Bharatiya Vidya Bhavan's

SARDAR PATEL COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute)

Munshi Nagar, Andheri (W) Mumbai – 400058

End Semester-Examination - June 2024

7/6/24

Program: S.Y.B.Tech (Electrical)

Duration: 3 Hours

Course Code: BS-BTE401

Maximum Points: 100

Course Name: Transforms, Statistics and Probability

Semester: IV

Note:

1. Attempt Any Five Questions
2. Answers to the sub questions should be grouped together

		Questions	Points	CO	BL	Module
1	a	Out of 800 families with 4 children each, how many families would be expected to have (i) 2 boys and 2 girls (ii) at least one girl (iii) at most two boys? Assume equal probability for boys and girls.	6	CO3	BL5	4
	b	The equations of the lines of regression are $3x+2y=26$ and $6x+y=31$ Find $\bar{x}, \bar{y}$ and r. Also, find the variance of y if the variance of x is 25.	6	CO3	BL5	3
	c	Prove that $e^{-x}\cos x = \dfrac{2}{\pi}\int_0^\infty \dfrac{\left(\lambda^2+2\right)\cos\lambda x}{\lambda^4+4}d\lambda$	8	CO2	BL3	2
2	a	The mean height and the S.D of the height of eight randomly chosen soldiers are 166.9 cm and 8.29 cm respectively. The corresponding values of six randomly chosen sailors are 170.3 cm and 8.50 cm respectively. Based on this data, can we conclude that soldiers are, in general, shorter than sailors?	6	CO4	BL5	7
	b	Express the function $f(x)=\begin{cases}1, & \|x\|<1 \\ 0, & \|x\|>1\end{cases}$ as a Fourier Integral. Hence Evaluate $\int_0^\infty \dfrac{\sin\lambda\cdot\cos\lambda x}{\lambda}d\lambda$	6	CO2	BL2	2
	c	Given the following information about the marks of 60 students	8	CO3	BL3	3

	Mathematics	Physics
Mean	80	50
Standard Deviation	15	10

		Correlation coefficient = 0.4 Estimate (i) The marks of a student in mathematics who scored 60 in physics (ii) The marks of a student in physics who scored 70 in mathematics.				
3	a	An automatic machine makes paper clip from coils of wire. On an average 1 in 400 clips is defective. If the paperclips are packed in boxes of 100, what is the probability that any given box of clips will contain (i) no defective (ii) one or more defective (iii) less than two defective clips?	6	CO3	BL4	4
	b	A potential buyer of light bulbs bought 50 bulbs each of 2 brands. Upon testing the bulbs, he found that brand A had a mean life of 1282 hours with S.D of 80 hours, brand B had a mean life of 1208 hours with S.D of 94 hours. Can the buyer be quite certain that the mean of the two brands differ?	6	CO4	BL5	5
	c	In the usual notation, prove the Spearman's formula for Rank correlation $R = 1 - \dfrac{6}{n(n^2-1)}\sum_{i=1}^{n} d_i^2$, where $d_i = x_i - y_i$	8	CO3	BL5	3
4	a	Obtain Complex Form of Fourier series for the function $f(x) = \cosh ax, \quad x \in (-L, L)$	6	CO1	BL5	1
	b	An aptitude test for selecting officers in a bank is conducted on 1000 candidates. The average score is 42 and standard deviation of score is 24. Assuming normal distribution for the scores, find (i) The numbers of candidates whose scores exceed 60. (ii) The numbers of candidates whose score lie between 30 and 60.	6	CO3	BL3	4

	c	Find constant k such that the function $$f(x) = \begin{cases} k(1-x^2), & \text{if } 0 \le x \le 1 \\ 0 & \text{elsewhere} \end{cases}$$ is a density function. Also find $P(0.1 \le X \le 0.2)$ and $P(X \ge 0.5)$.	8	CO3	BL3	3
5	a	Certain pesticide is packed into bags by a machine. A random sample of 10 bags is drawn and their contents are found to weigh (in kg) as follows 50, 49, 52, 44, 45, 48, 46, 45, 49, 45 Test if average packing can be taken to be 50 kg at 5% LOS.	6	CO4	BL4,5	7
	b	Find Fourier Transform of $f(x) = \begin{cases} x^2, & |x| \le a \\ 0, & |x| > a \end{cases}$	6	CO2	BL4	2
	c	Calculate the correlation coefficient between x and y from the following data $n = 10$, $\sum x = 140$, $\sum y = 150$, $\sum (x-10)^2 = 180$, $\sum (y-15)^2 = 215$, $\sum (x-10)(y-15) = 60$.	8	CO3	BL2, BL4	3
6	a	If θ is the acute angle between the two regression lines, then prove that $$\tan\theta = \frac{1-r^2}{r} \cdot \frac{\sigma_x \sigma_y}{\sigma_x^2 + \sigma_y^2},$$ where r, σ_x, σ_y have their usual meanings.	6	CO3	BL5	3
	b	A machine is set to produce metal plates of thickness 1.5 cms with standard deviation 0.2 cm. A sample of 100 plates produced by the machine gave an average thickness of 1.2 cms. Is the machine fulfilling the purpose?	6	CO4	BL3	6

