University of Mumbai

Examination June 2021

Examinations Commencing from 15th June 2021 to 26th June 2021

Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Rev-2016

Examination: TE Semester V

Course Code: ECC501 and Course Name: Microprocessor and Peripherals Interfacing

Time: 2 hour Max. Marks: 80

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Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	A computer program that translates high level programming language code to machine level code is --------.
Option A:	Assembler
Option B:	Compiler
Option C:	Interpreter
Option D:	Converter
2.	8086 microprocessors can access -------- IO ports.
Option A:	16K
Option B:	8K
Option C:	32K
Option D:	64K
3.	8086 microprocessor has -------- byte prefetch queue in bus interface unit.
Option A:	6
Option B:	4
Option C:	3
Option D:	2
4.	Memory Segmentation permits the programmer to access 1MB memory using only --------- bit address.
Option A:	8
Option B:	16
Option C:	32
Option D:	20
5.	Which flag is set/reset for auto incrementing/decrementing modes of SI and DI during string operations in an 8086 microprocessor?
Option A:	DF
Option B:	OF
Option C:	IF
Option D:	TF
6.	The result of MOV AL, 58 --------.
Option A:	store 0101 1000 in AL
Option B:	store 58 H in AL
Option C:	store data from memory 58 to AL

Option D:	store 0011 1010 in AL
7.	The instruction that loads an effective address formed by destination operand into the specified source register is -------.
Option A:	LEA
Option B:	LDS
Option C:	LES
Option D:	LAHF
8.	Which of the following instructions gives 2's complement of the number?
Option A:	DAA
Option B:	NEG
Option C:	DAS
Option D:	CMP
9.	How many channels are present in one DMA Controller IC 8257?
Option A:	2
Option B:	4
Option C:	6
Option D:	8
10.	In control word format of 8254, if RL1=1, RL0=1 then the operation performed is
Option A:	read/load least significant byte only
Option B:	read/load most significant byte only
Option C:	read/load LSB first and then MSB
Option D:	read/load MSB first and then LSB
11.	How many ICW (Initialization Command Word) are present in 8259?
Option A:	2
Option B:	4
Option C:	6
Option D:	8
12.	Which of the following is a bidirectional I/O mode in 8255?
Option A:	Mode 0
Option B:	Mode 1
Option C:	Mode 2
Option D:	BSR
13.	Exit Condition for LOOP instruction is --------.
Option A:	AX = 0000H
Option B:	BX=0000H
Option C:	CX=0000H
Option D:	DX=00000H
14.	Instruction Queue is used for --------.
Option A:	Pipelining
Option B:	Memory Segmentation
Option C:	Memory Banking
Option D:	Memory Interfacing

15.	The function of S5 pin is to --------.
Option A:	Give status of Interrupt Enable Flag
Option B:	Give status of Trap Flag
Option C:	Give status of Direction Flag
Option D:	Give status of Sign Flag
16.	The time taken by the ADC from the active edge of SOC pulse till the active edge of EOC signal is referred as --------.
Option A:	Conversion delay
Option B:	Settling time
Option C:	Take off time
Option D:	output time
17.	In ADC, the ALE is used to____.
Option A:	start conversion
Option B:	stop conversion
Option C:	provide clock
Option D:	Latch Channel number
18.	Which of the following signals is used to select the ODD memory bank in 8086?
Option A:	ALE
Option B:	Active low BHE
Option C:	A0
Option D:	MEMR
19.	How many address lines a memory chip of 1K capacity will have?
Option A:	8
Option B:	10
Option C:	11
Option D:	12
20.	The BUSY signal of 8087 is connected with -------- pin of 8086.
Option A:	TEST
Option B:	HOLD
Option C:	INTR
Option D:	QS0

Q2	**Solve any Two Questions out of Three** **10 marks each**
A	Write a Program to find strength of Positive and Negative numbers among the series of 10 signed numbers.
B	Explain the Interrupt structure of 8086 Microprocessor.
C	Explain Various operating modes of 8255 PPI.

