

Vivekanand College, Kolhapur (Empowered Autonomous)
Department of Electronics
Notice

Date: 24.09.2024

All the students of B.Sc. II **Major Electronics** are hereby informed that their internal examination for Semester III will be conducted in offline mode as per given schedule.

Course Code	Course title	Marks	Date	Time
DSC03ELE31	Electronic Communication System	10	30.09.2024	11:30 am-12.15 pm
DSC03ELE32	Microprocessor 8085	10	30.09.2024	02:00 pm-02.45 pm


(Dr. C. B. Patil)

HEAD

DEPARTMENT OF ELECTRONICS
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

Vivekanand College, Kolhapur (Empowered Autonomous)
Department of Electronics
Notice

Date: 24.09.2024

All the students of B.Sc. II **Minor Electronics** are hereby informed that their internal examination for Semester III will be conducted in offline mode as per given schedule.

Course Code	Course title	Marks	Date	Time
MIN03ELE31	Principles of Electronic Communication	10	30.09.2024	02:30 pm-03.20 pm
MIN03ELE32	Architecture of 8051	10	01.10.2024	02:30 pm-03.20 pm


(Dr. C. B. Patil)

HEAD

DEPARTMENT OF ELECTRONICS
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

Vivekanand College, Kolhapur

(Empowered Autonomous)

B.Sc. Part- II (Electronics) (Sem-III)

Internal Examination Oct-2024

Course Code: MIN03ELE31

Course Name: Principle of Electronic Communication

Marks: 10

Date: 30/09/2024

[2 Marks]

Q.1) Select most correct alternatives for the following (one mark each)

1. Communication through walky-talky is a -----

A) Full duplex

B) Half duplex

C) Simplex

D) Both A and B

2. Any unwanted signal that is associated with desired signal is known as -----

A) echo

B) noise

C) digit

D) None of these

[8 Marks]

Q.2) Attempt any TWO (Four marks each)

1. Define the noise. What is mean by internal noise? Describe its different types.

2. Draw the basic block diagram of electronic communication system. Explain the function of each block.

3. Define the following terms -

a) Bandwidth,

b) Gain

c) Attenuation

d) Broadband Signal

VIVEKANAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS)

Department of Electronics
B.Sc. II, Sem- III, Internal Exam Attendance 2024-25

MINDSC03ELE31
Date: 30/09/2024

MINDSC03ELE32
Date: 01/10/2024

Sr. No.	Roll No	StudentName	Minor Electronics	
			<u>Skamle</u>	<u>Skamle</u>
1	7751	KAMBLE SAMRAT SURESH	<u>Skamle</u>	<u>Skamle</u>
2	7764	ATTAR NASHRA ABDULLAH	<u>N.A.Birje</u>	<u>N.A.Birje</u>
3	7765	BIRJE NAMRATA NARAYAN	<u>Charankar</u>	<u>Charankar</u>
4	7766	CHARANKAR SHARVARI SANJAY	<u>Chougale</u>	<u>Chougale</u>
5	7767	CHOUGALE SAKSHI SANTOSH	<u>Chougale</u>	<u>Chougale</u>
6	7768	CHOUGULE SWEJAL AMAR	<u>Chougule</u>	<u>Chougule</u>
7	7770	GAIKWAD URVEE UMESH	<u>Gaikwad</u>	<u>Gaikwad</u>
8	7771	GURAV SAHIL SAMIR	<u>Zihil</u>	<u>Zihil</u>
9	7772	HANNAH PRISCILLA MNGOLI	<u>H</u>	<u>H</u>
10	7773	KADAM PRITIKA SURESH	<u>P.S.Kadam</u>	<u>P.S.Kadam</u>
11	7774	KAMBLE SAKSHI SAGAR	<u>Kamble</u>	<u>Kamble</u>
12	7775	KANDALE AMRUTA ANANDRAO	<u>Kandale</u>	<u>Kandale</u>
13	7776	KANUGADE ANUSHKA SHIVLING	<u>Kanugade</u>	<u>AB</u>
14	7777	KHOT SIDDHESH PRAKASH	<u>AB</u>	<u>AB</u>
15	7778	LAHIGADE PARTH SAGAR	<u>Lahigade</u>	<u>Lahigade</u>
16	7779	MACHALE OMKAR SANGRAM	<u>Machale</u>	<u>Machale</u>
17	7780	MANE SATVIK VIKAS	<u>Mane</u>	<u>Mane</u>
18	7781	MORBALE VAISHNAVI PARSHRAM	<u>Morhavi</u>	<u>Morhavi</u>
19	7782	PATIL BHAKTI SAMBHAJI	<u>Patil</u>	<u>Patil</u>
20	7783	PATIL MADHURA ANANDA	<u>Patil</u>	<u>Patil</u>
21	7784	PATIL SANIKA DAGADU	<u>Patil</u>	<u>Patil</u>
22	7785	PATIL TEJAS POPAT	<u>Patil</u>	<u>Patil</u>

Stats →



विवेकानंद कॉलेज, कोल्हापूर. (अधिकारप्रदत्त स्वायत्त)

