjugate the verbs. **[5]**

a) Ben _____ ins Theater. (gehen, geht, gehe)

b) Karin _____ mit meinem Hund. (spielen, spielt, spiele)

c) _____ ihr um 8.00 Uhr nach Italien? (fliegen, fliegt, fliege)

d) Wir _____ sehr gut Deutsch. (sprechen, sprichst, spricht)

e) _____ Anna und Mark „Secret of Life''? (lesen, lest, lese)

f) _____ du Taj Mahal? (sehen, siehst, sehe)

g) _____ Sie bei Microsoft, Herr Meier? (arbeitet, arbeiten, arbeite)

h) Ich _____ in Tokyo. (wohnen, wohne, wohnt)

i) Meine Mutter _____ 50 Jahre alt. (ist, seid, bin)

j) Er _____ Martin. (heißt, heißen, heiße)

V. **Schreiben Sie den bestimmten Artikeln 'der', 'die' oder 'das'.**
Write the definite articles 'der', 'die' or 'das'. **[5]**

a) _____ Stift

b) _____ Sofa

c) _____ Stuhl

d) _____ Tasse

e) _____ Brille

f) _____ Computer

g) _____ Buch

h) _____ Kaffee

i) _____ Bett

j) _____ Ventilator

VI. Wie spät ist es? (Offizielle Zeit)
What time is it? (Write in the official format) **[5]**

a) 04.00 Uhr _____

b) 5.10 Uhr _____

c) 12.45 Uhr _____

d) 15.00 Uhr _____

e) 7.33 Uhr _____

VII. Übersetzen Sie ins Deutsch!
Translate the given sentences into German! **[5]**

a) I play football.

_____.

b) She is a teacher.

_____.

c) He drinks coffee.

_____.

d) I speak English.

_____.

e) We belong to Delhi.

_____.

VIII. Ergänzen Sie!
Translate the given words accordingly! **[5]**

Englisch	Deutsch
Italy	
	Spanien

Boxing	
Volleyball	
	Mittwoch
	Guten Tag
Winter	
	Herbst
January	
	Juli

Name : _____

Roll No : _____

Class/ Sec : _____

MANAV RACHNA (vidyaprakasha)

MANAV RACHNA UNIVERSITY

FORMERLY MANAV RACHNA COLLEGE OF ENGINEERING

NAAC ACCREDITED B GRADE INSTITUTION

Declared as State Private University under section 2f of the UGC act 1956

DEPARTMENT OF FOREIGN LANGUAGES

T3 EXAMINATION, December 2021

Paper ID:.....

Semester: 3rd & 7th
Subject: French - I
Time: 90 Minutes
Program: B.Tech / B.ed / Law / B.Sc / BBA
Invigilator Signature:

Date of Exam: 7/12/2021
Subject Code: FLS103
Max.Marks: 40 Session - I
Signature: HOD/Associate HOD:

Note: *All questions are compulsory.*

Section-A

(COMPRÉHENSION ÉCRITE)

I. Lisez le passage et répondez aux questions
(Read the passage and answer to the questions)

Aujourd'hui c'est le premier jour de l'école ! Les élèves de l'école sont contents. Voilà la petite Caroline dans le cours de français. Elle est anglaise. Elle a quatorze ans. Elle est très belle. Son(Her) amie de la classe c'est Martha, elle est belge et elle a treize ans. Elle est grande et aussi belle. Elle joue au badminton avec Caroline. Elles aiment beaucoup la France. Le garçon s'appelle Jean-Pierre. Il est français. Il a quinze ans. Il habite à Strasbourg en Alsace. Il est sympathique. Il donne des bonbons à Caroline et Martha. Il parle en anglais et en français avec elles. Les trois sont bons amis.

1. Dites vrai ou faux : **(3)**
(True or False)

a) Martha est japonaise. _____
b) Caroline a 14 ans. _____
c) Les filles jouent au tennis. _____
d) Martha donne les bonbons. _____
e) Caroline est jolie. _____
f) Jean-Pierre parle anglais et français avec les filles. _____

2. Répondez aux questions : **(2)**
(Answer to the questions)

a) Où habite Jean-Pierre ?

_____

b) Quel âge a Martha ?

_____

Section B
Expression Écrite

II. Présentez – vous (Present yourself) **(5)**

Ou (Or)

Décrivez votre ami(e) (Describe your friend)

_____

_____

_____

_____

_____

_____

Section - C
Grammaire

III. Complétez avec les articles définis **(2.5)**

(Complete with definite articles)

(le /la/l'/les)

a) Ce sont _____ stylos de Pierre.
b) C'est _____ pupitre de cette classe.
c) _____ garçon est bon.
d) _____ hôtel est beau.
e) _____ femme est belle.

IV. Complétez avec les articles indéfinis **(2.5)**

(Complete with indefinite articles)

(un/une/des)

a) C'est _____ crayon.
b) Ce sont _____ trousses.
c) C'est _____ cravate.
d) J'ai _____ pantalon.
e) Il a _____ livre.

V. Répondez aux questions : **(2)**
(Answer to the questions)

a) Quel est le sixième jour de la semaine?

_____

b) Quel est le mois entre septembre et décembre ?