Q3.	
A	**Solve any Two** **5 marks each**
i.	Explain the instruction pipelining features of 8086. Give its advantages and its disadvantages.
ii.	Explain the need of assembly language and compare with high level languages.
iii.	If 16k RAM (2 chips of 8k each) are interfaced with 8086.Assuming that physical address of RAM is 00000H,what will be the starting and ending address of each chip?
B	**Solve any One** **10 marks each**
i.	Explain Maximum Modes of 8086 Microprocessor. Draw timing diagram for Read operation in maximum Mode.
ii.	Draw and explain the interfacing of DAC 0809 with 8086 microprocessor using 8255. Also write an assembly language program to generate square wave.

University of Mumbai

Examination June 2021

Examinations Commencing from 15th June 2021 to 26th June 2021

Program: Electronics and Telecommunication Engineering

Curriculum Scheme: Rev2016

Examination: Third Year Semester V

Course Code: ECC502 and Course Name: Digital Communication

Time: 1 hour Max. Marks: 80

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Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks** **40**
1.	Let X be a real-valued random variable with $E[X]$ *and* $E\ [X^2]$ denoting the mean values of X and X^2, respectively. The relation which always holds
Option A:	$(E[X])^2 > E\ [X^2]$
Option B:	$E\ [X^2] \geq (E[X])^2$
Option C:	$E\ [X^2] = (E[X])^2$
Option D:	$E[X]^{\ 2} > (E[X])^2$
2.	What does the central limit theorem state?
Option A:	if the sample size increases sampling distribution must approach normal distribution
Option B:	if the sample size decreases then the sample distribution must approach normal distribution
Option C:	if the sample size increases then the sampling distribution much approach an exponential distribution
Option D:	if the sample size decreases then the sampling distribution much approach an exponential distribution
3.	The value of the probability density function of random variable is___
Option A:	Positive function
Option B:	Negative function
Option C:	Zero
Option D:	One
4.	The source encoder has H=1.75 bits/Message and N=2 bits/Message. Then coding efficiency is,
Option A:	87.5 %
Option B:	90 %
Option C:	50 %
Option D:	20 %
5.	When Information increases then
Option A:	Probability also increases
Option B:	Probability has no relation with information
Option C:	Probability remains constant
Option D:	Probability decreases
6.	Huffman and Shannon Fano coding are types of_____.
Option A:	Channel coding
Option B:	Source coding

Option C:	Error control codes
Option D:	Error correction code
7.	The generator polynomial for cyclic codes with dimension (6,3) is,
Option A:	x+1
Option B:	x^2+2x+1
Option C:	x^3+x+1
Option D:	2x+1
8.	The no of errors detected s and no. of errors corrected t for dmin=3
Option A:	s=2, t=1
Option B:	s=2, t=2
Option C:	s=1, t=1
Option D:	s=3, t=1
9.	If the sum of any two code vectors produces another code vector the code is called as _____.
Option A:	Linear
Option B:	Non linear
Option C:	Summative
Option D:	Cyclic
10.	Which of the following techniques is used for generation of convolutional codes?
Option A:	Tree Diagram
Option B:	Huffman coding
Option C:	Generator matrix
Option D:	Shannon Fano coding
11.	For convolutional encoder, the no. of message bits K considered for encoding at a time are
Option A:	K=2
Option B:	K=4
Option C:	K= 1
Option D:	K=5
12.	The binary modulation format which has better error performance is
Option A:	ASK
Option B:	FSK
Option C:	PSK
Option D:	FSK and ASK
13.	The bandwidth of BFSK is _____ than BPSK.
Option A:	Lower
Option B:	Same
Option C:	Higher
Option D:	Not predictable

