

UOM Exam Second Half 2021_Question Paper_R2019/Electronics/PCS/ELC_501/Sem-V

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1. This paper contains 20 Marks MCQ & 60 Marks subjective section for 2 hours 30 minutes duration.
2. Answers of the University Question Paper is to be written on A4 size paper including MCQ and it has to made into a single PDF file.
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Questions

The question paper will have MCQs (for 20 marks) and subjective/descriptive questions (for 60 marks)

MCQ correct options and subjective questions answers to be written on papers. Scan all pages of answer papers of Q1 to Q4 and create single file in pdf format to upload in the link provided

University of Mumbai
Examination Second Half 2021 under cluster 06
(Lead College: Vidyavardhini's College of Engg Tech)
 Examinations Commencing from 22nd November 2021 to 5th January 2022
 Program: **Electronics Engineering**
 Curriculum Scheme: Rev2019
 Examination: TE Semester V
 Course Code: ELC501 and Course Name: Principles of Control System
 Time: 2 hour 30 minutes Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	_____ is a closed loop system.
Option A:	Auto-pilot for an aircraft
Option B:	Direct current generator
Option C:	Car starter
Option D:	Electric switch
2.	Transfer function of a system is used to calculate which of the following ?
Option A:	The order of the system
Option B:	The time constant
Option C:	The output for any given input
Option D:	The steady state gain
3.	If a system is said to have a damping $\xi = 0.5$ with the natural frequency $\omega_n = 4$ rad/sec, what will be the value of resonant frequency (ω_r)?
Option A:	2.828 rad/s
Option B:	1.7352 rad/s
Option C:	2.3421 rad/s
Option D:	3.66 rad/s
4.	If an impulse response of a system is e^{5t} , what would be its transfer function?
Option A:	$1/(s - 5)$
Option B:	$1/(s + 5)$
Option C:	$(s+1)/(s+5)$
Option D:	$(s^2 - 5s)/(s-5)$
5.	Pole placement for state feedback controller design can be done using?
Option A:	Hurwitz Criterion
Option B:	Ackerman's formula
Option C:	Mason's gain formula
Option D:	Transfer function
6.	To increase damping of pair of complex roots compensator used is
Option A:	Phase lag
Option B:	Phase lead
Option C:	Phase lag lead
Option D:	One with 60° lead circuit
7.	The state equation in the phase canonical form can be obtained from the transfer function by:
Option A:	Direct decomposition
Option B:	Cascaded decomposition

Option C:	Inverse decomposition
Option D:	Parallel decomposition
8.	If the system is specified by open loop transfer function $G(s)H(s) = k / s(s+3)(s+2)$, how many root loci proceed to end at infinity?
Option A:	2
Option B:	6
Option C:	5
Option D:	3
9.	Which mechanism in control engineering implies an ability to measure the state by taking measurements at output?
Option A:	Controllability
Option B:	Observability
Option C:	Differentiability
Option D:	Adaptability
10.	If the phase angle at gain crossover frequency is estimated to be -110° , what will be the value of phase margin of the system?
Option A:	23°
Option B:	45°
Option C:	60°
Option D:	70°

Q2	Solve any Two Questions out of Three (10 marks each)
A	<p>Obtain the transfer function $C(s)/R(s)$ of the system whose signal flow graph shown in the figure</p>
B	<p>Consider the following system with differential equation given by $\ddot{y} + 6\dot{y} + 11y = 6u$ Obtain the state model in diagonal canonical form.</p>
C	<p>What is a compensator? Explain the various types of compensators used for feedback controller design.</p>

Q3	Solve any Two Questions out of Three (10 marks each)
A	<p>The unity feedback system is characterized by an open loop transfer function $\frac{K}{s(s+10)}$. Determine the gain K, so that the system will have a damping ratio of 0.5. For this value of K, determine settling time, peak overshoot and time to peak overshoot for a unit step input.</p>
B	<p>For the system having open loop transfer function, $G(s)H(s) = \frac{100}{s(s+1)(s+10)}$ Determine the stability of the system by plotting Bode plot for the system.</p>
C	<p>Explain with an example, the steps to design Lag compensator using Root Locus.</p>