	c	Evaluate $(i)\, Z^{-1}\left\{ \dfrac{z^2+z}{(z-1)^3} \right\}$ by long division method $(ii)\, Z^{-1}\left\{ \dfrac{3z^2-18z+26}{(z-2)(z-3)(z-4)} \right\}$ by partial fraction method	8	CO2	BL3, BL5	2
7	a	Two random sample gave the following data	6	CO4	BL2, BL3	6
	b	Find Z Transform of $(i)\ f(k)=\begin{cases} a^k, k\ge 0 \\ b^k, k<0 \end{cases}$ $(ii)\ f(k)=\sin^3\left(\dfrac{k\pi}{6}\right),\ k\ge 0$	6	CO2	BL5	2
	c	Find Fourier Series of $f(x)=x\sin x,\quad 0<x<2\pi$	8	CO1	BL1, BL3	1

For question 7a:

Sample No	Size	Mean	Variance
1	1500	67.42	2.58
2	2000	67.25	2.5

Is the difference between standard deviation significant?

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End semester June 2024

11/6/24

Program: SY-Electrical Sem IV   Duration:3 hours
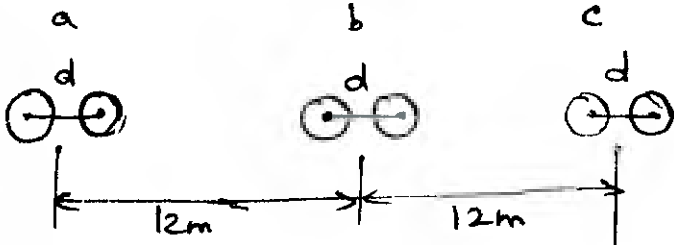
Course Code: PC-BTE401   Maximum Points:100

Course Name:Power Generation, Transmission and Distribution   Semester:IV

Answer any 5 questions:

Q. No	Questions	Marks	BL	CO	Module
1a	Two impedences Z_1=0.8+j5.6 Ω and Z_2=8-j16 Ω and a single phase motor are connected in parallel across a 200V rms ,60 Hz supply as shown in fig..The motor draws 5 KVA at 0.8 power factor lagging. i))Determine total power taken from the supply ,supply current and overall power factor. ii)Find the capacitance of the capacitor connected across the loads to improve the overall power factor to unity.	10	3	2	1
b)	Write short notes on, i)Base load and peak load plants. ii)Methods to improve string efficiency.	6	2	1	2 ss
c)	Explain the Impact of renewable energy sources on power systems	4	2	1	2
2a)	Using the nominal π method find the sending end voltage and current of a 150km, three phase 50Hz transmission line delivering 50 MW at 110KV at 0.8 lagging power factor to a balanced load.Resistance,inductive reactance and capacitive shunt admittance of the line are 0.1 Ω,0.5Ω and 3×10^{-6} S per km per phase.	12	3	2	4
b)	Explain skin and proximity effect.	4	2	1	3
c)	Discuss the phenomena of corona and methods to reduce corona loss.	4	2	1	3