14.	The M- Ary modulation is preferred over binary modulation due to
Option A:	Improved noise performance
Option B:	Improved bandwidth efficiency
Option C:	Improved sensitivity
Option D:	Decreased BER
15.	Constellation diagram is used to find,
Option A:	Bandwidth
Option B:	Spectral efficiency
Option C:	Noise performance
Option D:	Power
16.	The process of converting digital symbols into suitable waveform is known as,
Option A:	Source coding
Option B:	Channel coding
Option C:	Line coding
Option D:	Correlative coding
17.	Raised cosine filter with roll off factor $\rho = 1$ gives the transmission band width B_T equal to ___
Option A:	2 W
Option B:	0.5W
Option C:	1W
Option D:	1.5W
18.	Eye diagram is used to find,
Option A:	Data rate of source
Option B:	Entropy
Option C:	Mutual Information
Option D:	ISI introduced by channel
19.	Matched filters may be optimally used only for_____.
Option A:	Gaussian noise
Option B:	Transit time noise
Option C:	Flicker
Option D:	Shot Noise
20.	The optimum filter which gives maximum SNR in presence of white noise is,
Option A:	Nyquist filter
Option B:	Duobinary filter
Option C:	Integrator
Option D:	Matched filter

Q2	Solve any Two Questions out of Three 10 marks each
A	Explain the following terms and give their significance (i) Mean (ii) Central moment (iii) Variance (iv) Standard deviation
B	Consider source alphabet of DMS having source symbols with their respective probabilities 0.40, 0.20,0.12,0.08,0.08 and 0.04 i) Find Entropy of source ii) Find average codeword length iii) Determine coding efficiency iv) Comment on the result
C	Over a long transmission line draw the following data format for the binary sequence 10011101011. i) Unipolar NRZ ii) Polar RZ iii) Manchester iv) AMI Select the best and justify the answer.

Q3	Solve any Two Questions out of Three 10 marks each
A	Consider a convolution encoder with the constraint length K=3 and g^1={1,0,1} and g^2={0,1,1}. Find the code vector for the message stream 11010 using time domain approach. Verify the code vector using transform approach.
B	Explain 16-ary PSK with respect to the following terms i) Modulator and demodulator ii) Power spectral density and bandwidth
C	Derive an expression for probability of matched filter.

University of Mumbai

Examination June 2021

Examinations Commencing from 15th June 2021 to 26th June 2021

Program: Electronics and Telecommunication Engineering

Curriculum Scheme: Rev2016

Examination: Third Year Semester V

Course Code: **ECC503** and Course Name: **Electromagnetic Engineering**

Time: 2 hour Max. Marks: 80

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Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	If a negative charge is absent, then where do the flux lines terminate?
Option A:	At zero
Option B:	At unity
Option C:	At infinity
Option D:	At radial field
2.	Divergence theorem is applicable for
Option A:	Static fields only
Option B:	Time varying fields only
Option C:	Both static and time varying fields
Option D:	Not applicable to any field
3.	The capacitance of a material refers to
Option A:	Ability of the material to store magnetic field
Option B:	Ability of the material to store electromagnetic field
Option C:	Ability of the material to store electric field
Option D:	Potential between two charged plates
4.	Find the characteristic impedance expression in terms of the inductance and capacitance parameters.
Option A:	Zo = sqrt(LC)
Option B:	Zo = LC
Option C:	Zo = sqrt(L/C)
Option D:	Zo = L/C
5.	Copper behaves as a
Option A:	Conductor always
Option B:	Conductor or dielectric depending on the applied electric field strength
Option C:	Conductor or dielectric depending on the frequency
Option D:	Conductor or dielectric depending on the electric current density
6.	Curl (E) = -∂B/∂t is called
Option A:	Maxwell's equation for static fields
Option B:	Maxwell's equation for time varying fields
Option C:	Gauss Law of electrostatics