Q4	Solve any Two Questions out of Three (10 marks each)
A	Draw the root-locus of the feedback system whose open-loop transfer function is given by $G(s)H(s) = \frac{K}{s(s+2)(s+4)}$
B	The open loop transfer function of the system is given by $G(s)H(s) = \frac{50}{(s+1)(s+2)}$. Using Nyquist criterion, examine closed loop stability of the system.
C	Check the controllability and observability of the following state space system $A = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ -6 & -11 & -6 \end{bmatrix}; B = \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}; C = [10 \ 5 \ 1]$

6. Upload your Answer Sheet including MCQ and subjective part of the question paper here. *

The name of the PDF file should be in the below said format (University Seat Number_ Subject Abbreviation_ Students Name)

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University of Mumbai Exam Second Half 2021_Question Paper_R2019/Electronics/DSP/ELC_502/ Sem-V

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Examinations Commencing from 22nd November 2021 to 5th January 2022
Program: Electronics Engineering
Curriculum Scheme: Rev2019
Examination: TE Semester V
Course Code: ELC502 and Course Name: Digital Signal Processing
Time: 2 hour 30 minutes **Max. Marks: 80**

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	If sequence $x[n] = \{1, 2, 3, 4\}$ is given and have done operation $x(n-2)_4$ then sequence will be
Option A:	$\{3, 4, 1, 2\}$
Option B:	$\{1, 4, 3, 2\}$
Option C:	$\{1, 2, 3, 4\}$
Option D:	$\{4, 3, 1, 2\}$
2.	If $x[n] = \{1, 1\}$ and 4 point DFT calculated and $X[1] = 1-j$ then $X[3] = ?$
Option A:	$1-j$
Option B:	$1+j$
Option C:	0
Option D:	2
3.	If $x[n]$ is a 8-point real sequence and its DFT first five points are $X[k] = \{36, -4+j9.656, -4+j4, -4+j1.656, -4\}$ then what will be the coefficients $X[5]$, $X[6]$ and $X[7]$?
Option A:	$X[5] = -4-j1.656, X[6] = -4+4j, X[7] = -4-j9.656$
Option B:	$X[5] = -4-j1.656, X[6] = -4-4j, X[7] = -4-j9.656$
Option C:	$X[5] = -4+j1.656, X[6] = -4, X[7] = -4-j9.656$
Option D:	$X[5] = -4+j1.656, X[6] = 4, X[7] = -4-j9.656$
4.	The two sequences x and y are given by, $x(n) = \{1, 2, -1, 1\}$ and $y(n) = \{2, 4, 2, 1\}$. The circular convolution of x and y will be
Option A:	$\{6, 9, 9, 3\}$
Option B:	$\{10, 11, 6, 8\}$
Option C:	$\{8, 7, 8, 12\}$
Option D:	$\{12, 8, 7, 8\}$
5.	If $x[n] = \{5, 6, 7, 8\}$ and $x1[n] = \{5, 8, 7, 6\}$ are the sequences then what is relationship between $x[n]$ and $x1[n]$?
Option A:	$x1[n] = x[(n-1)]$
Option B:	$x1[n] = x[(n+1)]$
Option C:	$x1[n] = x[(-n)]$
Option D:	$x1[n] = x[(n-2)]$

6.	The poles of a butterworth filter lies on a circle of radius equal to _____
Option A:	cutoff frequency
Option B:	passband edge frequency
Option C:	stopband edge frequency
Option D:	sampling frequency
7.	Sampling time $T = 1$ second , Pass band digital frequency = 0.2π and stopband digital frequency is = 0.3π , what are the corresponding specifications for pass band and stop band in analog domain for Impulse Invariant method ?
Option A:	2π and 3π
Option B:	20π and 30π
Option C:	0.2π and 0.3π
Option D:	0.02π and 0.03π
8.	Sampling time $T = 1$ second , Pass band digital frequency = 0.2π and stopband digital frequency is = 0.6π , what are the corresponding specifications for pass band and stop band in analog domain for Bilinear Transformation method ?
Option A:	7.06 and 18.9805
Option B:	0.589 and 1.593
Option C:	0.6498 and 2.75
Option D:	0.8284 and 0.20
9.	Consider the discrete time signal , $x(n) = \{1,1,2,2,3,3,4,4,5,5\}$ Determine the down sampled (Decimation) version of the signal for the sampling rate reduction factor $D = 2$
Option A:	$\{1,2,2,4,5\}$
Option B:	$\{1,3,3,5,5,4,4\}$
Option C:	$\{2,6,10,14,18,22\}$
Option D:	$\{1,2,3,4,5\}$
10.	Which of the following is the difference equation of the FIR filter of length M , input $x(n)$ and output $y(n)$?
Option A:	$y(n) = \sum_{k=0}^{M+1} b_k x(n+k)$
Option B:	$y(n) = \sum_{k=0}^{M+1} b_k x(n-k)$
Option C:	$y(n) = \sum_{k=0}^{M-1} b_k x(n-k)$
Option D:	$y(n) = \sum_{k=1}^{M-1} b_k x(n+k)$

