

Note: “These are sample MCQs to indicate pattern, may or may not appear in examination.”

Program: BE Computer Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: CPC701 and Course Name: Digital Signal Processing

Time: 1 hour

Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	Which condition determines the causality of the LTI system in terms of its impulse response?
Option A:	Only if the value of an impulse response is zero for all negative values of time
Option B:	Only if the value of an impulse response is unity for all negative values of time
Option C:	Only if the value of an impulse response is infinity for all negative values of time
Option D:	Only if the value of an impulse response is negative for all negative values of time
Q2.	If a signal $x(n)$ is passed through a system to get an output signal $y(n) = x(n+1)$, then the signal is said to be
Option A:	Delayed
Option B:	Advanced
Option C:	No operation
Option D:	Inversed
Q3.	A system is said to be shift invariant only if_
Option A:	a shift in the input signal also results in the corresponding shift in the output
Option B:	a shift in the input signal does not exhibit the corresponding shift in the output
Option C:	a shifting level does not vary in an input as well as output
Option D:	a shifting at input does not affect the output
Q4.	The quality of output signal from a A/D converter is measured in terms of:
Option A:	Quantization error
Option B:	Quantization to signal noise ratio
Option C:	Signal to quantization noise ratio
Option D:	Conversion constant
Q5.	Fourier transform of unit impulse at origin is
Option A:	Undefined
Option B:	Infinity
Option C:	1
Option D:	0

Q6.	Which among the following operations is/are not involved /associated with the computation process of linear convolution?
Option A:	Folding Operation
Option B:	Shifting Operation
Option C:	Multiplication Operation
Option D:	Integration Operation
Q7.	Continuous functions are sampled to form a
Option A:	Fourier series
Option B:	Fourier transform
Option C:	Fast Fourier series
Option D:	Digital image
Q8.	If the DFT $\{x(n)\} = X(k) = \{4, -2j, 0, 2j\}$, using properties of DFT, DFT of $x(n-2)$ is
Option A:	$(4, 2j, 0, -2j)$
Option B:	$(2j, 0, -2j, 4)$
Option C:	$(4, 0, 2j, -2j)$
Option D:	$(0, 2j, 4, -2j)$
Q9.	What will be the linear convolution of the sequences $x(n)=\{1,2\}$ and $h(n)=\{2,1\}$ using DFT.
Option A:	$\{2, 2, 5\}$
Option B:	$\{5, 2, 5\}$
Option C:	$\{2, 5, 2\}$
Option D:	$\{5, 5, 2\}$
Q10.	DTFT is the representation of
Option A:	Periodic Discrete time signals
Option B:	Aperiodic Discrete time signals
Option C:	Aperiodic continuous signals
Option D:	Periodic continuous signals
Q11.	Which of the following is true regarding the number of computations required to compute an N-point DFT?
Option A:	N^2 complex multiplications and $N(N-1)$ complex additions
Option B:	N^2 complex additions and $N(N-1)$ complex multiplications
Option C:	N^2 complex multiplications and $N(N+1)$ complex additions
Option D:	N^2 complex additions and $N(N+1)$ complex multiplications
Q12.	Convolution of two functions means rotating one function at angle of
Option A:	360
Option B:	270
Option C:	90
Option D:	180
Q13.	DFT is applied to
Option A:	Infinite sequences