Option D:	Biot Savart's law
7.	A boundary of separation between two magnetic materials is identified by which factor?
Option A:	Change in the permeability
Option B:	Change in permittivity
Option C:	Change in magnetization
Option D:	Conduction
8.	Given that the reflection coefficient is 0.6. Find the VSWR.
Option A:	2
Option B:	4
Option C:	6
Option D:	8
9.	The ratio of conduction to displacement current density is referred to as
Option A:	Attenuation constant
Option B:	Propagation constant
Option C:	Loss tangent
Option D:	Dielectric constant
10.	The SI unit of magnetic field intensity is
Option A:	A/m
Option B:	V/m
Option C:	C/m
Option D:	F/m
11.	Which component of the electric field intensity is always continuous at the boundary?
Option A:	Tangential
Option B:	Normal
Option C:	Horizontal
Option D:	Vertical
12.	Which of the following cannot be computed using the Biot-Savart's law?
Option A:	Magnetic field intensity
Option B:	Magnetic flux density
Option C:	Electric field intensity
Option D:	Permeability
13.	Consider a transmission line of characteristic impedance 50 ohm. Let it be terminated at one end by +j50 ohm. The VSWR produced by it in the transmission line will be
Option A:	1
Option B:	0
Option C:	Infinity
Option D:	+j

14.	_____ provides a method whereby the potential function can be obtained subject to the conditions on the boundary.
Option A:	Poisson's Equation
Option B:	Faraday's Law
Option C:	Laplace's Equation
Option D:	Poynting Theorem
15.	If divergence of a field is positive, then field acts as a
Option A:	Reducing field
Option B:	Increasing field
Option C:	Converging field
Option D:	Diverging field
16.	Total magnetic flux crossing a closed surface is
Option A:	Total flux enclosed by the surface
Option B:	Total current enclosed by the surface
Option C:	Total charge enclosed by the surface
Option D:	Zero
17.	The open wire transmission line consists of
Option A:	Conductor
Option B:	Dielectric
Option C:	Both conductor and dielectric
Option D:	Either conductor or dielectric
18.	The magnitude of the Ex and Ey components are the same in which type of polarization?
Option A:	Linear
Option B:	Circular
Option C:	Elliptical
Option D:	Perpendicular
19.	A bar magnet is divided in two pieces. Which of the following statements is true?
Option A:	The bar magnet is demagnetized.
Option B:	The magnetic field of each separated piece becomes stronger.
Option C:	The magnetic poles are separated.
Option D:	Two new bar magnets are created.
20.	One Tesla is equal to
Option A:	1 Wb/m^2
Option B:	1 C/m^2
Option C:	1 Wb/C
Option D:	1 N/C

Q2	**Solve any Two Questions out of Three** **10 marks each**
A	If $\underline{E} = 2r^2\ cos\ cos\ \varphi\ \underline{a_\varphi}\ \ldots \frac{V}{m}$ found in chemical ($\varepsilon = 2\varepsilon_0$) filled cylindrical chamber having radius r = 0.2m and height z = 1m, find total charge lying on the chemical.
B	Two isolated cone having same radius suspended on two angles $\theta = 30°$ & $\theta = 60°$ excited by voltage $V(\theta = 30°) = 100\ V$ & $V(\theta = 60°) = 200\ V$, then find out Electric field generated between two cones and prove it in between two cone Electric fields passing through the charge free region.
C	Derive magnetic field due infinite straight current carrying conductor.

Q3	**Solve any Two Questions out of Three** **10 marks each**
A	Oscillating EM wave used to check properties of non-magnetic dielectric paraffin wax ($\sigma = 0, \mu = \mu_0$) at $f = 100\ MHz$. By experimentation we get ($\varepsilon = 4\varepsilon_0$) for paraffin wax. Find out following properties of EM wave generated in given paraffin wax material: i) Attenuation constant ii) Phase constant iii) Phase velocity iv) Intrinsic impedance v) Magnetic field induced in material if $\lvert\underline{E}\rvert = 10\frac{KV}{m}$
B	Strip of transmission line is designed on Fibre glass substrate having relative permittivity of $\varepsilon_r = 4$ operating at $f = 2\ GHz$ and terminated with load impedance of $Z_L = 120 + 150j\ \Omega$ with $Z_0 = 100\ \Omega$; find out input impedance of transmission line if strip length is $l = 0.2\lambda$ at a given frequency. Solve by Analytical methods.
C	Explain electrostatic breakdown in lightning and its conditions.