Q2.	Solve any Four out of Six	(5 marks each)
A	Why the limit of 'n' in DFT is 0 to N-1. In other words explain why the signal is periodic in time domain in DFT.	
B	Explain design steps to designing FIR filter using frequency sampling method.	
C	Explain application of DSP processor to RADAR Signal Processing.	
D	$X(K) = \{14, -2 + 2j, -2, -2 - 2j\}$ find $x(n)$ using IDIF-FFT algorithm	

E	If IDFT $\{X(k)\} = x[n] = \{1, 2, 3, 4\}$ using DFT properties, evaluate IDFT of $\{X(k-1)\}$
F	Explain the mapping from S-plane to Z-plane using impulse invariance technique. Also explain the limitations of this method.

Q3.	Solve any Two Questions out of Three (10 marks each)
A	Compute circular convolution of following sequence using DFT and IDFT $x(n) = \{2, 1, 2, 1\}$ and $h(n) = \{1, 2, 3, 4\}$
B	Design linear phase FIR low pass filter of length 7 and cutoff frequency 1 rad/sec using Hamming window.
C	Find linear convolution overlap-add method for following sequence $x(n) = \{1, 1, 2, 2, 3, 3\}$ and $h(n) = \{1, 2\}$

Q4.A	Solve any Two (5 marks each)
i.	Explain in detail the characteristics of Finite Impulse Response filter.
ii.	Explain the process of decimation with frequency spectrum.
iii.	Explain Finite word length effects in digital filters
B	Solve any One (10 marks each)
i.	Design a Butterworth Digital IIR Low Pass filter that satisfies following constrains using Bilinear transformation method assume $T_s = 1$ sec. $0.707 \leq H(e^{j\omega}) \leq 1 \quad ; \quad 0 \leq \omega \leq 0.3\pi$ $ H(e^{j\omega}) \leq 0.08 \quad ; \quad 0.75\pi \leq \omega \leq \pi$
ii.	Explain Architecture of TMS320C67XX DSP Processor with the help of neat block diagram.

5. Upload your Answer Sheet including MCQ and subjective part of the question paper here. *

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University of Mumbai Exam Second Half 2021_Question Paper_R2019/Electronics/Linear Integrated Circuits/ELC_503/ Sem-V

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 Program: **Electronics Engineering**
 Curriculum Scheme: Rev2019
 Examination: TE Semester V
 Course Code: ELC503 and Course Name: Linear Integrated Circuits

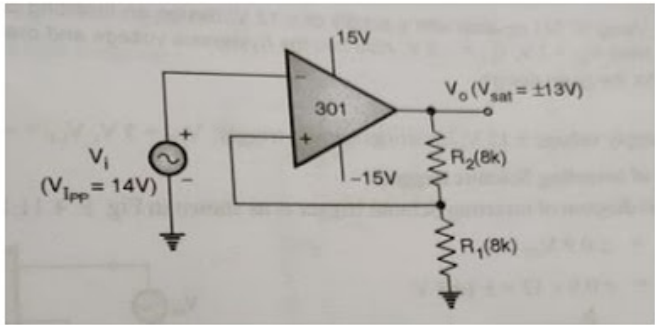
Time: 2 hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The common mode gain is _____
Option A:	very high
Option B:	very low
Option C:	always unity
Option D:	unpredictable
2.	When a step input is given to an op-amp integrator, the output will be _____
Option A:	A ramp
Option B:	A sinusoidal wave
Option C:	A rectangular wave
Option D:	A triangular wave with dc bias
3.	The output of particular op-amp increases 8V in 12 μ S. The slew rate is
Option A:	90 V/ μ S
Option B:	0.67 V/ μ S
Option C:	1.5 V/ μ S
Option D:	96 V/ μ S
4.	For an op-amp with negative feedback, the output is
Option A:	equal to the input
Option B:	increased
Option C:	fed back to the inverting input
Option D:	fed back to the non-inverting input
5.	The ideal op-amp has following characteristics
Option A:	$R_i = \infty$, $A = \infty$, $R_o = 0$
Option B:	$R_i = 0$, $A = \infty$, $R_o = 0$
Option C:	$R_i = \infty$, $A = \infty$, $R_o = \infty$
Option D:	$R_i = 0$, $A = \infty$, $R_o = \infty$
6.	Switching regulators are series type regulators, which haspower dissipation andefficiency.
Option A:	Increased, increased
Option B:	Increased, reduced
Option C:	Reduced, reduced
Option D:	Reduced, increased