Option B:	Finite discrete sequences
Option C:	Continuous infinite signals
Option D:	Continuous finite sequences
Q14.	For the Dissemination-in-time FFT algorithm, which of the following is true?
Option A:	Both input and output are in order.
Option B:	Both input and output are shuffled.
Option C:	Input is shuffled and output is in order.
Option D:	Input is in order and output is shuffled.
Q15.	What is the basic difference between general purpose and DSP processor
Option A:	More costly
Option B:	Complex design
Option C:	Processes in real time
Option D:	Less reliable
Q16.	Which of the following is not among the type of architectures used for DSP processors
Option A:	Von Neumann
Option B:	Harvard
Option C:	SISD
Option D:	Modified Harvard
Q17.	A majority of DSP processor are of what type
Option A:	CISC
Option B:	RISC
Option C:	SISD
Option D:	SIMD
Q18.	Human sounds cannot be characterized with which parameter
Option A:	Pitch
Option B:	Sensitivity
Option C:	Loudness
Option D:	Quality
Q19.	Speech recognition system consists of the following except
Option A:	Microphone
Option B:	DAC
Option C:	Pattern matching
Option D:	Parameter extraction
Q20.	The following are speech coding techniques except
Option A:	Huffman Coding
Option B:	Pulse Code Modulation
Option C:	Linear Predictive Coding
Option D:	Transform Coding
Q21.	In overlap save method the number of first samples that we discard are

Option A:	N
Option B:	N-1
Option C:	N-2
Option D:	N-3
Q22.	The applications which use overlap add method are except
Option A:	Digital audio
Option B:	Telephone signals
Option C:	Echo cancellation
Option D:	Image signals
Q23.	Compute linear convolution of sequence $x(n) = \{1, 3, 2, 4, 4, 2, 3, 1\}$ and $h(n) = \{1, -1, 1\}$ using overlap save method.
Option A:	$y(n) = \{1, 0, 0, 5, 2, 2, 5, 0, 2, 1\}$
Option B:	$y(n) = \{1, 5, 0, 5, 2, 2, 5, 0, 2, 1\}$
Option C:	$y(n) = \{1, 2, 0, 5, 2, 2, 5, 0, 2, 1\}$
Option D:	$y(n) = \{1, 1, 0, 5, 2, 2, 5, 0, 2, 1\}$
Q24.	The output signal when a signal $x(n) = \{0, 1, 2, 3\}$ is processed through an 'Delay' system is?
Option A:	$\{1, 2, 3\}$
Option B:	$\{0, 1, 2, 3\}$
Option C:	$\{0, 0, 1, 2, 3\}$
Option D:	$\{2, 3\}$
Q25.	Periodic property of DFT says _____
Option A:	$X(n + K) = X(K)$
Option B:	$X(k + N) = X(k)$
Option C:	$X(K + iN) = X(i)$
Option D:	$X(N + K) = X(n)$

Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: MEC701

Course Name: Machine Design-II

Time: 1 hour

Max. Marks: 50

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Note to the students:- All Questions are compulsory and carry equal marks .

Q1.	The circular pitch of a gear is given by (Where d=diameter of pitch circle, t=number of teeth)
Option A:	$\pi d/t$
Option B:	$\pi d/2t$
Option C:	$2\pi d/t$
Option D:	$\pi d/3t$
Q2.	Which of the following pressure angle (in degrees) is commonly used for gears?
Option A:	15
Option B:	20
Option C:	25
Option D:	30
Q3.	Imaginary friction cylinders which by pure rolling together transmit the same motion as pair of gears is known as
Option A:	Pitch cylinder
Option B:	Pitch diameter
Option C:	Pitch circle
Option D:	Pitch point
Q4.	Two different pitch circles generally meet at
Option A:	Pitch cylinders
Option B:	Pitch diameter
Option C:	Pitch circle
Option D:	Pitch point
Q5.	Number of teeth divided by length of pitch circle diameter is known as
Option A:	Circular pitch
Option B:	Diametral pitch
Option C:	Module
Option D:	Gear ratio
Q6.	Module of a spur gear is defined as
Option A:	Dedendum minus addendum
Option B:	Ratio of number of teeth to the pitch circle diameter
Option C:	Ratio of pitch circle diameter to the number of teeth
Option D:	Inverse of number of teeth
Q7.	When face width of gear is too large
Option A:	Gear will have poor capacity to absorb shock loads