University of Mumbai

Examination June 2021

Examinations Commencing from 15th June 2021 to 26th June2021

Program: **Electronics and Telecommunication Engineering**

Curriculum Scheme: Rev2016

Examination: TE Semester VI

Course Code: ECC-504 and Course Name: Discrete Time Signal Processing

Time: 2 hour Max. Marks: 80

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Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	If the normalized transition width of a FIR filter using Hamming window is 0.1, the order N of the FIR filter is given as
Option A:	33
Option B:	31
Option C:	9
Option D:	10
2.	If an N-point sequence, If N=16, the total number of complex additions and multiplications using Radix-2 FFT are,
Option A:	64,80
Option B:	80,64
Option C:	64,32
Option D:	18,24
3.	Range of Round off error for sign magnitude binary number representation with B number of bits is given as -------
Option A:	$-\left(\frac{2^{-B}}{2}\right) \leq \epsilon_R \leq \left(\frac{2^{-B}}{2}\right)$
Option B:	$-\left(2^{-B}\right) \leq \epsilon_R \leq 0$
Option C:	$-\left(2^{-B}\right) \leq \epsilon_R \leq \left(2^{-B}\right)$
Option D:	$-\left(2^{+B}\right) \leq \epsilon_R \leq 0$
4.	The difference between butterworth and chebyshev filter pole location is
Option A:	Poles of butterworth filter lie on circle while poles of chebyshev filter lie on ellipse
Option B:	Poles of butterworth filter lie on ellipse while poles of chebyshev filter lie on circle
Option C:	Poles of butterworth filter lie on unit circle while poles of chebyshev filter lie on circle
Option D:	Poles of butterworth filter lie on ellipse and poles of chebyshev filter also lie on ellipse
5.	Compute the DFT of the Sequence, x(n)= {0,1,2,1 } at K=1
Option A:	X(1) = 2
Option B:	X(1) = -2
Option C:	X(1) = 1
Option D:	X(1) = -1

6.	An antisymmetric FIR filter with length N as even **does not pass** the frequency at $\omega = \frac{\pi}{3}\ rad/sec$. Give the location of the zeros of this filter
Option A:	$1\angle\frac{\pi}{3}, 1\angle-\frac{\pi}{3}$ and 1
Option B:	$1\angle\frac{\pi}{3}, 1\angle-\frac{\pi}{3}$ and -1
Option C:	$1\angle\frac{\pi}{3}, 1\angle-\frac{\pi}{3}$, 1 and -1
Option D:	$1\angle\frac{\pi}{3}, 1\angle-\frac{\pi}{3}$
7.	In the DTMF detection the _____ algorithm is used
Option A:	DIT-FFT
Option B:	DIF-FFT
Option C:	Geortzel's
Option D:	Chirpz
8.	The process of reducing the number of bits of a binary number is called _____
Option A:	Rounding
Option B:	Truncation
Option C:	Finite word
Option D:	Subtraction
9.	In DSP processors the convolution and correlation operations are performed in faster manner due to _____ hardware
Option A:	Multiple and accumulate unit (MAC)
Option B:	VLIW
Option C:	Multiple register structure
Option D:	Multiple processors
10.	Which filter has equi-ripple characteristics in the passband and varies monotonically in the stopband
Option A:	Type-I Chebyshev
Option B:	Type-II Chebyshev
Option C:	Butterworth
Option D:	Elliptical
11.	Design a Chebyshev filter with a maximum pass band attenuation of 2.5 dB at 20 rad/sec and a minimum stop band attenuation of 30 dB at 50 rad/sec
Option A:	2
Option B:	3
Option C:	1
Option D:	4
12.	The effect of coefficient quantization is less in _____ realization
Option A:	Direct Form I
Option B:	Direct Form II
Option C:	Cascade
Option D:	Parallel
13.	The convolution of two signals in time domain is equivalent to_____ of their spectra in frequency domain.

