University of Mumbai
Examination 2020 under cluster __ (Lead College: _____)
Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th
January 2021 to 20th January 2021
Program: Instrumentation Engineering
Curriculum Scheme: Rev2016
Examination: TE   Semester V
Course Code: ISC502 and Course Name: AMC

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.	In the instruction "MOV TH1,#-6", what is the value that is being loaded in the TH1 register?
Option A:	Restricted Instruction Sequencing Computer
Option B:	Reduced Instruction Set Computer
Option C:	Restricted Instruction Sequential Compiler
Option D:	Reduced Induction Set Computer
2.	An 8-bit microprocessor signifies that it has
Option A:	8-bit Address bus
Option B:	8- bit serial communication
Option C:	8-bit ALU
Option D:	16-bit timer
3.	There are total of _____ ports in 8051 and each has _____ bits
Option A:	Three, eight
Option B:	Four, sixteen
Option C:	Three, sixteen
Option D:	Four, eight
4.	What is meant by ALU?
Option A:	Arithmetic Logic Unit
Option B:	Automatic Logic Unit
Option C:	Arithmetic Local Unit
Option D:	Automatic Local Unit
5.	If RS0 = 1 and RS1 = 1, the register bank address range is
Option A:	00H-07H
Option B:	08H-0FH
Option C:	10H-17H
Option D:	18H-1FH
6.	The width of the Program Counter in an 8051 microcontroller is
Option A:	8 bits
Option B:	18 bits
Option C:	16 bits
Option D:	4 bits

7.	Which timer mode has auto reload feature?
Option A:	Mode 0
Option B:	Mode 2
Option C:	Mode 1
Option D:	Mode 3
8.	Which of the following is a feature of Embedded System?
Option A:	It is used for specific application
Option B:	Has large memory
Option C:	Power consumption is more
Option D:	They do not have minimal user interface
9.	SWAP instruction is used
Option A:	exchange accumulator contents with register B
Option B:	exchange accumulator contents with R1
Option C:	exchange accumulator contents with register R0
Option D:	exchange lower nibble with upper nibble of accumulator
10.	What can one infer from the instruction 'MOV TMOD, #02H' in an 8051 microcontroller?
Option A:	Set Timer 1 in 16-bit timer operating mode
Option B:	Set Timer 0 in 16-bit timer operating mode
Option C:	Set Timer 0 in 8-bit auto reload timer mode
Option D:	Set Timer 1 in 8-bit auto reload timer mode
11.	With what frequency UART operates (where F denoted the crystal frequency)?
Option A:	MOV P0, #0FH
Option B:	MOV P0, 0FH
Option C:	MOV P0, #F0H
Option D:	MOV P0, F0H
12.	Which register in an 8051 microcontroller contains the SMOD bit?
Option A:	SBUF
Option B:	TMOD
Option C:	PCON
Option D:	TCON
13.	What steps have to be followed for interfacing a sensor to a microcontroller 8051?
Option A:	make the appropriate connections with the controller, ADC conversion, analyse the results
Option B:	interface sensor with ADC and ADC with 8051
Option C:	interface sensor with the MAX232, send now to microcontroller, analyse the results
Option D:	interface sensor with DAC
14.	For Implementation of Traffic light control by using 8051 Microcontroller which peripherals mainly used
Option A:	Serial Port
Option B:	ADC
Option C:	DAC

Option D:	Timers
15.	In power down mode of power control register which of the following is not true?
Option A:	All functions are stopped, the contents of the on-chip RAM and Special Function Registers are lost
Option B:	The ALE and PSEN output are held low
Option C:	Last instruction executed before going into the power down mode
Option D:	The on-chip oscillator is stopped
16.	How can we control the speed of a stepper motor?
Option A:	by controlling its torque
Option B:	by controlling its switching rate
Option C:	by controlling its wave drive 4 step sequence
Option D:	can't be controlled
17.	In reading the columns of a matrix, if no key is pressed, we should get all in binary notation
Option A:	1
Option B:	0
Option C:	F
Option D:	7
18.	In ADC804, INTR is an _____ pin
Option A:	Input
Option B:	Output
Option C:	Read
Option D:	Chip select
19.	Which command of an LCD is used to shift the entire display to the right?
Option A:	1CH
Option B:	18H
Option C:	5H
Option D:	7H
20.	In DC motor interfacing, which modulation controls the duty cycle of square wave provided at the output by generating variation in the average DC voltage?
Option A:	Amplitude Modulation
Option B:	Frequency Modulation
Option C:	Pulse Width Modulation
Option D:	Phase Modulation

Q2.	Solve any Two Questions out of Three	10 marks each
A	Explain the memory organization in MCS-51 microcontroller	
B	Explain implementation of Traffic light controller using 8051 microcontroller.	
C	Draw complete circuit diagram for interfacing the LCD module to 8051 μc. State steps for sending data to LCD module.	

Q3.		
A	Solve any Two	5 marks each
i.	Give comparison between 8051 μc families.	
ii.	Draw and explain interrupt internal circuit diagram	
iii.	Explain the power saving & power down mode of 8051 in details.	
B	Solve any One	10 marks each
i.	The word "RAJIV" is to be burned in flash ROM. Write a program to do this & to read this data into internal RAM.	
ii.	Draw interfacing of DAC with 8051 & write an assembly language program to produce sine wave.	

NOTE: 3 option given below for subjective/descriptive questions

Option 1

Q2 and Q3. (20 Marks Each)	Solve any Four out of Six	5 marks each
A		
B		
C		
D		
E		
F		

Option 2

Q2 and Q3. (20 Marks Each)	Solve any Two Questions out of Three	10 marks each
A		
B		
C		

Option 3

Q2 and Q3. (20 Marks Each)		
A	**Solve any Two**	**5 marks each**
i.		
ii.		
iii.		
B	**Solve any One**	**10 marks each**
i.		
ii.		