Option B:	There will be a possibility of concentration of load at one end of gear tooth
Option C:	There will be problem in lubricating the gear
Option D:	There will be no problem to the gear
Q8.	Which of the bearings given below SHOULD NOT be subjected to a thrust load?
Option A:	Deep groove ball bearing
Option B:	Angular contact ball bearing
Option C:	Cylindrical (straight) roller bearing
Option D:	Single row tapered roller bearing
Q9.	The rated life of bearing varies
Option A:	directly as load
Option B:	Inversely as square of load
Option C:	Inversely as cube of load
Option D:	Inversely as fourth power of load
Q10.	In standard taper roller bearings the angle of taper of outer raceway is
Option A:	5°
Option B:	8°
Option C:	15°
Option D:	25°
Q11.	Attitude is the ratio of
Option A:	ho and dimetral clearance
Option B:	eccentricity and ho
Option C:	eccentricity and dimetral clearance
Option D:	eccentricity and radial clearance
Q12.	High operating temperature
Option A:	allows increase in load
Option B:	affects the minimum film thickness
Option C:	reduces the load carrying capacity
Option D:	affects the maximum film thickness
Q13.	Hydrodynamic journal theory is based on the equation of
Option A:	Petroff
Option B:	Reynold
Option C:	Jhonso
Option D:	Newton
Q14.	Undercutting will occurs,
Option A:	Whenever the radius of curvature of the cam profile is greater than the radius of the roller
Option B:	Whenever the radius of curvature of the cam profile is less than the radius of the roller
Option C:	Whenever the radius of curvature of the cam profile is less than the radius of the base circle
Option D:	Whenever the radius of curvature of the cam profile is greater than the radius of the base circle
Q15.	The cam follower extensively used in air-craft engines is
Option A:	Knife edge follower
Option B:	Flat faced follower

Option C:	Spherical faced follower
Option D:	Roller follower
Q16.	Offset is provided to a cam follower mechanism to
Option A:	Minimise the side thrust
Option B:	Accelerate
Option C:	Avoid jerk
Option D:	Avoid vibration
Q17.	The power transmitted (P) in kW by the roller chain can be expressed by (Where, P_1 = Allowable tension, v = average velocity of chain (m/s))
Option A:	$P_1v/1000$
Option B:	$P_1/1000 v$
Option C:	$v/1000 P_1$
Option D:	$P_1v \times 1000$
Q18.	The power rating of the roller chain is not obtained on the basis of following failure criteria
Option A:	Wear
Option B:	Fatigue
Option C:	Impact
Option D:	Length of the chain
Q19.	Which of the drive is a positive drive
Option A:	V belt
Option B:	Flat belt
Option C:	Toothed belt
Option D:	Round belt
Q20.	The minimum number of teeth on the driving sprocket chain drive is
Option A:	7
Option B:	17
Option C:	27
Option D:	37
Q21.	The speed reduction of a single stage chain drive should not be more than
Option A:	05:01
Option B:	7:1
Option C:	10:01
Option D:	15:01
Q22.	Multiplate clutch is used in two wheeler because
Option A:	It transmits less torque
Option B:	Size is small for required torque capacity compared to single plate clutch
Option C:	It can dissipate heat effectively
Option D:	Frequent disengagement is required.
Q23.	In cone clutch
Option A:	Outer cone is keyed to driving shaft and inner cone is free to slide on a driven shaft
Option B:	Inner cone is keyed to driven shaft and outer cone is free to slide on a driving shaft
Option C:	Outer cone is free to slide on a driving shaft and inner cone is keyed to driven shaft

Option D:	Outer cone is keyed to driven shaft and inner cone is free to slide on a driving shaft
Q24.	The clutch friction disc always rotates with the
Option A:	Engine crankshaft
Option B:	Flywheel
Option C:	Pressure plate
Option D:	Transmission input shaf
Q25.	In brakes, the wear occurs on the
Option A:	Friction lining
Option B:	Brake drum
Option C:	Lever
Option D:	Friction lining and brake drum

Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: ETC701 and Course Name: Image and Video Processing

Time: 1 hour

Max. Marks: 50

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Note to the students: - All the Questions are compulsory and carry equal marks.