Option A:	Addition
Option B:	Multiplication
Option C:	Division
Option D:	Convolution
14.	The Complex valued phase factor/ Twiddle factor, W_N can be expressed as,
Option A:	$W_N = e^{-j2\pi N}$
Option B:	$W_N = e^{\frac{-j2\pi}{N}}$
Option C:	$W_N = e^{-j2\pi}$
Option D:	$W_N = e^{-j2\pi kN}$
15.	If a signal sequence x(n) with frequency components between f1 and f2 is passed through a filter with a linear frequency response then its output is a
Option A:	Expanded version of input x(n)
Option B:	Compressed version of input x (n)
Option C:	Phase shifted version of input x(n)
Option D:	Delayed version of input x(n)
16.	Determine the order of the butterworth filter for the specifications Pass band gain = 1 dB Stop band gain = 30 dB Ωp = 200 rad/s and W Ωs = 600 rad/s.
Option A:	1
Option B:	2
Option C:	3
Option D:	4
17.	Consider a first order IIR filter $y(n) = x(n) + 0.5y(n-1)$. Find the dead band, if the length of the register is 4 bits
Option A:	0.125
Option B:	32
Option C:	0.417
Option D:	0.25
18.	In TMS320C67XX DSP processor how many functional units exists
Option A:	8
Option B:	6
Option C:	2
Option D:	4
19.	The Order N of Type I Linear phase FIR filters is _____ and it has _____ impulse response
Option A:	Odd, Symmetric
Option B:	Odd, Asymmetric
Option C:	Even, Symmetric
Option D:	Even, Asymmetric
20.	If a continuous time system has poles only in the left half of the S plane then the corresponding digital filter must have poles

Option A:	Only outside the unit circle
Option B:	Only inside the unit circle
Option C:	Anywhere on the z plane
Option D:	$2 \leq \|z\| \leq 3$

Q2	
A	**Solve any Two** **5 marks each**
i.	Draw the pole zero diagram of an antisymmetric FIR filter with number of coefficients (length) odd and passes the frequency $=\pi/2$. Also find its transfer function and identify the type of the linear phase filter
ii.	Obtain the expression for the variance of the output noise of a LTI digital system H(z) which is fed with a quantized input signal
iii.	Derive the Parsevals Energy theorem of DFT and also find the Energy of signal x(n)={1,2,3,4}
B	**Solve any One** **10 marks each**
i.	Design a digital Butterworth filter that satisfies following constraints using impulse invariant method. Assume Ts=1s. $0.8 \leq \lvert H(e^{jw}) \rvert \leq 1 \quad 0 \leq w \leq 0.2\pi$ $\lvert H(e^{jw}) \rvert \leq 0.2 \quad 0.6\pi \leq w \leq \pi$
ii.	Explain the architecture of TMS320C67XX DSP processor

Q3.	
A	**Solve any Two** **5 marks each**
i.	Derive an expression for Frequency response of Type 1 Linear phase FIR filter having a length N = 5.
ii.	Explain the application of DSP in Radar processing
iii.	What is meant by limit cycles in recursive system? What is dead band of a filter?
B	**Solve any One** **10 marks each**
i.	Derive the flow graph for N=2.3 composite FFT
ii.	Design type I Chebyshev filter for given specifications as α_p=2dB,α_s=12dB,Fp=1kHz & Fs=2KHz. Use BLT method. Assume T=1s.