3a)	A 120km long three phase single circuit 230kv,50 Hz,transmission line consists of two bundled conductors as shown.radius of each conductor is 0.4cm and distance is d=0.4m.calculate the inductance per phase and capacitance per phase.	12	3	2	3

b)	Write short notes on
	  i) pump storage
	  ii) Batteries
		8	2	1	2

4a)	A three phase 60Hz ,500KV transmission line is 300km long .The line inductance is 0.97mH/km/phase and capacitance is 0.0115μF/km/phase.Assume a lossless line find its surge impedence, line phase constant β,velocity of wave propagation, line wavelength and surge impedance loading.	10	3	2	4
b)	Derive expressions for sending end voltage and current for medium transmission lines using nominal T method with neat phasor diagrams and derive the A,B,C,D parameters for the same.	10	3	2	4
5a.	Prove that if a a 2 winding transformer is used as an autotransformer its power rating is increased (with circuit diagrams.)	6	3	2	5
b.	Explain step and touch potential.	4	2	3	6
c.	A two winding transformer rated at 9KVA,120/90V,60 Hz has a core loss of 200W and a full load copper loss of 500W. a).The above transformer is to be connected as an autotransformer to supply a load at 120V fom a 210V source.What KVA load can be supplied without exceeding the current ratings of the windings(for this part assume an ideal transformer) b)find the efficiency with the KVA loading of part a) and 0.8 power factor.	10	3	2	5

6a.	A 132 KV ,3 phase ,50Hz transmission line 200 km long consists of three conductors of effective diameter 20mm arranged in a vertical plane with 5m spacing and regularly transposed .Find the inductance and KVA rating of the arc suppression coil in the system.	8	3	3	6
b)	Write short notes on Three winding transformers .	4	2	2	5
c)	Explain resonant grounding with neat circuit and phasor diagram.Derive the expression for L for resonant grounding.	8	2 , 3	3	6
7a)	Draw and explain the connection schemes for distribution system	8	2 , 3	4	7
b)	Derive a simple expression for the voltage rise of an unloaded transmission line.	4		2	4
c)	Write short notes on the busbar arrangements and equipments in a substation.	6		4	\7

End Semester Examination
June-2024

Max. Marks: **100**   Duration: **03 Hours**
Class: **S.Y. B.TECH.**   Semester: **IV**   Program: **B.TECH. (ELECTRICAL)**
Name of the Course: **Power Electronics**   Course Code: **PC-BTE402**

Instructions:

- Question No.1 is compulsory
- Solve any four from remaining questions
- Figures to the right indicates full mark
- Assume suitable data if required and justify the same.

Ques. No.	Description of question	Max. Marks	CO
Q.1.	**Solve Any Four.**	**20**	
a.	What is the need of snubber circuit for SCR.	05	01
b.	Explain the working principle of MOSFET.	05	01
c.	What are the salient features of voltage source inverter and current source inverter?	05	03
d.	The voltage source inverter (VSI) supplies pure inductive load, then the battery is replaced by capacitor. Justify the statement.	05	03
e.	The single phase half wave uncontrolled rectifier supplies pure inductive load. From the waveform of voltage and current, prove that the average power drawn from the source is zero.	05	03
Q.2a.	Derive the expression for average dc output voltage for three phase full wave fully controlled rectifier. Plot the variation of average dc voltage output of rectifier as a function of firing angle.	08	
Q.2b.	A three phase full-wave fully controlled rectifier supplies highly inductive load (load current is continuous and constant). Draw the waveform of instantaneous output voltage for firing angle alpha is 30 degrees. Note: Use graph paper to draw the waveforms.	12	03

Q.3a.	What are the advantages of half controlled rectifiers? A single phase F.W. Half controlled rectifier supplies large inductive load, so that load current is continuous and constant. Explain the circuit operation and draw the following waveforms for: (i) Source Voltage, v_s (ii) Load Voltage, v_0 (iii) Load current, i_0 (iv) Source current, i_s	10	02
Q.3b.	A single phase full wave uncontrolled rectifier connected to 230 V, 50 Hz supply feeds a load having constant current of 50A. Calculate: (i) Average value of dc voltage. (ii) RMS value of source current. (iii) RMS value of load current.	10	03
Q.4a.	A single phase full wave fully controlled rectifier supplies continuous and constant load current. Draw the waveform of load current and source current. Derive the expression for rms value of load current.	10	03
Q.4b.	Discuss the sine-triangle PWM technique used to control the three phase inverter. What are the issues when modulation index approaches to one.	10	02
Q.5a.	Draw the circuit of Buck Converter. Explain the different modes of operation with all relevant waveforms.	10	03
Q.5b.	For Buck Converter derive the expressions for: (i) Duty ratio (ii) Ripple current (iii) Ripple voltage (iv) Value of inductor and capacitor for continuous current.	10	03
Q.6a.	What are the important features of boost regulator? A boost regulator has an input voltage of Vs = 5V. The average output voltage Va = 15V and the average load current Ia = 0.5 A. The switching frequency is 25 kHz. If L=150 μH and C = 220 μH. Determine: 1) Duty cycle, K 2) The ripple current of inductor, ΔI 3) The peak current of inductor, I_2	04+06	03
Q.6b.	A single phase inverter controlled with pulse width modulation technique (PWM) is used to feed the load of 230V, 50 Hz. For modulation index M=1, Calculate the value of DC voltage. If the same inverter is controlled by square wave technique, what will be the value of DC voltage.	10	02
Q.7a.	A three phase inverter is operating in square wave mode and feeding the RL load connected in delta. Draw the following waveforms: (i) Pole voltages (ii) Line voltages (iii) Phase currents (iv) Line currents	14	02
Q.7b.	Draw the circuit diagram and explain AC voltage regulator. Enlist the suitable applications.	06	02