Q1.	Tonal Resolution is a measure of
Option A:	Smallest discriminable detail in the image
Option B:	Smallest discriminable change in the intensity level in the image
Option C:	Light illumination
Option D:	Number of bits used to quantize the intensity
Q2.	Which adjacency is used to eliminate the ambiguities that often arises when 8 adjacency is used
Option A:	m- adjacency
Option B:	n- adjacency
Option C:	4- adjacency
Option D:	2 -adjacency
Q3.	The Kronecker product between the two matrices $[1, 2 ; 3, 4]$ and $[1, 1; 1, 1]$ is
Option A:	$[1, 1, 2, 2; 1, 1, 2, 2; 3, 3, 4, 4; 3, 3, 4, 4]$
Option B:	$[4, 4, 3, 3; 4, 4, 3, 3; 2, 2, 1, 1; 2, 2, 1, 1]$
Option C:	$[1, 2, 1, 2; 3, 4, 3, 4; 1, 2, 1, 2; 3, 3, 3, 4]$
Option D:	$[1, 1, 1, 1; 1, 1, 1, 1; 1, 1, 1, 1; 1, 1, 1, 1]$
Q4.	The distance between pixels p and q, the pixels have a distance less than or equal to some value of radius r, form a square centered at (x,y) is called:
Option A:	Euclidean distance
Option B:	Chessboard distance
Option C:	City-Block distance
Option D:	Edge distance
Q5.	Image can be blurred using
Option A:	low-pass filter
Option B:	Contouring
Option C:	Erosion
Option D:	high-pass filter
Q6.	The transform which does not have a DC coefficient is
Option A:	Discrete Cosine transform
Option B:	Discrete sine transform

Option C:	KL transform
Option D:	Haar transform
Q7.	A filter is applied to an image whose response is independent of discontinuities in the image. The filter is
Option A:	Isotropic filter
Option B:	Box filter
Option C:	Median filter
Option D:	Gaussian filter
Q8.	To highlight particular range of gray levels in image, which of the following operation is used?
Option A:	Zooming
Option B:	Contrast stretching
Option C:	Gray Level Slicing
Option D:	Bit Plane Slicing
Q9.	If the pixels of an image are shuffled then the parameter that may change is
Option A:	Histogram
Option B:	Mean
Option C:	Entropy
Option D:	Covariance
Q10.	Local averaging does which of the following in image segmentation?
Option A:	Sharpens the image
Option B:	Smoothens the image
Option C:	Darkens the image
Option D:	Brightens the image
Q11.	Gradient magnitude images are more useful in
Option A:	Point detection
Option B:	Line detection
Option C:	Area detection
Option D:	Edge detection
Q12.	Intersection between zero intensity and extreme of second Laplacian derivative is called:
Option A:	Discontinuity
Option B:	Similarity
Option C:	Continuity
Option D:	Zero-crossing
Q13.	Detection of lines and edges in image segmentation is similar to which of the process?
Option A:	Low pass filtering
Option B:	Median filtering
Option C:	High pass filtering
Option D:	Gaussian low pass filtering