7.	<p>For the Op-Amp circuit shown in the figure, V_o is:</p>
Option A:	-2V
Option B:	-1V
Option C:	-0.5V
Option D:	0.5V
8.	The functional diagram of a 555 Timer IC consists of _____ comparators.
Option A:	5
Option B:	4
Option C:	3
Option D:	2
9.	Which characteristic of PLL is defined as the range of frequencies over which PLL can acquire lock with the input signal?
Option A:	Free-running state
Option B:	Pull-in time
Option C:	Lock-in range
Option D:	Capture range
10.	Which of the following IC falls under the category of fixed negative voltage regulator?
Option A:	7805
Option B:	7912
Option C:	723
Option D:	741

Q2. (20 Marks)	Solve any Four out of Six (5 marks each)
A	"Define the following characteristics of a practical op-amp. <ul style="list-style-type: none"> • Input offset voltage • CMRR • Slew rate"
B	Make a comparison between first order and second order filters.
C	What is comparator? Explain working of inverting comparator using op-amp with neat diagram and waveform..
D	State the features of power amplifier IC LM 380
E	Write short note on 3 pin voltage regulators.
F	Explain the Barkhausen criteria for sustained oscillations and its impact.

Q3. (20 Marks)	Solve any Two Questions out of Three (10 marks each)
A	What is the difference between normal rectifier and precision rectifier? With neat circuit diagram & waveform, explain working of precision half wave rectifier.
B	For the inverting Schmitt trigger as shown in the figure, find V_{TH} , V_{TL} and hysteresis voltage and draw the input and output waveforms 
C	Explain in details about successive approximation type of ADC.

Q4. (20 Marks)	Solve any Two Questions out of Three (10 marks each)
A	What is phase locked loop? Explain operation of PLL with the help of block diagram.
B	State the features of IC723 & design voltage regulator to give 12V output with short circuit limit to 60mA using IC 723.
C	In the astable multivibrator using IC 555, $R_A=2.1k\Omega$, $R_B=6.8k\Omega$ and $C=0.01\mu F$. Calculate t_{high} , t_{low} , free running frequency and Duty cycle.

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 Program: **Electronics Engineering**
 Curriculum Scheme: Rev 2019
 Examination: TE Semester V
 Course Code: ELC 504 and Course Name: Digital Communication
 Time: 2 hour 30 minutes Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Name the major disadvantage of digital transmission of signals.
Option A:	Increase in signal power
Option B:	Increase in signal bandwidth
Option C:	Decrease in signal power
Option D:	Decrease in both signal power and bandwidth
2.	Which among these distributions is associated with discrete random variable?
Option A:	Gaussian distribution
Option B:	Raleigh distribution
Option C:	Binomial distribution
Option D:	Cauchy distribution
3.	Average rate at which information is transferred is called information rate and is given by _____.
Option A:	$R = r H$
Option B:	$R = r P$
Option C:	$r = R H$
Option D:	$R = r E$
4.	The channel capacity of a noiseless channel is equal to _____.
Option A:	Rate at which information is transmitted
Option B:	Bandwidth
Option C:	Rate at which information is received
Option D:	Signaling speed
5.	For a line code, the transmission bandwidth must be _____.
Option A:	Maximum possible
Option B:	As small as possible
Option C:	Depends on the signal
Option D:	Depends on the channel
6.	Which among these is said to be spectrally efficient modulation scheme?
Option A:	BPSK
Option B:	BFSK
Option C:	QPSK
Option D:	BASK