परीक्षेच्या

या विषयाच्या प्रयोग परीक्षा

Practical Examination in, electronicsat the Vivekanand college Kolhapur

Examination

उमेदवाराचा आसन क्रमांक
(Candidate's Seat No.)विभाग
(Section)

उमेदवारांना सूचना

- प्रश्न काळजीपूर्वक वाचा आणि त्याप्रमाणे विचारलेला प्रयोग करा.
- उपकरणांच्या वापराबाबत तुम्हांला काही माहीत नसेल तर परीक्षक किंवा प्रयोगशाळा सहाय्यक यांना तुम्हाला मदत करण्याविषयी विनंती करा.
- कोणताही विद्युत्प्रयोग करण्यापूर्वी, प्रत्यक्ष पुरविलेली सर्व उपकरणे आणि सर्व 'कनेक्शन' नीट पाहून घेऊन संबंधित कामाची नीटनेटकी कार्ययोजना करण्याची नितांत आवश्यकता आहे आणि ह्यानंतर पुढे काम चालू करण्याविषयी परीक्षकांची परवानगी मिळविणे आवश्यक आहे.
- सर्व निरीक्षणे कोटकवजा तक्त्यात भरावी. मधल्या सर्व गणना आणि निर्णय हे क्य तितक्या सुवाच्यपणे आणि स्पष्टपणे नोंदविलेले असणे हे हितावह आहे.
- प्रारंभिक किंवा अंतिम निरीक्षणात संख्यावाचक आकडे एकावर एक लिहू नयेत. जर लिहिलेला कोणताही आकडा नको असेल तर त्यावर एक रेष ओढून पाहिजे असलेला आकडा त्याच्याजवळ लिहा. प्रयोगशाळेतून बाहेर पडण्यापूर्वी आपले टेबल चांगल्या स्थितीत आहे याची खात्री करा.

INSTRUCTIONS TO CANDIDATES

- Read the question carefully and perform the experiment as required.
- If there by anything the apparatus that you do not know, ask the examiner or the laboratory assistant to help you.
- Before doing any electrical experiment, it is absolutely essential that you make a neat working sketch of all apparatus actually provided and of the necessary connection and obtain the examiner's permission to proceed.
- Express all observations in a tabular form. It is also desirable that all intermediate calculations and results should be entered as neatly and clearly as possible.
- No numerical figures should be written over either in the preliminary or final observations. If any figure is shought to be discarded it should be run through and the desired figure written near to it.
- Please see that your table is in good order before you leave the laboratory.

(येथून लेखनास सुरवात करा.) (Begin writing here.)

प्र. क्र.

Q. No.

Q1) What is meant by noise? Explain the diff. types of external noise with examples?

Q2) Draw the block diagram of electronic communication system and explain each block in short?

प्र. क्र.
Q. No.

Q1) Noise -

Noise means the unwanted sound. Noise is unwanted signal presented in the given wanted signal due to the random fluctuation in an electrical signal and circuit characteristics.

Types of external noises -

A) Human made noise -

Producing by the spark produced mechanism. such as engine ignition system, fluorescent lights, electric motor.