_____

VI. Traduisez en français- **(5)**
(Translate in French)

a) Good evening! _____
b) She watches television. _____
c) Thank you very much! _____
d) See you tomorrow! _____
e) He lives in Paris. _____

VII. Complétez avec les verbes: **(6)**
(Complete with the verbs)

a) Vous _____ (aller) à Delhi.
b) Nous _____ (avoir) une maison.
c) Elle _____ (jouer) avec le chat.
d) Ils _____ (parler) français.
e) Tu _____ (chanter) bien.
f) Ce _____ (être) des gommes

VIII. Traduisez en francais:- **(5)**
(Translate in French)

a) It's beautiful! _____

b) It's sunny! _____

c) It's cold! _____

d) It's hot! _____

e) It snows! _____

IX. Quelle heure est-il ? **(2)**
(What time is it ?)

a) 8 : 25

_____

b) 5 : 45

_____

Section-D
Culture and Civilisation

X. Complétez les phrases : **(5)**
(Complete the sentences)

a) _____ est une ville française.
b) _____ est une fleuve française.
c) _____ est un fromage français.
d) _____ est une montagne française.
e) _____ est un vin français.

MANAV RACHNA
Vidyanatarikshal

MANAV RACHNA UNIVERSITY
FORMERLY MANAV RACHNA COLLEGE OF ENGINEERING
NAAC ACCREDITED B GRADE INSTITUTION
Declared as State Private University under section 2f of the UGC act, 1956

Career Development Centre
" End Semester Examination, Dec' -2021"

Roll No.....
Subject: ***PCE-I***
Subject Code:CD0-201
Time: 60 Minutes

Name:.....
Date of Exam: 10/12/2021
Branch: CST/ME/ECE
Max.Marks:30

Semester: 3
Session - I
Program: B- tech

23/11/21

Instructions*: All questions are compulsory. Each question carries multiple options. No negative marking. Calculator is not allowed. *Answers are to be filled in the answer table only. Answers written outside the answer table won't be considered.

Answer Table:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

Q1.A family consists of six members P, Q, R, X, Y and Z. Q is the son of R but R is not mother of Q. P and R are a married couple. Y is the brother of R. X is the daughter of P. Z is the brother of P. How many children does P have ?

A. 1 B. 2 C. 3 D. 4

Q2. A woman going with a boy is asked by another woman about their relationship between them. The woman replied, "My maternal Uncle and the uncle of his maternal uncle is the same". How is the lady related with that boy?

A. Grandmother and Grandson
B. Mother and Son
C. Aunt and Nephew
D. None of these

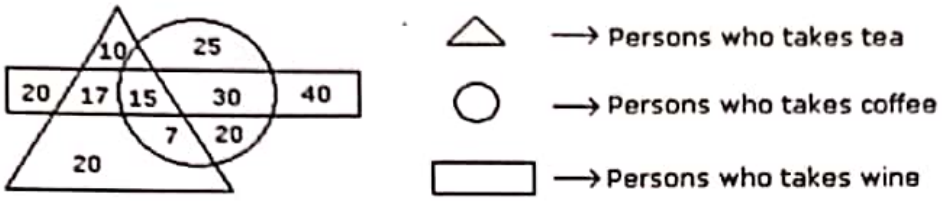
Q3 One morning after sunrise, Suresh was standing facing a pole. The shadow of the pole fell exactly to his right. To which direction was he facing?

A. East B. West C. South D. Data is inadequate

Q4 Ram is facing west. He took a right turn and walks 20 m. He then again turns right and walk for 10 m. From there he walks 10 m to north and then 10 m towards west. In which direction is he from original position?

A. North-East B. North-West C. South-East D. South-West

Directions (Q5 to Q9): Study the diagram given below and answer each of the following questions.



Q5. How many persons who take tea and wine but not coffee?

A. 20 B. 17 C. 25 D. 15

Q6. How many persons are there who take both tea and coffee but not wine?

A. 22 B. 17 C. 7 D. 20

Q7. How many persons take wine?

A. 100 B. 82 C. 92 D. 122

Q8. How many persons are there who takes only coffee?

A. 90 B. 45 C. 25 D. 20

Q9 How many persons take all the three?

A. 20 B. 17 C. 25 D. 15

DIRECTION Q10 TO Q14 Answer the questions on the basis of the information given below: K, L, M, N, P, Q, R, S, U and W are the only ten members in a department. There is a proposal to form a team from within the members of the department, subject to the following conditions:

A. A team must include exactly one among P, R, and S.
B. A team must include either M or Q, but not both.
C. if a team includes K, then it must also include L, and vice versa
D. If a team includes one among S, U, and W, then it must also include the other two.
E. L and N cannot be members of the same team.
F. L and U cannot be members of the same team.
The size of a team is defined as the number of members in the team.

Q10 Who cannot be a member of a team of size 3?

A. L B. M C. N D. P

Q11 Who can be a member of a team of size 5?

A. K B. L C. M D. P

Q12 What would be the size of the largest possible team?

A. 8 B. 7 C. 6 D. 5

Q13 What could be the size of a team that includes K?

A. 2 or 3 B. 2 or 4 C. 3 or 4 D. Only 4

Q14 In how many ways a team can be constituted so that the team includes N?