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18|6|24

S. Y. B. Tech ENDSEM EXAMINATION JUNE 2024

Program: Electrical Engg.

Course Code: PC-BTE 403

Course Name: Electrical Machines-1

Duration: 3 hour

Maximum Points: 100

Semester: IV

18|6|24

- Question no. 1 is compulsory
- Solve 4 questions from remaining 6 questions
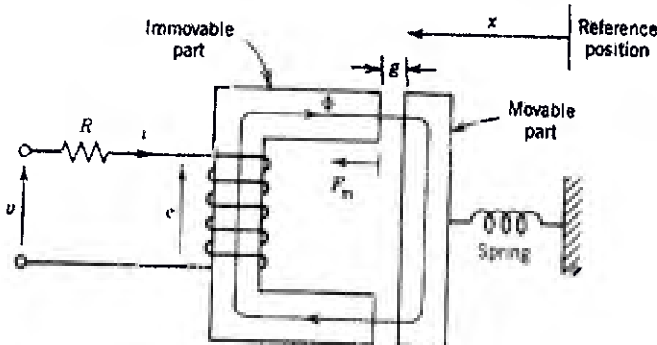
Q.No.	Questions	marks	CO	BL	Module No.
1.A.	Why sinusoidal excitation is preferred in electrical systems?	4	1	3	1,2
B.	Draw star delta connection with polarity marked, on three phase transformer.	4	3	2	6
C	Explain the meaning and significance of the critical field resistance of a shunt generator	4	2	3	4
D	Discuss the vector group marking on three phase transformer with suitable example.	8	3	2	7
2.A	What is armature reaction in DC machine? How to overcome the effects of armature reaction?	10	2	2	4
B	Discuss the commutation in DC machine. And state the methods used for good commutation process.	10	2	2	4
3. A	A 50 kVA, 2200/110 V transformer when tested gave the following results • OC test, measurements on the LV side:400 W, 10 A, 110 V, • SC test, measurements on the HV side: 808 W, 20.5 A, 90 V Compute all the parameters of the equivalent circuit referred to the HV and LV sides of the transformer.	15	3	3	6

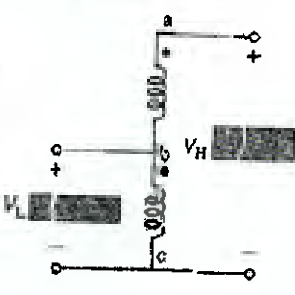|					
B.	Justify that under SC test, the core loss is negligible	5	3	3	6
Q4)A.	A 440 V DC shunt motor has armature resistance of 0.8 Ohm and field resistance of 200 ohm. Determine back emf when giving an output of 7.46 kW at 85 % efficiency.	8	2	3	5
B.	A 25-kW 125-V separately-excited dc machine is operated at a constant speed of 3000 r/min with a constant field current such that the open-circuit armature voltage is 125 V. The armature resistance is 0.02 ohm. Compute the armature current, terminal power, electromagnetic power and torque when the terminal voltage is (a) 128 V and (b) 124 V	12	2	3	5
Q5)	Derive mechanical force developed in electromagnetic system, shown below, considering first as slow moving of moving part and then as fast moving of moving part.	20	1	3	3
Q6)A.	Discuss the conditions required to be followed for parallel operation of three phase transformers	10	3	2	6
B.	The 2400:240 V, 50-kVA transformer is connected as an autotransformer, as shown in Fig. below, in which ab is the 240-V winding and bc is the 2400-V winding. (It is assumed that the 240-V winding has enough insulation to withstand higher voltage to ground.) Compute the voltage ratings V_H and V_L of the high- and low-voltage sides, respectively, for this autotransformer connection. Compute the kVA rating as an autotransformer.	10	3	3	7