3 B) Atmospheric noise - It is caused by natural occurring disturbance in earth's atmosphere like earthquake, lightning

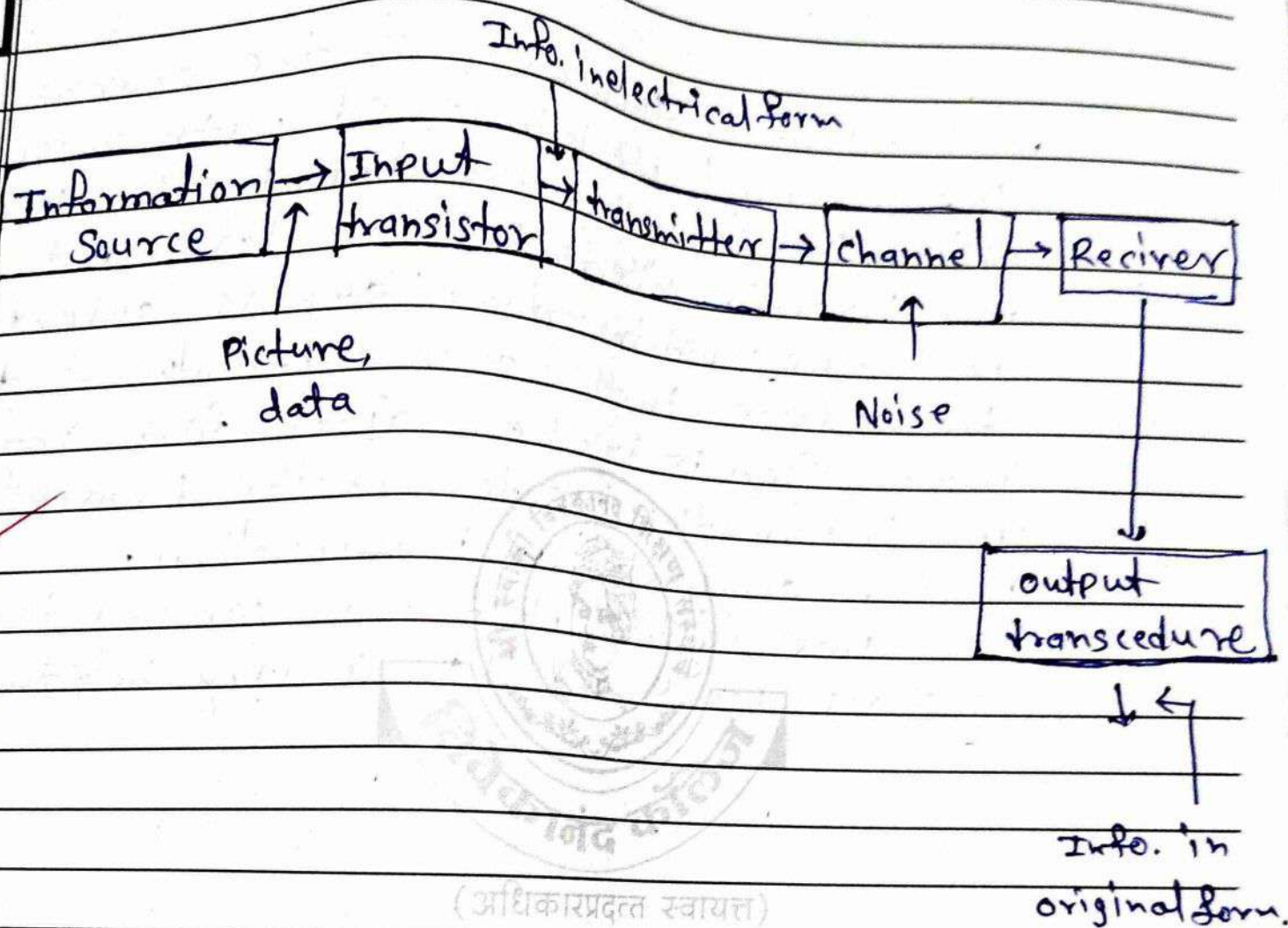
c) space noise -

This noise arise because sun is called the space noise. cyclical reaches. All other stars also called cosmic noise.

प्र. क्र.

Q. No.

Q2)



* Block diagram of electronic communication system.

Information source is the most important part of this system. In this system, information transferred by source and then input transistor gain this information with picture source data. Then this information in electrical form is sent to the transmitter. This information is in the electrical

04

Section

Q. No.

Marks

प्र. क्र.

Q. No.

electrical form. then we go to the channel in the channel we introduced with noise and this noise is collect the data in the Receiver and Receiver collects the all data and then it is the most important step is output transcedure in this output transducer this information is in the original form information the information collected in the transcedure is the original form information.

This is how electronic communication systems work and this is very helpful.

(अधिकारपत्र स्वयत्त)

कोल्हापुर

Name:- Nashra Abdullah Attar

॥ ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार ॥

- शिक्षणमहर्षी डॉ. बापूजी साळुंखे

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

59659

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

SUPPLIMENT

Suppliment No. :

Roll No. : 7764

Class : BSc. Cs. SY

Signature
of
Supervisor

Subject: Principal in Electronic Communication

Test / Tutorial No. : Internal Examination

Div. : A

Q1.

1) Communication through walky-talky is a B Half duplex.

2)

Any unwanted signal that is associated with desired signal is known as B Noise.

Q2.

1)

→ Noise refers to the unwanted signals that tend to disturb the transmission & the processing of message signals in a communication system.

The source generating the noise be located inside or outside system lightning, turning on or off electrical appliances may cause noise.

→ Noise :- "In common use, the unwanted sound. Noise is unwanted signals presented on the given wanted signals due

to the random fluctuation in an electrical signal & circuit characteristic.

• Types of Noise:-

There are several types/sources of noise.

1) External noise occurs due to following

2) Internal noise:- Internal noise generated by electronic circuit are of two basic types.

a) Johnson noise / Thermal noise:- At temperature greater than absolute zero, thermal energy causes microscopic particles to exhibit random motion. The random motion of charged particles such as electrons generates random current is called as thermal noise.

b) Shot noise:- Introduced by transistor.

Other than at low frequency flicker noise and a high frequency transit-time noise occurs. These two also contribute to internal noise.

3)

a) Bandwidth :-

Bandwidth refers to frequency range over which an equipment operates or the portion of the spectrum occupied the signals. Different types of signals have different bandwidth. It is also frequency range over which a receiver or other electronic circuit operates. More specifically, bandwidth is difference between upper & lower frequency limits of signal or equipment operation range.

b) Gain :- Gain means amplification. If a signal is applied to a circuit such as amplifier and the output of circuit has a greater amplitude than the input signal, the circuit has Gain. Gain simply ratio of output to the input. For input (V_{in}) and output (V_{out}) voltage, voltage gain A_v is expressed as:-

$$A_v = \frac{\text{output}}{\text{input}} = \frac{V_{out}}{V_{in}}$$

c) Attenuation :- The loss of strength of a signal while propagating through communication channel is known as attenuation.