A. 3 B. 4 C. 5 D. 6

Direction Q15 to Q18 Study the following information carefully and answer the questions given below : Eight persons A, B, C, D, E, F, G and H are sitting around a rectangular table in such a way that two persons sit on each of the four sides of the table facing the centre. Persons sitting on opposite sides are exactly opposite to each other. D faces North and sits exactly opposite to H. E is to the immediate left of H. A and G sit on the same side. G is exactly opposite of B who is to the immediate right of C. A is next to the left of D.

Q15. Who is sitting opposite to A ?

A.G B. D C. E D. C

Q16 Who is next to E in clockwise direction ?

A. G B. B C. F D. A or F

Q17 Which of the following pairs of persons has both the persons sitting on the same side with first person sitting to the right of second person ?

DF B. CB C. EH D. AG

Q18 Which of the following statements is definitely true?

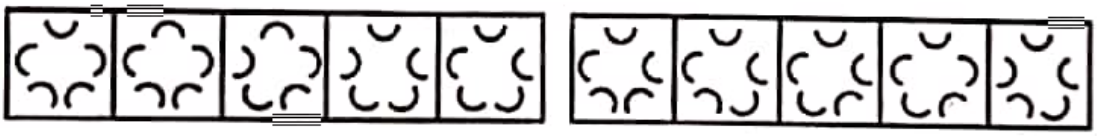
A is facing North

B. E is sitting opposite of F

C. F is to the left of G

D. C is to the left of A

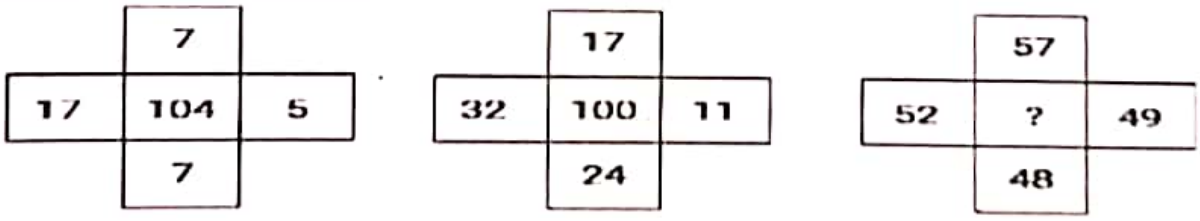
Q19 Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.



Problem Figures: Answer Figures:

A.1 B. 2 C. 3 D. 4

Q20 Insert the missing number



A.70 B.80 C. 90 D. 100

Q21 There is a row of boys in a stadium. If a boy A, who is 10th from the left and another boy B, who is 9th from the right interchange their positions, then A becomes 15th from the left. How many boys are there in the row?

A.63 B.24 C.23 D.22

Q22 Sanjeev ranks seventh from the top and twenty eight from the bottom in a class. How many students are there in the class ?

A.37 B.36 C.35 D.34

Q23 Find the missing number in the following series?

1, 2, 3, 10, ?, 9802

A.99 B. 199 C.299 D.999

Q24 Find the next number in the given sequence?

11, 17, 39, 85, ?

A.133 B.143 C.153 D.163

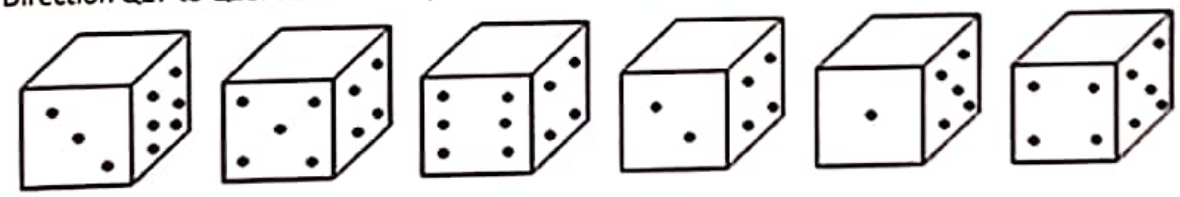
Q25 In a certain code language,
'134' means 'good and tasty';
'478' means 'see good pictures' and
'729' means 'pictures are faint'.
Which of the following digits stands for 'see'?

A.9 B.2 C.1 D. 8

Q26 In a certain code 'SEQUENCE' is coded as 'FDOFVRFT. How is 'CHILDREN' coded in that code?

A.OFESJMID B. OFSEMJID C. OFSEJIMD D. OFSEJMID

Direction Q27 to Q28. Six different positions of dice are given below:



(I) (II) (III) (IV) (V) (VI)

The sum of the numbers of dots on the opposite face is 7.

Q27 If an even numbered dice has an odd number of dots on their top faces, and then find the total number of dots on the top faces of their dice?

A.22 B.3 C. 10 D. 24

Q28 If an odd numbered dice have an odd number of dots on their top faces, then find the total number of dots on top faces of their dice is?

A.11 B. 12 C.13 D. 14.

Direction Q 29 to Q30. The following questions are based on the information given below:
All the opposite faces of a big cube are coloured with red, black and green colours. After that is cut into 64 small equal cubes.

Q29 How many small cubes are there where one face is green and other one is either black or red ?

A.28 B.8 C. 16 D. 24

Q30 How many small cubes are there whose at the most two faces are coloured ?