Q7) ●	Write short note on following A. Excitation phenomenon of star-star connected transformer B. Transformer inrush current or switching current transient	20	3	2	7
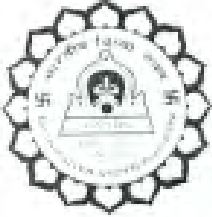
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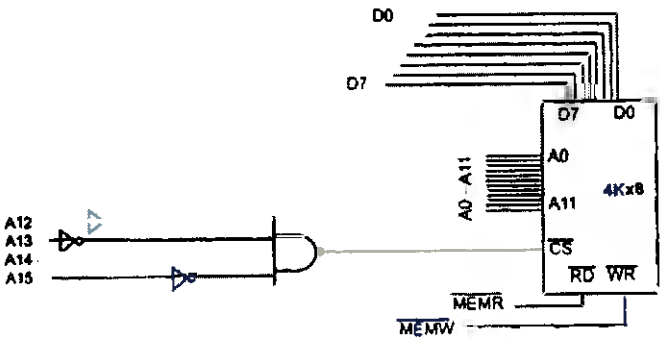
End Sem June 2024

S. Y. B. Tech Sem IV

Program: **Electrical Engineering**

Course code: **PC-BTE404**

Name of the Course: **Microprocessor and Microcontroller**

Duration: 3 Hours

Max. Marks: 100

Sem. IV

20/6/24

- Solve any five questions out of seven.
- Answers to all sub questions should be grouped together.
- Make suitable assumptions whenever necessary. State them clearly.
- Diagrams drawn to support your answer should be clearly visible.

Q.		Pts.	CO	BL	Module
1	State whether following statements are True/False. Justify the same.	10	1	5	1
i	A microprocessor is called a computer on a chip.				
ii	8051 is a 40-pin IC. Out of them 24 pins are used for the four I/O ports.				
B	A contains 48H. Determine value of A after execution of the following. Explain				
i	XRL A, #34H CPL A	3	2	3	4

ii	MOV P1,A
	 SETB P1.4
	 MOV A,P1
		3	2	3	3

iii	MOV 57H , #55H
	 MOV R1, #57H
	 ADD A, @R1
		4	2	3	4

2 A	Explain with suitable diagram, interfacing of 4x4 matrix keyboard with 8051. Explain the method to detect key press.	10	3	2	7
B i	Draw the interfacing diagram with LCD and 8051, in which Port 0 is used to connect data bus of 8051. P 1.0, P 1.1 and P1.2 are to be connected to RS, R/$\overline{W}$, E respectively. Hence explain the following code. MOV P0, A SETB P1.0 CLR P1.1 SETB P1.2 ACALL DELAY CLR P1.2 RET	6	3	3	7
ii	Write a program to move the content of 7th bit of the A register to pin P0.7, and also save it in RAM location 08H. Explain the code written	4	1	3	3
3 A	With the help of neat diagram explain RAM allocation in 8051. Hence explain Register banks, stack, bit addressable RAM, scratch pad RAM.	10	1	2	2
B	Describe the internal architecture of 8051 microcontroller with neat diagram.	10	1	3	2

4 A	Explain registers TMOD, SCON, SBUF. A program to receive data at a baud rate of 4800 is to be written using timer 1 in mode 2. Explain initialization required i.e. values to be stored in TMOD, SCON, TH1	10	2	3	6
B	Explain IP register with the help of neat diagram. Explain default priorities of the interrupts. Assume that after reset, the interrupt priority is set by the instruction "MOV IP, 00001100B" Discuss the sequence in which the interrupts are serviced.	10	3	2	5
5 A	Write a program that continuously gets 8-bit data from P0 and sends it to P1 while simultaneously creating a square wave having period of 100 µS. (on pin P1.1). Use Timer 0 in mode 2 to create the square wave. Assume that XTAL = 11.0592 MHz. Explain the use of interrupt in detail.	10	2	3	5
B	List any 5 applications where µC is used. Explain the roll of µC (min 5 points) in any one of the applications	10	1	1	1
6 A	Assuming that clock pulses are fed in to pin T1 (P3.5) , write a program for counter 1 in mode 2 to count pulses and display the state of the TL1 count on P2 where LEDs are connected.	10	2	3	5
B	Explain what is represented by the following part of the code. Specify its significance with the help of suitable diagrams.	10	1	3	5
i	**MOV A, PCON** **SETB ACC.7** **MOV PCON, A**				
ii	**ORG 000BH** **CPL P2.1** **RETI**				
7 A i	Determine the address assigned to the memory chip referring following dia. Explain the modification is required to be done to assign the addresses from 3000H to 3FFFH to this memory chip. 	4	3	3	5
ii	Write a program to transfer 'Y' serially at 9600 baud rate continuously and also to send 'N' to port 0 which is connected to display device.	6	2	3	6
B i	A switch is connected to pin P1.7. Write a program to check the status of SW and perform the following: (a) If SW=0, send letter 'N' to P2. (b) If SW=1, send letter 'Y' to P2. Explain the same.	5	2	3	2
ii	Write a program to see if the RAM location 47H contains an even value. If so, send it to P2. If not, make it even and then send it to P2. Explain the program written	5	2	3	2