• The strength

d) Broadband signal :-

Vivekanand College, Kolhapur

(Empowered Autonomous)

B.Sc. Part- II (Electronics) (Sem-III)

Internal Examination Oct-2024

Course Code: DSC03ELE31

Course Name: Electronic Communication System

Date: 30/09/2024

Marks: 10

Q.1) Select most correct alternatives for the following (one mark each)

[2 Marks]

1. ATM machine is example of ----- communication.
 - A) Full duplex
 - B) Half duplex
 - C) Simplex
 - D) Both A and B
2. In any communication system, the S/N ratio should be -----
 - A) As low as possible
 - B) As high as possible
 - C) Infinite
 - D) None of these

Q.2) Attempt any TWO (Four marks each)

[8 Marks]

1. Explain the terms simplex and duplex communication with example.
2. Define the noise. What is mean by external noise? Describe its different types.
3. Draw the basic block diagram of electronic communication system. Explain the function of each block

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)
B.Sc. Part- II (Electronics) (Sem-III) Internal Examination (2024-25)
DSC-VI: DSC03ELE32 Microprocessor 8085

Day: Monday
Date: 30/09/2024

Time: 1 H
Marks : 10

[2]

Q.1 Select most correct alternative:

- 1) Microcomputer system is built using -----
a) Microprocessor b) Memory c) Input-Output Devices d) all of these
- 2) -----is/are the example/s of ROM.
a) EPROM b) MASK c) EEPROM d) all of these

[8]

Q.2 Solve any TWO [Four marks each]

- 1) What are semiconductor memories? Explain them.
- 2) Draw the neat schematic showing the interface between 8085 microprocessor and 2764 EPROM. Also explain memory map indicating the address and range.
- 3) Draw the neat schematic showing the interface between 8085 microprocessor and 27128 EPROM. Also explain memory map indicating the address and range.

Brajwade kiran kumble

6/10/20

॥ ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार ॥
- शिक्षणमहर्षी डॉ. बापूजी साळुंखे

59648

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

SUPPLIMENT

Suppliment No. :

Roll No. : 7952

Class : B.Sc. SY.

Signature
of
Supervisor

Subject: Electronics Communication
System

Test / Tutorial No. :

Div. :

Q. 1]

1. ATM machine is example of full duplex communication.
2. In any communication system, the S/N ratio should be as high as possible.

Q. 2

1. Explain the terms simplex & duplex communication with example?

→

Two way communication (R Duplex system):

Two-way communication is further classified into two different ways.

A. Half Duplex B. Full Duplex.

A. Half Duplex : In a Half Duplex mode, the data/info can be sent in both the directions, but one at a time & not simultaneously. For example, a walkie talkie is a device that can be used to send message in both the direction, but directions.

but both the person cannot exchange the message simultaneously. One can only speak & the other can only listen.

Half Duplex:

B. Full Duplex: In a full Duplex Mode, the transmission of the information between the sender & the receiver can occur simultaneously. It is used when communication in both direction is required all the time. For example, a telephone is a two way communication in which both the persons can talk & listen to each other at the same time.

e.g: Telephone, Two-way radio, Radar, & Sonar etc.

3. One-way (Simplex) & Communication (Simplex Symmetrical)

One-way communication or simplex communication is the simplest form of communication. In Simplex communication, information travels only in one direction. A common example of one-way or simplex communication is TV Broadcasting, RADIO, & Music. In these all types of electronic communication, information travels from source to destination through one-way only.

3) Draw the basic block diagram of electronic communication system. explain the function of each block?

→

2.

→

2. Noise

Definition of noise

In common use, the word noise, mean

In common use the word noise means any unwanted sound!

Noise is unwanted signal presented in the given wanted signal due the random fluctuation in an electrical signal & circuit characteristics

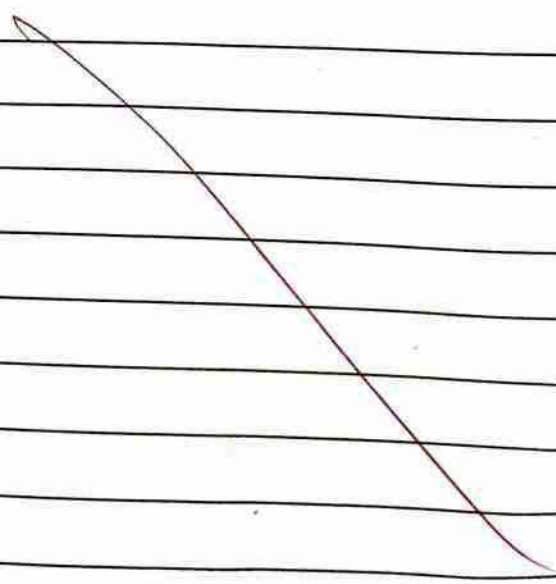
Types of noise

There are several sources of noise

The noise introduced in the transmitt

The noise in

2



॥ ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार ॥

- शिक्षणमहर्षी डॉ. बापूजी साळुंखे

7/10 09928

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)**SUPPLIMENT**

Suppliment No. : 1

Roll No. : 7759

Class : 8Y (BSc)

Signature
of
Supervisor

Subject: Electronics (CDS03.ELE31)

Test / Tutorial No. :

Div. : A

Q 1

1. ATM machine is an example of full duplex communication.2. In any communication system, the S/N ratio should be as high as possible.