A. 48 B.56 C. 28 D. 24

MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF ELECTRONICS & COMMUNICATION

"T3 Examination, December-2021"

SEMESTER	**V**	**DATE OF EXAM**	**04/12/2021**
SUBJECT NAME	**DIGITAL ELECTRONICS & MICROCONTROLLERS**	**SUBJECT CODE**	**ECH308B-T**
BRANCH	**B.Tech CSE/DSML/DTE**	**SESSION**	**II**
TIME	**3 Hours**	**MAX. MARKS**	**100**
PROGRAM	**B.Tech.**	**CREDITS**	**4**
NAME OF FACULTY	**Vijay Kumar Gill**	**NAME OF COURSE COORDINATOR**	**Vijay Kumar Gill**

Note: All questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Convert $(9B2.1A)_H$ to its decimal equivalent.	2	CO1, CO2	BT3	1.1.1, 1.3.1
	1(B)	Perform BCD addition of (125) and (376).	2	CO1, CO2	BT3	1.1.1, 1.3.1
	1(C)	Prove that $(x_1 + x_2)(\overline{x_1}\ \overline{x_3} + x_3)(\overline{\overline{x_2} + x_1 x_3}) = (\overline{x_1}\, x_2)$	2	CO1, CO2	BT3	1.1.1, 1.3.1
	1(D)	Minimize the Boolean expression using K-map for SOP function. F(A,B,C,D,E)=∑m(0,1,9,15,24,29,30)+d(8,11,31)	4	CO1, CO2	BT4	1.1.1, 1.3.1
PART-B	2(A)	Design a combinational logic circuit whose output is high only when majority of inputs (A, B, C) are high?	3	CO1, CO2	BT3	1.1.1, 1.3.1
	2(B)	Convert a JK Flip Flop to SR Flip Flop using characteristic and excitation table.	7	CO3	BT3	1.1.1, 1.3.1
PART-C	Q3(A	Design and explain 3 bit R-2 R ladder type Digital to Analog Convertor and calculate the output voltage for a 6 bit ladder DAC if a digital input of 101001 is applied. ($V_{MAX} = 10\ Volts$)	10	CO3	BT4	1.1.1, 1.3.1
	Q3(B)	Design and Explain the working of a 3- Bit Bidirectional Register using the JK Flip Flop	10	CO3	BT4	1.1.1, 1.3.1

****

Scheded

	Q4(A)	Design MOD 7 synchronous counter using JK Flip Flop and implement it. Also construct a timing diagram.	10	CO3	BT4	1.1.1, 1.3.1
	Q4(B)	Design and explain the working of 4 Bit Ripple UP counter with the help of waveform diagram	10	CO3	BT3	1.1.1, 1.3.1
PART-D	Q5(A)	Describe the architecture of 8051 microcontroller with the help of neat diagram.	8	CO4	BT2	1.1.1, 1.3.1
	Q5(B)	Write an assembly language program of 8051 microcontroller to find the sum of 10 numbers stored in an array. Draw the flow chart to specify the steps of the design flow.	7	CO4	BT3	1.1.1, 1.3.1
	Q6(A)	Explain the following instructions giving proper format and example of each i) DAA ii) SWAP iii) CALL & RET iv) PUSH & POP	8	CO4	BT2	1.1.1, 1.3.1
	Q6(B)	What value do we need to load the timer's register if we want to have a time delay of 5 milliseconds? Show the program for timer 0 to create pulse width of 5 milliseconds on P2.3. (Assume that XTAL = 11.0592 MHz)	7	CO4	BT3	1.1.1, 1.3.1
	Q7(A)	Write an assembly language program for the 8051 to transfer "ABCD" serially at 9600 baud, 8-bit data, 1 stop bit, do this continuously.	5	CO4	BT3	1.1.1, 1.3.1
	Q7(B)	Define and explain the addressing modes of 8051 microcontroller.	5	CO4	BT2	1.1.1, 1.3.1

********** **END** **********

MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF ECE

"T3 Examination, December-2021"

SEMESTER	V	DATE OF EXAM	2/12/2021
SUBJECT NAME	Internet of Things	SUBJECT CODE	ECH 305 B-T
BRANCH	ECE/ME	SESSION	II
TIME	1.5 hours	MAX. MARKS	50
PROGRAM	B.Tech	CREDITS	2
NAME OF FACULTY	Dr. K.Deepa	NAME OF COURSE COORDINATOR	Dr. K. Deepa

Note: : All questions are compulsory

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1	Discuss in detail about IoT Networking considerations and challenges	5	CO1	BT2	P 1.4.1
PART-B	Q2	Infer how Message Queuing Telemetry Transport protocol is utilized to connect IoT devices	5	CO2	BT4	P 1.4.1
PART-C	Q3	Demonstrate about the components details of Arduino UNO Board	7	CO3	BT3	P 4.2.1, P 5.3.1
	Q4	What are the basic components of a microcontroller and how do you choose the right microcontroller for any dedicated application	8	CO3	BT3	P 4.2.1, P 5.3.1
	Q5	What are the different steps in IoT Design Methodology	5	CO3	BT2	P 2.1.1
PART-D	Q5	Categorize the different data types generated by sensors and also explain what type of analysis can be done related to it.	10	CO4	BT4	P 2.1.1
	Q6	Design a IoT based **Smart Building Infrastructure.** To design it what are the different types of sensors can be implemented and discuss the protocols through which communication can be established with the centralised server.	10	CO4	BT5	P 2.1.1