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End Semester Examination June 2024

Program: SYBTech (Electrical)

Course Code: PC-BTE405

Course Name: Signals and Systems

Duration: 3 Hr
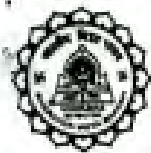
Maximum Points: 100

Semester: IV

Note:

1) Question No. 1 is compulsory. Solve any four from remaining questions.

2) In the absence of any data, make suitable assumptions and justify the same.

Q. No.	Questions	Points	CO	BL	Mod. No.
1 a)	Determine Fourier Transform of signal and plot magnitude & phase spectrum of $x(t) = 10\, e^{-2t}u(t)$	05	03	02	03
1 b)	Consider a DT system y[n] = 0.3 y[n-1]+ x[n] with y[-1]= 2. If input applied to the system is x[n] = $(1/2)^n$ u[n], determine output of the system.	05	02	02	02 06
1 c)	Determine inverse Z-Transform of $X(z) = \dfrac{5z}{z-4}$ using long division method if ROC is |z|<4. **OR** Realize a CT system having transfer function H$(s) = \dfrac{5s}{6s^2-s-1}$ (any one form)	05	02 04	02 03	05 07
1 d)	Calculate Laplace Transform and plot ROC of signal $x(t) = 5e^{-2t}u(t) - 4e^{2t}u(t) + 3e^{-7t}u(-t)$	05	04	03	04
2 a)	Classify the system described by following input –output relation as static/dynamic, stable / unstable and linear /non-linear, causal/ non-causal. $y(t) = x^2(t) + 2x(t+1)$	08	01	03	01
2 b)	Realize following system in Direct I and Direct II form $$H(z) = \frac{(1 + z^{-1})(1 + 2z^{-1})}{(1 + \frac{1}{2}z^{-1})(1 - \frac{1}{4}z^{-1})(1 + \frac{1}{8}z^{-1})}$$	12	02	03	07

3 a)	a) Determine x(t) if $F(s) = \dfrac{9}{(s+2)(s-2)}$ when ROC is i) Re{s} < 2 and Re{s} > -2 ii) Re{s} >2 and Re{s}< -2 iii) Re{s} < - 2 iv) Re{s} >2	10	04	02	04
3 b)	Consider a series RL network with R= 2 ohm and L = 1H, excited by a voltage source of Vi(t) $= t\,e^{-2t}$ u(t). Output is measured across resistance. Determine transfer function of the system and the output of the system. Comment on the stability of the system.	10	04	03	04
4 a)	Determine trigonometric OR complex exponential form of Fourier series of half wave rectifier output signal. Assume the input to the rectifier as Vs= 100 Sin(wt) with f = 50 Hz.	10	03	02 03	03
4 b)	Prove following properties of CT Fourier Transform i) Time scaling ii) Convolution	10	03	02	03

5 a)	Determine Z- Transform and ROC of following signals
	
	   a) $x[n] = 2^n - 2n + 3$ for n≥0
	
	   b) $x[n] = -\left(\frac{1}{2}\right)^n u[n] + \left(\frac{1}{3}\right)^n u[-n-1]$
		10	04	02	05