Q 2

2) External noise -

Humanmade Noise -

Noise - Noise is called as unwanted signal.

External Noise -

external noise is introducing to the transmitting medium.

External noise types -

1] Humanmade Noise -

Engine ignition system, electric motor, Fluorescent light. Humanmade noise is occurs randomly at frequencies upto 500 MHz.

2] Atmospheric Noise - caused by naturally occurring disturbances in earth atmosphere because of lightning, discharges, thunderstorm etc.

3] space Noise - Noise arises due to sun is called as solar noise which is cyclical and reaches peaks about every 11 years.

1) Simplex and duplex communication -

- Simplex communication -

In simplex communication only one way communication.
example - Radio, sound.

- Duplex communication -

There are two types in duplex communication -

1] Half duplex

2] Full duplex

- Half Duplex -

In half duplex there is two way communication but not same time.

eg walkie - talkie

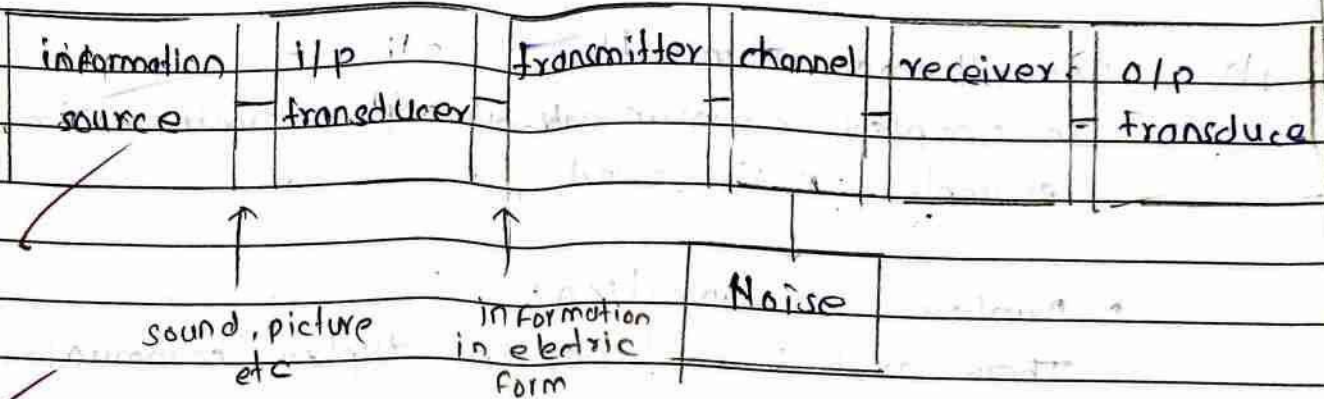
- Full Duplex -

In full duplex there is two way communication at a same time receiver and sender.

eg ATM, telephone

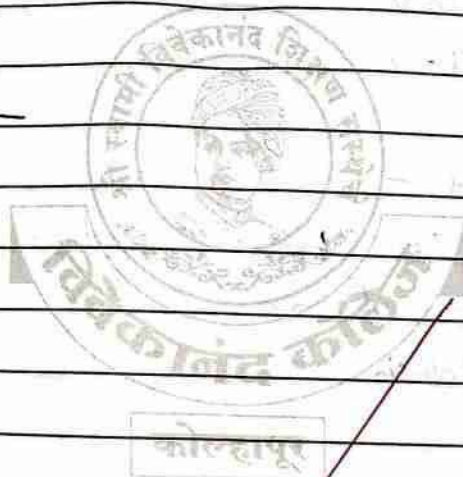
Q 2

3)



①

Information -
source



Shri Swami Vivekanand Shikshan Sanstha's

VIVEKANAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS)

Department of Electronics

B.Sc. II, Sem- III, Internal Exam Attendance 2024-25

Date: 30/09/2024

Sr. No.	Roll No	StudentName	DSC03ELE31	DSC03ELE32
Major Electronics				
1	7759	ATHANE SHREYA DEEPAK	<i>ATHANE</i>	<i>ATHANE</i>
2	7952	KAMBLE PRAJWAL KIRAN	<i>Kam</i>	<i>Kam</i>
3	7953	MAHTO SURAJKUMAR SUBHASH	<i>Suraj</i>	<i>Suraj</i>
4	7954	KHOPKAR PRATAMESH BABASAHEB	<i>Khopkar</i>	<i>Khopkar</i>
5	7965	NIGADE RUPESH MOHAN	<i>Nigade</i>	<i>Nigade</i>

prathamesh kshapkar

॥ ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार ॥

- शिक्षणमहर्षी डॉ. बापूजी साबुंखे

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

59657

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)**SUPPLIMENT**

Suppliment No. :

Roll No. :

Class :

7954

Bsc-8y

Signature
of
Supervisor

Subject :

Test / Tutorial No. :

Div. :

Q.1] Select most correct alternative:

①

→ ~~all of these~~

②

→ ~~all of these~~

Q.2] Solve any two.