********** END **********

Selected

****

MANAV RACHNA UNIVERSITY

DEPARTMENT OF ELECTRONICS & COMMUNICATION

ODD SEMESTER (July-December-2021)

T3 QUESTION PAPER STRUCTURE (QPS)

FACULTY NAME: DR. MEENAKSHI GUPTA			NAME OF COURSE COORDINATOR: DR. MEENAKSHI GUPTA		
COURSE NAME: CAO	COURSE CODE: ECH 303B	CREDIT:	MAX. MARKS: 100	TIME DURATION: 3 HRS	DATE OF EXAM: 4/12/21
PROGRAM: B.TECH ECE	ECH 303B-T	SEMESTER: 5TH	Session - II		

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Define computer architecture.	2	CO1	L2	2.1
	1(B)	Differentiate between fixed and variable length with example.	2	CO2	L3	2.3
	1(C)	Differentiate between direct and indirect addressing.	2	CO2	L1	3.2
	1(D)	Differentiate between interrupt and trap.	2	CO1	L3	3.2
	1(E)	What is parallel processing?	2	CO1	L1	5.1, 8.1
	1(F)	Differentiate between static and dynamic memory.	2	CO1	L2	9.1
	1(G)	What is hybrid instruction?	2	CO2	L1	5.4
	1(H)	What is the role of control memory in computer organization?	2	CO1	L2	7.2
	1(I)	What is the difference in multiplexer and decoder?	2	CO2	L3	6.2
	1(J)	Draw a 4*1 decoder with the help of AND gates.	2	CO2	L3	5.1
PART-B	Q2(A)	Design a combinational circuit with three inputs x,y ,z and three outputs A, B, C. When the binary input 1, 2, 3 the binary output one is greater than the input when the binary output is 4,5, 6, 7 the binary output one less than the input.	10	CO2	L3	5.1, 8.2
	2(B)	Define Decoder and design 3*8 decoder using gates.	10	CO1	L4	9.1, 10.1
PART-C	Q3(A)	Discuss flynn's classification.	10	CO3	L4	10.2, 8.1, 7.2
	3(B)	Describe the charateristics of RISC computers.	10	CO3	L2	9.2
	Q4(A)	Explain any five airthmetic micro instructions.	5	CO4	L4	8.3
	4(B)	Explain adderessing modes in detail.	5	CO3	L4	7.2, 6.1
PART-D	Q5(A)	Explain RISC AND CISC with their advantages and criticisms	5	CO4	L4	5.3
	5(B)	Describe the concept of data stream and instruction stream.	5	CO4	L2	4.1
	Q6(A)	Explain ISA and why we call it is a link between the hardware and software components.	10	CO3	L2	3.2
	6(B)	Write the difference between MIPS and MFLOPS.	10	CO3	L2	2.1
	Q7(A)	Explain set associative mapping.	5	CO4	L3	1.1, 4.2
	7(B)	What do you mean by control memory? How is it different from simple memory.	5	CO4	L4	5.2

Scanned with CamScanner

MANAV RACHNA

MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF ECE

"T3 Examination, December-2021"

SET-1

SEMESTER	5TH	DATE OF EXAM	06/12/2021
SUBJECT NAME	Microprocessor & Microcontrollers	SUBJECT CODE	ECH301B-T
BRANCH	ECE	SESSION	II
TIME	1:00pm-4:00pm	MAX. MARKS	100
PROGRAM	B.Tech.	CREDITS	4
NAME OF FACULTY	Dr. Nitika	NAME OF COURSE COORDINATOR	Dr. Nitika

Note: All questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	Q1	Develop an algorithm and write ALP to find the square of any number stored in memory location 5070H and store the result at 5075H. OR Develop an algorithm and write ALP to arrange an array of data in ascending order.	10	CO1, CO2	L3	3.1.1, 1.3.1
PART-B	Q2 (A)	Calculate the time required to execute the following program, if the crystal frequency is 4Mhz. PUSH PSW MOV A, A PUSH B MVI B, 49 L1: NOP DCR B JNZ L1 POP B NOP POP PSW RET	5	CO3	L4	1.3.1, 1.3.2, 2.1.1, 2.1.2, 2.1.3, 2.3.1, 2.4.3, 12.2.1
	Q2 (B)	Connect the following Memory ICs with microprocessor 8085:	5	CO3	L4	1.3.1, 1.3.2, 2.1.1, 2.1.2,

****

Scheduled

		I. Four ICs of 2K ×4 ROM II. Four ICs of 4K ×4 RAM One ICs of 2K ×8 EPROM				2.1.3, 2.3.1, 2.4.3, 12.2.1
PART-C	Q3(A)	Develop an algorithm and write ALP using 8086 instructions to reverse a four-digit number.	10	CO4	L4	3.1.1, 3.2.1, 4.1.2
	3(B)	Discuss the following instructions with examples: i) CMP ii) LOOP iii) TEST vi) IMUL	10	CO1, CO2	L2	1.3.1
	Q5(A)	Identify the addressing modes of the following instructions and explain them briefly: i) MOV WORD PTR [SI], 20H ii) MOV ES: [1000H], 10H iii) MOV CX, NUM [BX + DI]	5	CO1, CO2	L2	1.3.1
	Q5(B)	Sketch the internal architecture of the 8086MP. OR Discuss the functions of segment registers of 8086 with examples.	5	CO1, CO2	L2	1.3.1
	Q6	Discuss the Maximum mode of Configuration in 8086 Microprocessor with suitable diagram.	10	CO1, CO2	L2	1.3.1
PART-D	Q7(A)	Explain TCON and TMOD SFR for 8051 Microcontroller.	10	CO1, CO5	L2	1.4.1, 4.1.2
	7(B)	Sketch the architecture of 8051 microcontroller and discuss the same in detail	10	CO1, CO5	L2	1.4.1, 4.1.2
	Q8(A)	Write 8051 ALP to read data from port I when negative edge triggered at INT0 and supply the data to port 2 by masking the upper 4 bits.	20	CO1, CO5	L4	3.2.1, 4.1.2, 14.1.1