Q14.	Which of the following measures are not used to describe a region?
Option A:	Mean and median of grey values
Option B:	Minimum and maximum of grey values
Option C:	Number of pixels alone
Option D:	Number of pixels above and below mean
Q15.	Image restoration
Option A:	Needs prior knowledge of degradation
Option B:	Does not need prior knowledge of degradation
Option C:	Is same as enhancement
Option D:	Increases the intensity of image
Q16.	Image boundary is detected by
Option A:	Addition of original image and the eroded one creates
Option B:	Difference between the original image and the dilated image
Option C:	Addition of original image and the dilated image
Option D:	Difference between the original image and the eroded one creates
Q17.	For Bridging gaps in objects which morphological operation is used?
Option A:	Dilation
Option B:	Opening
Option C:	Closing
Option D:	Erosion
Q18.	Disadvantage of inverse filtering is
Option A:	It blurs the image
Option B:	It shrinks the image
Option C:	It amplifies noise
Option D:	It darkens the image
Q19.	In Wiener filtering it is assumed that noise and image are
Option A:	Different
Option B:	Homogeneous
Option C:	Correlated
Option D:	Uncorrelated
Q20.	How do you estimate motion with temporal motion model?
Option A:	First find the trajectory of individual points drawn in the (x,y,t) space of an image sequence.
Option B:	The trajectory is linear function of velocity or displacement of moving object at each y.
Option C:	The trajectory is linear function of velocity of moving object at each x
Option D:	The trajectory is linear function of displacement of moving object at each x
Q21.	What is method to solve the apparent motion and apparent displacement object?
Option A:	2D apparent motion
Option B:	2D displacement and correspond field

Option C:	2D apparent motion & 2D displacement and correspond field
Option D:	Pixel recursive algorithms and optical flow estimation
Q22.	What is the type of motion model?
Option A:	Spatial motion model
Option B:	Slow motion model
Option C:	Fast motion model
Option D:	Frequency motion model
Q23.	In Multi-Resolution Motion Estimation technique
Option A:	Motion vectors (MVs) in the highest resolutions are predicted by the motion vectors in the lower resolution and are refined at each step.
Option B:	Motion vectors (MVs) in the lowest resolutions are predicted by the motion vectors in the higher resolution and are refined at each step.
Option C:	Motion vectors (MVs) in the lowest resolutions are predicted by the motion vectors in the lower resolution and are refined at each step.
Option D:	Motion vectors (MVs) in the highest resolutions are predicted by the motion vectors in the higher resolution and are refined at each step.
Q24.	Which one among the following is not a block distortion measure (BDM) for block matching motion estimation
Option A:	Mean square error (MSE)
Option B:	Mean absolute difference (MAD)
Option C:	Peak to Signal Noise Ratio (PSNR)
Option D:	Structural Similarity Index (SSIM)
Q25.	A compressed video file can be downloaded as
Option A:	Image
Option B:	Text file
Option C:	Video
Option D:	Frame

Program: BE Instrumentation Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: ISC701 Course Name: Industrial Process Control

Time: 1hour

Max. Marks: 50

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Note to the students:- All Questions are compulsory and carry equal marks .

Q1.	Find the reflux ratio if the feed, residue and reflux rate is 100, 40 and 50 mole/hr.
Option A:	0.83
Option B:	1.25
Option C:	1
Option D:	1.5
Q2.	Baffles in the shell side of a shell and tube heat exchanger
Option A:	Increase the cross-section of the shell side liquid
Option B:	Increase the shell side heat transfer co-efficient
Option C:	Decrease the shell side heat transfer co-efficient
Option D:	Force the liquid to flow parallel to the bank
Q3.	In which type of heat exchanger, the inlet temperature difference between the hot and cold fluid is maximum
Option A:	Co-current heat exchanger
Option B:	Counter current heat exchanger
Option C:	Finned heat exchanger
Option D:	Cross flow heat exchanger
Q4.	Rate of evaporation increases as
Option A:	Exposed surface area of the liquid decreases
Option B:	Atmospheric pressure increases
Option C:	Movement of air above the surface of the liquid decreases
Option D:	Exposed surface area of the liquid increases
Q5.	Which type of flow arrangement is this