①

what are semiconductor memories

→

* memory:-

4 memory is an essential component in microprocessor based system, because it is

necessary, to store program/instructions and data. the semiconductor memories are of two types ROM and RAM. ROM is a non-volatile memory while RAM is volatile memory. to store program/instructions the system should have permanent memory. because Now-a-days flash memories are ~~not~~ most widely used. So one data is used, it can be over written by new data. Thus we use this memory as "Snapshot pad". Such a memory is also called as "Data memory" its examples are SRAM (Static RAM) and DRAM (Dynamic RAM).



ROM (Read-only memory) ROM is a type of memory that does not lose contents when the power is turned off, hence ROM is called nonvolatile memory. Flash and Masked ROM.

* PROM :- In a ROM for every bit there exists a fuse, PROM is programmed by between the fuse. Once the fuses are burned we can't change data hence PROM is a one time known ORP (One time programmed).

EPROM:-

widely used EPROM is UV-EPROM i.e. Ultra-violet Eraseable. This one EPROM. This memory IC have a quartz window on it. When this IC is exposed with ultra-violet light through this window for about 15 to 20 minutes then all the contents of this memory are erased. Upon erasing one erasing, it can be reprogrammed by using EPROM programmer. 27XX. eg 27128 where 27 128 K bits 16 K bytes. 1000 times.

Disadvantages:-
 a) it can't be programmed when system is running.
 b) single bit or byte can't be erased.

* Flash EPROM:- Now a days this is not most popular erasable program ROM. It is widely used in mobile card, it is similar to EEPROM. 1,00,000 times.

* Mask ROM:- Contents or data on this ROM is by manufacturer, hence it is not user-programmable. It is only used quantity required.

RAM:-

RAM is type of memory that loses its contents when power is turned off. Read-write memory. There are types of RAMs ① SRAM ② DRAM.

* SRAM:- 1 or 0 is stored in the form of charge voltage. Memory because of number this type flip-flop requires about 5 trans so such bulky.

* DRAM:- type of memory stored of charges instead of voltage.

॥ ज्ञान, विज्ञान आणि सुसंस्कार यांचाही शिक्षण प्रसार ॥
- शिक्षणमहर्षी डॉ. बापूजी साकुंखे

59656

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

SUPPLIMENT

Signature
of
Supervisor

Subject: Electronics (PSC 03 ELE 12)

Test / Tutorial No. :

Div. : A

Suppliment No. : 1

Roll No. : 7759

Class : SY (BSC)

1] Microcomputer system is built using i/p and o/p
memory and Microprocessor.

(d) All of these

2] EPROM, Mask, EEPROM is/are the example
of ROM.

(d) All of these

Q2

Memory it is necessary to store program and instructions and data. The semiconductor memories are two types of ROM and RAM.

ROM is non-volatile memory while RAM is volatile memory. To store program/instructions the system should have permanent memory, program should not get erased due to any reason.

Memories

ROM

RAM

PROM

EPROM

EEPROM

Flash

Mask

SRAM

DRAM

ROM (read only memory) -

ROM is the type of memory does not lose its contents when the power is off, is called non-volatile memory. There are different types of read only memory PROM, EPROM, EEPROM, Flash and masked ROM.

PROM (Programmable read only memory) -
every bit there exist fuse. PROM is programmed by blowing the fuse, once the fuse are burned we cant change data

EPROM (erasable programmable read only memory) -
widely used EPROM as UV-EPROM.
when it is exposed with ultra violet light window about 15 to 20 min all the contents of the memory are erased.

EEPROM

This is similar to EPROM, except that erasing is done by electrical signal instead of UV light.

Flash

It is widely used in mobile card, camera, hard disk of computer. It is similar to EEPROM but with small electrical pulse or flash all contents of memory erased.

Mask

contents or data on ROM is programmed by the manufacturer. Hence it is not user-programmable ROM.

RAM

RAM is type of memory that lose its contents when it is turned off. Hence RAM is called volatile memory.

SRAM -

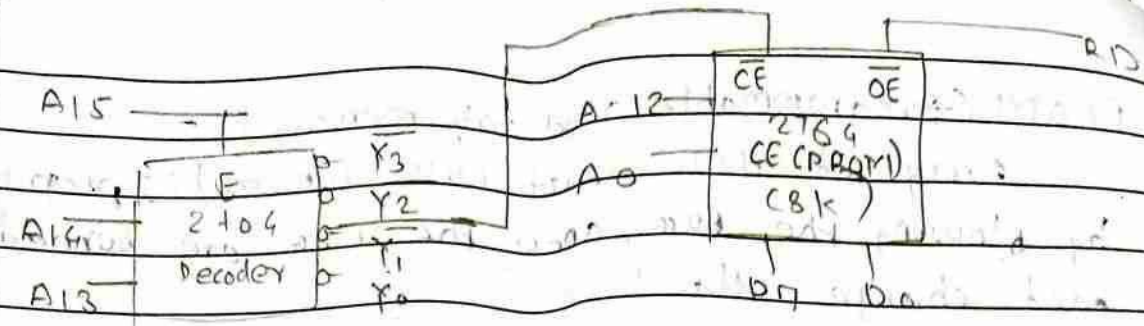
Type of memory for a stored in memory cell form of

DRAM -

Type of memory stored in form of charge on capacitor instead of

Q 2

2J



The memory chip requires 13 address line $A_0 - A_{12}$ to identify 8K registers. The remaining address lines $A_{13} - A_{15}$ are connected to 2 to 4 decoder. The decoder is enabled by A_{15} address line. The signal on A_{15} line should be low, because enable pin E active low. A_{13} and A_{14} address line ip to 2 to 4 decoder o/p $\bar{Y}_1$ of decoder is connected to $\bar{CE}$ and pin of memory chip. The $\bar{RD}$ signal of 8085 microprocessor directly connected $\bar{OE}$ pin of memory chip.