********** **END** **********

****

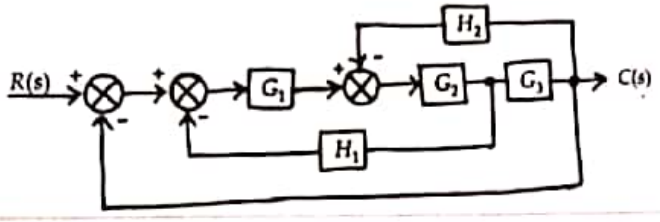
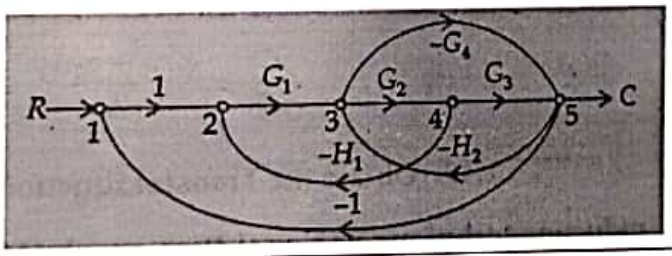
MANAV RACHNA UNIVERSITY

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ODD SEMESTER (JULY-DEC-2021)

T3 EXAM

FACULTY NAME: DR. NIHARIKA THAKUR			NAME OF COURSE COORDINATOR: DR. NIHARIKA THAKUR		
COURSE NAME: CONTROL SYSTEMS	COURSE CODE: ECH304B-T	CREDIT: 4	MAX. MARKS: 100	TIME DURATION: 3 HRS	DATE OF EXAM: 10.12.2021
PROGRAM: B.TECH ECE		SEMESTER: 5TH			SESSION-II

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Determine the transfer function C(s)/R(s) from the given block diagram 	5	CO1	BT3	1.3.1,1.4.1, 5.2.2
	1(B)	From the given signal flow graph find the transfer function implementing Mason's Gain Formula 	5	CO1	BT3	1.3.1,1.4.1, 2.3.1, 5.2.2
PART-B	Q2	Plot the root locii for the given closed loop control system with $G(s) = \frac{K}{s(s+1)(s^2+4s+5)}$, $H(s) = 1$	10	CO2	BT4	1.3.1,1.4.1, 2.3.1, 5.2.2
PART-C	Q3(A)	What is the significance of Frequency Domain Analysis? What is Bode Plot?	10	CO3	BT2	1.3.1,1.4.1, 5.2.2
	3(B)	Sketch the polar plot for $G(s) = \frac{20}{s(s+1)(s+2)}$	10	CO3	BT4	1.3.1,1.4.1, 5.2.2
	Q4	Draw the bode plot for the transfer function and determine its GM and PM from the plot. $G(s) = \frac{50}{s(1+0.25s)(1+0.1s)}$	20	CO3	BT4	1.3.1,1.4.1, 5.2.2
PART-D	Q5(A)	How does the steady state error increases by using the derivative feedback control?	10	CO4	BT2	1.3.1,1.4.1, 5.2.2
	5(B)	What are the important elements of an Industrial Automatic Controller? Explain.	10	CO4	BT1	1.3.1,1.4.1, 5.2.2
	Q6	Compute the STM for the given system and also test the system for its Controllability and Observability $\dot{x}(t) = \begin{bmatrix} -1 & 1 \\ 0 & -2 \end{bmatrix} x(t) + \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 1 \end{bmatrix} u(t)$ $y(t) = \begin{bmatrix} 1 & 2 \\ 1 & 0 \\ 1 & 1 \end{bmatrix} x(t)$	20	CO4	BT4	1.3.1,1.4.1, 5.2.2

******************** END ********************

Scheded

MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

"T3 Examination, Dec-2021"

SEMESTER	V	DATE OF EXAM	13/12/2021
SUBJECT NAME	DIGITAL SIGNAL PROCESSING	SUBJECT CODE	ECH302B-T
BRANCH	ECE	SESSION	II
TIME	1:00pm- 4:00pm	MAX. MARKS	100 marks
PROGRAM	B.Tech ECM	CREDITS	4
NAME OF FACULTY	Dr. Charu Pathak	NAME OF COURSE COORDINATOR	Dr. Charu Pathak