5 b)	Determine if following signals are energy signal , power signal or neither (06)
	
	   i) $x(t) = e^{-at}u(t)$ $a > 0$
	   ii) $x[n] = (-0.5)^n u[n]$
	
	Plot even and odd part of following functions (04)
	
	   i) x[n]=u[n] ii) x(t) = u(t)
		10	01	02	01

6 a)	State and prove initial and final value theorem of Z- Transform. Hence find initial and final value of x[n] if $X(z) = \dfrac{z^2-5}{(z-1)(z-2)^2}$.	10	04	03	05 06
6 b)	The output y[n] of a DT system is found to be 2 $(1/3)^n$ u[n] when input applied is unit step signal u[n]. a) Determine impulse response of the system b) Draw Pole-zero plot of the system	10	04	03	06

	c) Comment on the stability of the system d) Find output when input is x[n] = (1/2)^n u[n].				
7 a)	Determine output of the system if $x[n] = \alpha^n u[n]$ and $h[n] = \beta^n u[n]$ where $|\alpha| < 1$ and $|\beta| < 1$ (use graphical method) Comment on the stability of the system.	10	02	02 03	02
7 b)	Plot the signals x[n] and h[n]. Determine the output of the system if $x[n] = \begin{cases} 1 & n = -2, 0, 1 \\ 2 & n = -1 \\ 0 & otherwise \end{cases}$ and $h[n] = \delta[n] - \delta[n-1] - \delta[n-4]$	10	01	02	02

END SEMESTER EXAMINATION JUNE 2024

Program: SY B.TEC. (C/E) *Sem IV*

Duration: 3 Hours

Course Code: IK-BTM201

Course Name: Indian Traditional Knowledge.

Maximum Points: 100

Semester: IV

Note: Attempt Any Five Questions

Q.No.	Questions	Points	CO	BL	Module No.
1A	**Complete the Statements by Selecting Proper Options.**	10	2	4	1
1	The Constitution of India adopted in 1950 which enshrines the principles of democracy, secularism and -------. a) Anarchism b) Federalism c) Communism d) Unitary State				
2	Indian Mathematicians such as Aryabhata, Bhaskara and _____ made Pioneering advancements. a) Chandragupt b) Samudragupt c) Brahmagupt d) Shivgupta				
3	_____ interpretation of words, Phrases and sentences. a) Phonology b) Syntax c) Semantics d) Morphology				
4	_____ Beals with procedures of rituals, ceremonies and sacrifices. a) Yajur veda b) Rig Veda c) Sam veda d) Atharva veda				
5	The iron pillar of Delhi, dating back to the------- period stands as a testament to the forging corrosion-resistant iron a) Mauryan b) Rashtrakuta c) Gupta d) Kanishka				
6	_____ is the traditional Indian science of warfare and martial arts. a) Gandharva veda b) Dhanur veda c) Sthapatya Veda d) Ayur veda				
7	_____ Sahita Provided Comprehensive knowledge about anatomy, diseases and treatments. a) Sushruta b) Bhaskara c) Nagaurjuna d) Yaska				
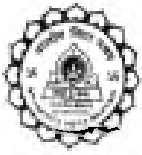
Q					
8	The ____ outlook involves to adopt a rational and evidence-based approach. a) Scientific b) Spiritual c) Metaphysical d) Theological				
9	____ is a traditional practice in yoga consisting breath control. a) Acupuncture b) Chiropractic c) Pranayama d) Niyama				
10	____ focuses on the meters and poetic structure of the vedas. a) Nirukta b) Shiksha c) Kalpa d) Chandas				
1B	Answer the Following	10	3	2	4
A	What are the benefits of Yoga Asanas?				
B	Define the empirical approach to science.				
C	Name the ancient Indian cities known for urban planning.				
D	What are the Three doshas emphasized by Ayurveda?				
E	Define Phonology in linguistics.				
2A	Write about Yoga and Pranayama	10	3	2	5
B	Narrate the types of Vedangas	10	2	1	2
3A	Write a note on Scientific Outlook and Haman Values.	10	4	1	3
B	Explain the ancient Indian engineering knowledge	10	3	2	4
4A	Explain the Relevance of Science and Spirituality.	10	1	2.	2
B	Give an account on Sankya Philosophy	10	4	3	7
5A	Analyze the major branches of linguism.	10	2	3	7
B	Discuss the Fundamental Unity of India	10	4	2	1
6A	Give an account of Four Vedas	10	2	4	4
B	Describe the heroic role of India in World Civilization	10	3	3	1
7	Illustrate the Philosophy of the Following. (Any Two) a) Gautam Buddha b) Kabir c) Kanad d) Mahaveer	20	4	2	6