The memory chip is selected only when the address on $A_{15}A_{14}A_{13} = 001$. A_{15} enables the decoder and ip $A_{14}A_{13} = 01$, activates o/p $\bar{Y}_1$.

Once chip is selected, remaining address lines $A_0 - A_{12}$ have any possible logic combinations betⁿ all 0s to 1s to select one of the memory location or memory register from 8K registers.

Thus memory map of this chip will be,

3

A_{15}	A_{14}	A_{13}	A_{12}	A_{11}	A_{10}	A_9	A_8	A_7	A_6	A_5	A_4	A_3	A_2	A_1	A_0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
chip select address			↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
			1	1	1	1	1	1	1	1	1	1	1	1	1
Register select address															

= 8000H
= 3FFFH

[2]

Q.1 Select most correct alternative:

1. _____ instruction has Register Indirect addressing mode.
a) MOV A, R7 b) MOV A, @R1 c) ADD A, #45H d) ADD A, 48H
2. 8051 has ----- number of register banks.
a) 1 b) 2 c) 4 d) 8

[8]

Q.2 Solve any TWO [Four marks each]

- 1) Explain the PSW register of 8051.
- 2) Describe any four arithmetic instructions in 8051?
- 3) Describe any four bit manipulation instructions in 8051?

SAMIRAT KAMBLE

Name - Swejal Amar Chougule

Subject - Architecture of 8051 microcontroller.

0745

Signature of Jr. Super.



विवेकानंद कॉलेज, कोल्हापूर. (अधिकारपदत स्वायत्त)

या विषयाच्या प्रयोग परीक्षा

Practical Examination in,

Examination

at the

उमेदवाराचा आसन क्रमांक
(Candidate's Seat No.)

विभाग
(Section)

उमेदवारांना सूचना

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- कोणताही विद्युतप्रयोग करण्यापूर्वी, प्रत्यक्ष पुरविलेली सर्व उपकरणे आणि सर्व 'कनेक्शन' नीट पाहून घेऊन संबंधित कामाची नीटनेटकी कार्ययोजना करण्याची नितांत आवश्यकता आहे आणि ह्यानंतर पुढे काम चालू करण्याविषयी परीक्षकांची परवानगी मिळविणे आवश्यक आहे.
- सर्व निरीक्षणे कोटकवजा तक्त्यात भरावी. मधल्या सर्व गणना आणि निर्णय हे क्य तितक्या सुवाच्यपणे आणि स्पष्टपणे नोंदविलेले असणे हे हितावह आहे.
- प्रारंभिक किंवा अंतिम निरीक्षणात संख्यावाचक आकडे एकावर एक लिहू नयेत. जर लिहिलेला कोणताही आकडा नको असेल तर त्यावर एक रेषा ओढून पाहिजे असलेला आकडा त्याच्याजवळ लिहा. प्रयोगशाळेतून बाहेर पडण्यापूर्वी आपले टेबल चांगल्या स्थितीत आहे याची खात्री करा.

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(येथून लेखनास सुरुवात करा.) (Begin writing here.)

प्र. क्र.
Q. No.

Q.1] 1) b) MOV A, @R1 instruction has Register Indirect address
ing mode.

2) 8051 has 4 Number of Register banks.

प्र. क्र.
Q. No.

PSW Register in 8051 →

2) 1)

Flag register in the 8051 is also called as program status word Register. PSW is the 8 bit register.

It have ^{main} 4 math flags which are Carry (Cy), Auxiliary Carry (Ac), Overflow flag (Ov), Parity flag (P) and User program Register select bank (RS0 and RS1).

The Program status word register is shown as follow

D ₇	D ₆	D ₅	D ₄	D ₃	D ₂	D ₁	D ₀
Cy	Ac	fo	RS1	RS0	Ov	-	P

fig. PSW Register in 8051

3 The flags in PSW are explained as follows —

1) Carry Flag — (Cy) — The Carry flag is to be set whenever a carry will out from the D7 bank group. The flag will manipulate ~~at~~ When we perform 8 bit of operation like ADD and SUB.

2) Auxiliary Carry — (Ac) — The Auxiliary flag will set when it ~~manup~~ from lower nibble to higher nibble and from higher nibble to lower nibble.

Continued

3) parity flag (P) - ItQ.2) 4) overflow flag (OV) -

5) Program flag (F0) - The program flag in PSW is also called as user defined flag or general purpose flag.

6) Register Select bank (RS) -

It is used to select Register bit from. The block D₃ and D₄ are have RS₀ and RS₁ Register bank select bit.

RS ₁	RS ₀	Register Bank
0	0	Bank 0
0	1	Bank 1
1	0	Bank 2
1	1	Bank 3

In PSW D₁ is empty for future use.