.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	Q1	Explain the types of operations applicable to a signal with mathematical expressions.	10	CO1	BT2	
PART-B	Q2	What is Gibbs Phenomenon? What are the characteristics which categorize a window function?	10	CO2	BT3, BT4	
PART-C	Q3(A)	Using a rectangular window, design a low pass filter with passband gain of unity, cut-off frequency of 1kHz and working at a sampling frequency of 5kHz. The length of the impulse response should be 7.	10	CO3	BT6	
	3(B)	Give the expression for DFT of a signal. Discuss DIT- FFT . What is the significance of FFT	10	CO3	BT4	
	Q4(A)	Define Z-transforms and inverse Z-Transforms. Explain ROC and its significance.	10	CO3	BT1	
	4(B)	Convert the following analog filter into a digital filter where system function is $H(s) = \frac{1}{(s+2)^3}$. Use impulse invariant mapping method	10	CO3	BT3	
	Q5(A)	Derive DFT of the sample data sequence x (n) = {1, 1, 2, 2, 3, and 3} and compute the	10	CO4	BT5	

****

Scleted

	corresponding amplitude and phase spectrum.				
5(B)	Given x (n) = {1, 2, 3, 4, 4, 3, 2, 1}. Find X (k) using DIT-FFT algorithm.	10	CO4	BT4	
Q6(A)	Define power spectrum and explain why it is required. Also discuss the relationship between autocorrelation and spectral density.	10	CO4	BT3	
6(B)	Define Discrete cosine transforms. Explain its application with an example	10	CO4	BT4	

********** **END** **********

****

MANAV RACHNA UNIVERSITY

DEPARTMENT OF Electronics & Communication

ODD SEMESTER (July-December-2021)

T3 QUESTION PAPER STRUCTURE (QPS)

FACULTY NAME: Dr. Meenakshi Gupta | NAME OF COURSE COORDINATOR: Dr. Meenakshi Gupta

COURSE NAME: VLSI Testing | COURSE CODE: ECH-411B | CREDIT: 4 | MAX. MARKS: 100 | TIME DURATION: 3 hrs | DATE OF EXAM: 6/12/21

PROGRAM: B.Tech ECE | SEMESTER: 7th Session - I

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	State the two basic differences between combinational and sequential circuits.	2	CO1	L2	2.1
	1(B)	What are the two basic steps in Test Generation using Path Sensitization method?	2	CO2	L3	2.3
	1(C)	Give the expressions to compute the controllability and observability values for a T flip flop with a synchronous clear input.	2	CO2	L1	3.2
	1(D)	What do you mean by BIST?	2	CO1	L3	3.2
	1(E)	Give the name of two algorithms that is used for pattern generation in Embedded RAM's.	2	CO1	L1	5.1, 8.1
	1(F)	State the need for Ad-hoc design in testing a digital circuit.	2	CO1	L2	9.1
	1(G)	What do you mean by Pseudo Exhaustive test?	2	CO2	L1	5.4
	1(H)	Draw the functional diagram of the TAP.	2	CO1	L2	7.2
	1(I)	What are the components in fault diagnosis?	2	CO2	L3	6.2
	1(J)	What do you mean by dynamic diagnosis?	2	CO2	L3	5.1
PART-B	Q2(A)	(i) Write a note on the event driven simulation and what action an event driven true value simulator will take when it evaluates a zero-delay gate. (ii) Using functional fault modeling, determine the test sets for the following: 1. A 8-line to 1-line multiplexer 2. A 3 to 8 decoder	10	CO2	L3	5.1, 8.2
	2(B)	For a 2-input CMOS NAND circuit: (i) Find a two-pattern test for each single transistor stuck-open fault. (ii) Rearrange the eight vectors in a compact set, and show that this set can be constructed from the single stuck-at faults tests for the NAND gate. For each stuck- at fault of the NAND gate, find an equivalent transistor (stuck-open, stuck-short and combination) fault.	10	CO1	L4	9.1, 10.1
PART-C	Q3(A)	Explain in detail about LSSD with example and justify how it is specifically used to scan paths in sensitive latches.	5	CO3	L4	10.2, 8.1, 7.2
	3(B)	Discuss in detail about various DFT approaches used in testing a digital circuit.	5	CO3	L2	9.2
	Q4(A)	Explain in detail how an LFSR can be used as a pseudo random pattern generator. If N=15 patterns are produced by an LFSR, and 2 of those patterns detect a given fault, say e stuck at 0, what is the average test length T to detect a e-stuck - at – 0?	5	CO4	L4	8.3
	4(B)	With neat block diagram explain BIST architecture in detail.	5	CO3	L4	7.2, 6.1
	Q5(A)	Explain in detail about the methods adopted for fault diagnosis in combinational circuits.	5	CO4	L4	5.3
	5(B)	Discuss in detail how self-checking method is adopted to test a circuit to diagnosis a fault.	5	CO4	L2	4.1
PART-D	Q6(A)	Explain with circuit diagram, how double latch and single latch LSSD techniques to improve testability.	10	CO3	L2	3.2
	6(B)	Give comparision between testing and verification.	4	CO3	L2	2.1
	Q7(A)	Draw the life cycle of VLSI testing and discuss in detail.	6	CO4	L3	1.1, 4.2
	7(B)	Explain transistor faults in detail.	10	CO4	L4	5.2

Scheded

MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF ECE

"T3 Examination, DEC.-2021"