University of Mumbai

Examination June 2021

Examinations Commencing from 15th June 2021 to 26th June 2021

Program: Electronics and Telecommunication Engineering

Curriculum Scheme: Rev2016

Examination: Third Year Semester : V

Course Code: ECCDLO5014 and Course Name: Data Compression and Encryption

Time: 1 hour Max. Marks: 50

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Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	What is the characteristic of Network based IDS?
Option A:	They look for attack signatures in network traffic
Option B:	Filter decides which traffic will not be discarded or passed
Option C:	It is programmed to interpret a certain series of packet
Option D:	It models the normal usage of network as a noise characterization
2.	The full form of SSL is
Option A:	Serial Session Layer
Option B:	Secure Socket Layer
Option C:	Session Secure Layer
Option D:	Series Socket Layer
3.	Which protocol consists of only 1 bit in SSL?
Option A:	Alert
Option B:	Handshake
Option C:	Alarm
Option D:	Cipher change spec
4.	Computation of the discrete logarithm is the basis of the cryptographic system in _____
Option A:	Symmetric cryptography
Option B:	Asymmetric cryptography
Option C:	Diffie-Hellman key exchange
Option D:	Secret key cryptography
5.	In RSA, Φ(n) = _____ in terms of p and q.
Option A:	(p)/(q)
Option B:	(p)(q)
Option C:	(p-1)(q-1)
Option D:	(p+1)(q+1)
6.	When a hash function is used to provide message authentication, the hash function value is referred to as
Option A:	Message Field
Option B:	Message Digest
Option C:	Message Score

Option D:	Message Leap
7.	SHA-1 produces a hash value of
Option A:	256
Option B:	160
Option C:	180
Option D:	224
8.	Which of the following is a type of traditional cipher?
Option A:	transportation cipher
Option B:	transposition cipher
Option C:	transforming cipher
Option D:	vigenere cipher
9.	The DES Algorithm Cipher System consists of _____rounds (iterations) each with a round key
Option A:	12
Option B:	18
Option C:	14
Option D:	16
10.	Moving picture expert group 2 is used to compress
Option A:	video
Option B:	audio
Option C:	Image
Option D:	frames
11.	Moving picture expert group 1 is designed for a
Option A:	PC
Option B:	CD
Option C:	DVD
Option D:	Floppy
12.	In audio and Video Compression , each frame is divided into small grids, called as
Option A:	Frame
Option B:	Packet
Option C:	Pixel
Option D:	Byte
13.	Which method is also known as a substitution coder in a data compression algorithm?
Option A:	Transposition Cipher
Option B:	Substitution Cipher
Option C:	Book based Encoding
Option D:	Dictionary-based encoding

14.	_____is used to compress images.
Option A:	MPEG
Option B:	JPEG
Option C:	AVI
Option D:	CPEG
15.	Quantization noise can be reduced by _____ the number of levels.
Option A:	Increasing
Option B:	Decreasing
Option C:	Doubling
Option D:	Multiplying
16.	Which of the following algorithms is the best approach for solving Huffman codes?
Option A:	exhaustive search
Option B:	greedy algorithm
Option C:	brute force algorithm
Option D:	divide and conquer algorithm
17.	Which is the compression method where data is the same as it was before compression when decompressed?
Option A:	Lossy
Option B:	Lossless
Option C:	Keyless
Option D:	Compress
18.	_____is one of the best-known Dictionary-based encoding algorithms.
Option A:	Lempel-Ziv
Option B:	CRZ
Option C:	BMW
Option D:	CBW
19.	What is compression?
Option A:	To compress something by pressing it very hardly
Option B:	To minimize the time taken for a file to be downloaded
Option C:	To reduce the size of data to save space
Option D:	To convert one file to another.
20.	In Huffman coding, data in a tree always occur in_____
Option A:	Roots
Option B:	Leaves
Option C:	Fruit
Option D:	Flower

Q2. **(20 Marks)**	
A	**Solve any Two** **5 marks each**
i.	Explain Fermat's theorem.
ii.	Explain Digital Signature.
iii.	Encode the sequence "**BABAABAAA"** using LZW.
B	**Solve any One** **10 marks each**
i.	Explain RSA algorithm.
ii.	Explain DPCM used in audio compression in detail.

Q3. **(20 Marks)**	
A	**Solve any Two** **5 marks each**
i.	Write a short note on Cryptographic Attacks.
ii.	Explain the features of MPEG-1
iii.	Write a short note on H.261.
B	**Solve any One** **10 marks each**
i.	Explain the working of DES algorithm with Block diagram.
ii.	State the difference between JPEG and JPEG 2000. State the applications, advantages and limitations of JPEG 2000.