7.	The maximum phase change in Offset QPSK(OQPSK) is _____.
Option A:	180°
Option B:	45°
Option C:	270°
Option D:	90°
8.	For generating systematic Cyclic code (n,k) ,what should be the highest degree of the generator polynomial , g(x)?
Option A:	x^n
Option B:	x^k
Option C:	$x^{(n-k)}$
Option D:	$x^{(n+k)}$
9.	The minimum Hamming distance of linear Block code (8,4) is 4. The maximum number of bit errors detected by this code _____.
Option A:	5
Option B:	4
Option C:	3
Option D:	2
10.	Matched filter technique is used to _____.
Option A:	Decrease Signal to Noise Ratio (SNR)
Option B:	SNR is not affected
Option C:	Increase SNR
Option D:	Transmit Signal

Q2 (20 Marks)	
A	Solve any Two 5 marks each
i.	Explain the central limit theorem for random variables.
ii.	Explain the desirable properties of line codes. To transmit a bit sequence 1001 101, draw the waveforms using 1. Unipolar RZ 2. Unipolar NRZ 3. Bipolar RZ 4. AMI RZ 5. Manchester.
iii.	Compare BASK, BFSK and BPSK based on, 1. Bandwidth requirement 2. Error probability 3. Noise immunity 3. Transmission rate 4. Efficiency 5. Applications
B	Solve any One 10 marks each
i.	Draw and Explain the block diagram of BPSK transmitter. Sketch signal space diagram and PSD of BPSK.
ii.	The generator matrix for linear block code (7,4) is given below: $\vec{G} = \begin{bmatrix} 1 & 0 & 0 & 0 & 1 & 1 & 0 \\ 0 & 1 & 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & 0 & 1 & 1 & 1 \\ 0 & 0 & 0 & 1 & 1 & 0 & 1 \end{bmatrix}$ (a) Compute the codeword for 1001, 1010, 1110. (b) When the received codeword is 1101011, find the syndrome. (c) Find the corrected codeword.
Q3 (20 Marks)	
A	Solve any Two 5 marks each
i.	For a random variable 'X', define the following terms and mention their important properties: (a) Probability distribution function. (b) Probability density function.
ii.	A binary source produces 0's and 1's with probability P(0)=0.2 and P(1)=0.8. The binary data is then transmitted over a noisy channel. The probability of correct reception when a "0" is transmitted over the channel P(0/0)=0.9. Also the probability of reception of a "0" when a "1" has been transmitted is P(0/1)=0.2. (a) Find the probability of reception of a "1" when a "0" is transmitted P(1/0) and the probability of reception of a "1" when a "1" is transmitted P(1/1). (b) Find the overall probability of receiving "0" and "1".
iii.	What is ISI? Explain how equalizer is helpful in overcoming the effect of ISI.
B	Solve any One 10 marks each
i.	A discrete memory less source has five symbols $x_1, x_2, x_3, x_4,$ and $x_5,$ with probabilities $p(x_1) = 0.4, p(x_2) = 0.19, p(x_3) = 0.16, p(x_4) = 0.15,$ and $p(x_5) = 0.1.$ Construct the Shannon-Fano code and Huffman coding also calculate the code efficiency.
ii.	Design a Convolutional encoder with code rate 1/3 and constraint length 3 and generating vectors as $g_1 = (1 \ 1 \ 1), g_2 = (1 \ 0 \ 0),$ and $g_3 = (1 \ 0 \ 1),$ Draw: (a) The encoder. (b) State diagram.

	(c) Trellis diagram. (d) Find the output data sequence for the input data sequence 01011.
Q4 (20 Marks)	
A	Solve any Two 5 marks each
i.	The channel capacity is given by $C = B \log_2(1 + S/N)$. In presence of white Gaussian noise with constant signal power the channel capacity reaches its upper limit with increase in bandwidth. Prove that this upper limit C is given by $C_{\infty} = 1.44 (S/N_0)$.
ii.	Differentiate between QPSK and OQPSK.
iii.	Derive expression for the probability of error of the matched filter and justify that P_e does not depend on the shape of the input waveform.
B	Solve any One 10 marks each
i.	Explain with the help of neat block diagram, the transmitter and receiver of M-ary FSK. What is the bandwidth requirement of M-ary FSK?
ii.	A binary message sequence 1001 is coded using a generator polynomial $G(x) = x^3 + x^2 + 1$ Assuming a systematic cyclic code is used Determine: (a) Find code word using feedback shift register. (b) Compute syndrome if the received code word is 0010110 using feedback shift register.