SET-2

SEMESTER	VII	DATE OF EXAM	03/12/2021
SUBJECT NAME	ASIC DESIGN & FPGA	SUBJECT CODE	ECH406B-T
BRANCH	ECE	SESSION	I
TIME	09:00am-12:00noon	MAX. MARKS	100
PROGRAM	B.TECH	CREDITS	4
NAME OF FACULTY	DR. NITIKA	NAME OF COURSE COORDINATOR	DR. NITIKA

***Note:** All questions are compulsory.*

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	Q1	Demonstrate the drain current equation? OR With neat sketch explain CMOS inverter along with stick diagram.	10	CO1	L2	1.2.1, 1.3.1, 1.4.1, 3.4.2, 4.1.1, 4.3.2
PART-B	Q2	Demonstrate the different I/O requirements. OR Design a 1:4 DE-MUX in Verilog HDL.	10	CO2	L3	1.2.1, 1.3.1, 1.4.1
PART-C	Q3(A)	Discuss in detail about "PREP Bench marks".	10	CO3	L3	1.2.1, 1.3.1, 1.4.1, 3.4.2, 4.1.1, 4.3.2
	3(B)	Explain the ASIC design flow with a neat diagram.	10	CO3	L3	1.2.1, 1.3.1, 1.4.1, 3.4.2, 4.1.1, 4.3.2

****

Scanned with CamScanner

	Q4(A)	Explain the configuration for Altera MAX 7000 with its internal block diagram	15	CO3	L4	1.2.1, 1.3.1, 1.4.1, 3.4.2, 4.1.1, 4.3.2
	4(B)	Discuss half gate ASIC design along with advantages and disadvantages.	5	CO3	L4	1.2.1, 1.3.1, 1.4.1, 3.4.2, 4.1.1, 4.3.2
PART-D	Q5(A)	Differentiate Detailed Routing and Global Routing in detail.	10	CO4	L3	1.2.1, 1.3.1, 1.4.1, 3.4.2, 4.1.1, 4.3.2
	Q5(B)	Brief about iterative placement improvement and timing driven placement method.	10	CO4	L4	1.2.1, 1.3.1, 1.4.1
	Q6	Design 3-bit counter using VHDL and Verilog HDL.	10	CO4	L4	1.2.1, 1.3.1, 1.4.1
	Q7	Briefly explain placement using Simulated Annealing.	10	CO4	L4	1.2.1, 1.3.1, 1.4.1

********** **END** **********

****

MANAV RACHNA UNIVERSITY

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

EVEN SEMESTER (JULY-DEC 2021)

T3 QUESTION PAPER STRUCTURE (QPS)

FACULTY NAME:Dr.SHRUTI VASHIST | NAME OF COURSE COORDINATOR:Dr.SHRUTI VASHIST

COURSE NAME:WIRELESS SENSOR NETWORK | COURSE CODE:ECH403B-T | CREDIT:5 | MAX. MARKS:100 | TIME DURATION:3HRS | Session - I

PROGRAM:B.TECH-CST | SEMESTER:7TH | DATE OF EXAM:8.12.21

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Distinguish between adhoc and infrastructure based network	2	CO1	L3	1.2.1.,1.3.1, 1.4.1
	1(B)	List few examples of WSN	2	CO1	L4	1.2.1,1.3.1, 1.4.1
	1(C)	Compare active and passsive sensor node	2	CO1	L2	1.2.1,1.3.1, 1.4.1,2.1.1
	1(D)	Define i.Sensor ii.Actuator	2	CO1	L1	1.2.1,1.3.1, 1.4.1,3.2.1,3.4.2
	1(E)	Illustrate few challenges or constraints of WSN	2	CO1,CO2	L2	1.2.1.,1.3.1, 1.4.1,3.4.2,4.1.1, 4.3.2
PART-B	Q2(A)	Describe how sensor nodes are organized in layered ne	5	CO2,CO6	L3	1.2.1.,1.3.1, 1.4.1,3.4.2,4.1.1, 4.3.2
	Q2(B)	Enumerate and briefly explain the functional aspects of operating sytem in WSN	5	CO2,CO3	L4	1.2.1.,1.3.1, 1.4.1,4.1.3
PART-C	Q3(A)	Discuss why dynamic power management is a crucial concern in wireless sensor networks OR List and explain briefly few applications of WSN	10	CO4,CO2	L6	1.2.1.,1.3.1, 1.4.1,3.2.2
	Q3(B)	Analyse the local power management aspects and explain briefly different subsystems of the node	10	CO4	L4	1.2.1.,1.3.1, 1.4.1
	Q3(C)	Discuss various challenges for time synchonization	10	CO4,CO6	L6	3.1.1,1.3.1
	Q3(D)	Give Examples for accidental causes of power consumption in wireless sensor networks. Justify ,how can a local power management strategy achieve an efficient power consumption in a wireless sensor node?	10	CO5	L2,L5	4.1.2,1.4.1
PART-D	Q4(A)	Define localization in WSN & Describe various techniques used for localization	10	CO5	L1,L4	3.2.1,4.1.2,12.2.1
	Q4(B)	Describe various issues in designing a routing protocol for adhoc wireless network.Compare Proactive and Reactive protocols	10	CO5	L4,L5	3.2.1,4.1.2
	Q4(C)	Discuss any two briefly i.Destination sequence distance vector ii.Adhoc on demand distance vector routing	20	CO5	L6	3.2.1,4.1.2,4.2.2

.....(END).....

Selected