Option A:	Counter flow
Option B:	Parallel flow
Option C:	Regenerator
Option D:	Shell and tube
Q6.	Which of the following is a fire tube boiler.....
Option A:	Cornish boiler
Option B:	Babcock and Wilcox boiler
Option C:	Locomotive boiler
Option D:	Cochran boiler
Q7.	An economiser in a boiler.....
Option A:	Increases steam pressure
Option B:	Increases steam flow
Option C:	Decreases steam pressure
Option D:	Decreases fuel consumption
Q8.	The use of solvent for increasing the relative volatility is for
Option A:	Extractive distillation
Option B:	Azeotropic distillation
Option C:	Reactive distillation
Option D:	Multi-component distillation
Q9.	Find the Azeotropic mixture
Option A:	Air-water
Option B:	Acetic acid- water
Option C:	Acetic acid- alcohol
Option D:	Air-alcohol
Q10.	Crystal phases can be inter-converted by varying _____
Option A:	Size
Option B:	Viscosity
Option C:	Temperature
Option D:	Pressure
Q11.	Calculate the flux (kg/sq.m sec) if Mass of dry solid = 8 kg; Wet surface area = 4 sq.m; Change in moisture content with time is 0.4 /sec
Option A:	0.9
Option B:	0.8
Option C:	0.6

Option D:	0.4
Q12.	How is the variation of air velocity while passing through impeller followed by diffuser in centrifugal compressor?
Option A:	Air velocity goes no decreasing in impeller followed by diffuser
Option B:	Air velocity decreases in impeller and then increases in diffuser
Option C:	Air velocity goes no increasing in impeller followed by diffuser
Option D:	Air velocity increases in impeller and then decreases in diffuser
Q13.	Which dryer used radiation for drying
Option A:	Microwave dryer
Option B:	Flash dryer
Option C:	Spray dryer
Option D:	Drum dryer
Q14.	Gas turbine plants are not used
Option A:	As base load plants
Option B:	As peak load plants
Option C:	As standby power plants
Option D:	In combination with the steam power plants
Q15.	The aim of pasteurization milk is to _____
Option A:	Oxidation
Option B:	Improve color
Option C:	Kill disease producing organisms
Option D:	Improve flavor
Q16.	Which is not considered part of the fire triangle
Option A:	Heat
Option B:	Oxygen
Option C:	Combustion
Option D:	Fuel
Q17.	What is the main purpose of hazard identification
Option A:	To characterize adverse effect of toxins
Option B:	To minimize the effect of a consequence
Option C:	For better risk management
Option D:	To reduce probability of occurrence
Q18.	Soft fats in milk fat are _____
Option A:	Capric & Lauric
Option B:	Oleic & Butyric
Option C:	Oleic & Lauric
Option D:	Lauric & Stearic
Q19.	Which gas substance contain in IIB ATEX group.
Option A:	Acetylene
Option B:	Propane

Option C:	Ethylene
Option D:	Hydrogen
Q20.	The product from blast furnace is called
Option A:	Cast Iron
Option B:	Wrought Iron
Option C:	Pig Iron
Option D:	Steel
Q21.	Check list for Job Safety Analysis (JSA) consists of
Option A:	Men, work area. Material, tools
Option B:	Work area, material, machine, tools
Option C:	Men, machine, work area, tools
Option D:	Men, machine, material, tools
Q22.	Pressure & temperature maintained in catalytic cracking is about
Option A:	10 atm & 500°C
Option B:	50 atm & 750°C
Option C:	30 atm & 200°C
Option D:	2 atm & 500°C
Q23.	What is the raw material which is not needed for steel production?
Option A:	Water
Option B:	Ferro alloys
Option C:	Refractories
Option D:	Paint
Q24.	A gas turbine works on which cycle?
Option A:	Rankine cycle
Option B:	Carnot
Option C:	Brayton
Option D:	Dual cycle
Q25.	Which of the following has maximum hydrogen/carbon ratio (by weight)
Option A:	Diesel
Option B:	Gasoline
Option C:	Fuel oil
Option D:	Naphtha