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8. You have to write Date of Examination, Seat number, Program Scheme and Semester, Subject Name and Signature on Every Page
9. Remain in meet with your camera on and you in clear view throughout the duration of the exam.

* Required

1. Email *

2. Enter your Name *

3. Enter your Exam Seat Number *

4. Roll No *

Questions

The question paper will have MCQs (for 20 marks) and subjective/descriptive questions (for 60 marks)

MCQ correct options and subjective questions answers to be written on papers. Scan all pages of answer papers of Q1 to Q4 and create single file in pdf format to upload in the link provided

University of Mumbai
Examination Second Half 2021 under cluster 06
(Lead College: Vidyavardhini's College of Engg Tech)
 Examinations Commencing from 22nd November 2021 to 5th January 2022
 Program: **Electronics Engineering**
 Curriculum Scheme: Rev2019
 Examination: TE Semester V
 Course Code: ELDO501 and Course Name: Computer Organization and Architecture

Time: 2 hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	For special number Zero exponent and fraction in floating point notation should be
Option A:	E=0 & F=0
Option B:	E=Non Zero & F=0
Option C:	E=0 & F=Non Zero
Option D:	E=Non zero & F= Non Zero
2.	Booth's algorithm for multiplication gives correct results for
Option A:	Unsigned numbers only
Option B:	Signed numbers in sign magnitude form
Option C:	Signed numbers in 1's complement form
Option D:	Signed numbers in 2's complement form
3.	RISC computers use which type of CU
Option A:	Hardwired CU
Option B:	Horizontal Microprogrammed CU
Option C:	Vertical Microprogrammed CU
Option D:	Nano programmed CU
4.	Which type of control unit requires minimum control memory
Option A:	Hardwired CU
Option B:	Horizontal Microprogrammed CU
Option C:	Vertical Microprogrammed CU
Option D:	Nano programmed CU
5.	Main memory is implemented using
Option A:	DRAM
Option B:	Flash ROM
Option C:	SRAM
Option D:	EPROM
6.	The device that deals with the bus access control functions and bus handshake activities is
Option A:	Bus allotment controller
Option B:	Bus arbiter
Option C:	Priority resolver
Option D:	Primary resolver

7.	What is the correct definition of the term 'SIMD'?
Option A:	Single Input, Multiple Destinations
Option B:	Single Integration, Multiple Dynamics
Option C:	Single Instruction, Multiple Data
Option D:	Single Interrupt, Multiple Distribution
8.	In instruction pipelining, Read After Write hazard is also known as
Option A:	False dependency
Option B:	Anti dependency
Option C:	True dependency
Option D:	Output dependency
9.	Throughput of a super scalar processor is _____
Option A:	Less than 1
Option B:	More than 1
Option C:	Equal to 1
Option D:	Zero
10.	The set of loosely connected computers are called as _____
Option A:	Clusters
Option B:	LAN
Option C:	WAN
Option D:	Workstation

Q2	Solve any Two Questions out of Three (10 marks each)
A	Consider a hypothetical Control Unit which supports 4k words. The Hardware contains 64 control signals and 16 Flags. What is the size of control word used in bits and control memory in bytes using: a) Horizontal Micro Programming b) Vertical Micro Programming
B	Explain Flynn's classification of computers with block diagram
C	Consider a cache memory of 16 bytes, main memory size of 128 bytes and block size of 4 bytes. For 2-way set associative mapping, find out Number of bits in the physical address, Number of TAG bits, Number of bits for Line offset, Number of bits for set number.

Q3	Solve any Two Questions out of Three (10 marks each)
A	What is Vertical Micro-programmed control unit give its advantages over Horizontal Micro-programmed control unit.
B	What are the hazards in pipeline? Suggest the solutions to eliminate the pipeline hazards.
C	Explain the different ways of achieving the instruction level parallelism.

Q4	Solve any Four out of Six (5 marks each)
A	Draw and explain fundamental units of a computer system
B	Divide 11 by 3 using restoring division algorithm method
C	Explain booth's algorithm with flowchart
D	Explain what is 'Bus Arbitration'?
E	Differentiate between I/O mapped I/O and memory mapped I/O
F	Write a short note on super scalar architecture?

5. Upload your Answer Sheet including MCQ and subjective part of the question paper here. *

Files submitted:

6. Have you uploaded the correct file? *

Mark only one oval.

Yes

No

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