Q.2) 2) Arithmetic instructions in 8051 -

IN Arithmetic instruction in 8051 in which Arithmetic operations are performed. like ADD, SUB, MUL, DIV, INC, DEC,

04 Section

Q. No.

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प्र. क्र.
Q. No.

Continuous ~~in this one bit is present in the register A.~~
1) Addition - In this instruction ADD this keyword is used to perform addition of two bits and Result is stored in register A.

Example -

operator mnemonic	operators	Addressing Mode	Example	Description
ADD A, Rn	$A + R_n \rightarrow A$	Register	$A + R_5 \rightarrow A$	The Addition in two bit is performed and Result is stored in the register A.
ADD A, direct	$A + \text{add}(R) \rightarrow A$	direct	$A + \text{add}(6) \rightarrow A$	The Addition is performed directly and result is stored in A.

2) Subtraction - In this instruction SUB keyword is used. To perform Subtraction one of the bit is in register A. and its result is stored in the register A.

Example -

operator mnemonic	operators	Addressing mode	Example	Description
SUBB A, Rn	$A - R_n \rightarrow A$ -CY	Register	$A - R_5 \rightarrow A$	The subtraction in two bit is performed and result is stored in register A.
SUBB A, direct	$A - \text{add}(R) \rightarrow A$	direct	$A - \text{add}(6) \rightarrow A$	Subtraction is performed directly and result in register A.

3) Increment - In this increment INC keyword is used to per increment value by 1 and result will stored in the Register A.

Seat no. - 77



Signature of Jr. Super.

विवेकानंद कॉलेज, कोल्हापूर. (अधिकारप्रदत्त स्वायत्त)

परीक्षेच्या

या विषयाच्या प्रयोग परीक्षा

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प्र. क्र.

Q. No.

Continuous

Q. No.	mnemonale	operator	Addressing mode	Example	Describe
Q.2)	INC, A, Rn	Rn+1 → A	Resister	R5+1 → A	Value is incremented by 1.
	INC A, direct	Addr(30H)+1 → A	direct	Addr(30H)+1 → A	Value is incremented by 1.

Continuous ---

प्र. क्र.

Q. No.

(Q.2) 2)

Description — In this instruction DEC keyword is used to decrement the value by 1. and The result will stored in the Register A.

Mnemonic	operator	Addressing mode	Example	Describing
DEC A, Rn	$Rn-1 \rightarrow A$	Register	$Rn-1 \rightarrow A$	Value decremented by 1
DEC A, Direct	$Addr(H) \rightarrow 1 \rightarrow A$	Direct	$Addr(30H) \rightarrow A$	Value decremented by

(अधिकारप्रदत्त स्वायत्त)

कोल्हापूर

Name :- N
Roll no :- 7764.

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Signature of Jr. Super.

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विवेकानंद कॉलेज, कोल्हापूर. (अधिकारप्रदत्त स्वायत्त)

परीक्षेच्या या विषयाच्या प्रयोग परीक्षा
Practical Examination in, Electronics.
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प्र. क्र. Q. No.	
Q1.	
1)	<u>b) MOV A, @R1</u> instruction has Register Indirect addressing mode.
2)	<u>8051</u> has <u>c) 4</u> number of register bank.

प्र. क्र.
Q. No.

Q2.

→ The flag register in the 8051 is called program status word register. The PSW register is an eight bit register. Flags are one bit register (flip-flop) provided to store the status of the result of some instructions. The PSW has 4 math flags that includes carry (CY), Auxiliary (AC), overflow flag (OV), Parity flag (P) user program flag FO and register bank select bits.

The program status word as :-

D ₇	D ₆	D ₅	D ₄	D ₃	D ₂	D ₁	D ₀
CY	AC	FO	RS1	RS0	OV	-	P

The carry (CY) flag :- The carry flag is set whenever there is a carry out from the D₇ bit. This flag bit is affected after eight bit addition or subtraction. This flag can also set to 1 or 0 directly by an instruction "SETBC" set bit carry and "CLRNC" clear bit carry.

The auxiliary carry (AC) flag :- The auxiliary carry is set whenever there is borrow from higher to lower nibble i.e. carry from D₃ to D₄ during ADD or SUB operation. This flag is used by instruction that perform BCD arithmetic.

The parity (P) flag :- The parity flag reflect the number of ones in accumulator (A) register only. The parity flag is set when the result has odd parity i.e. odd number of 1s.

parity flag is clear when the result has even number of 1s.

The overflow (ov) flag:- The overflow flag will be set whenever result of a signed number operation is too large causing the high order bit overflow into the sign bit. The overflow flag is only used to detect error in signed arithmetic operation.

The flag FO:- The PSW has one general purpose flag FO. This is also called as user defined flag.

The Register bank select bits:- The bits D₃ and D₄ are represented as RSO and RSI are used to select bank register from RAM.

RSO	RSI	Register bank
0	0	Bank 0
0	1	Bank 1
1	0	Bank 2
1	1	Bank 3

But D₁ of PSW is not used, it reserved for future use.

3)

→ Some variables content the single bit information like switches and LEDs.