Board Viva – 3rd Year (Even)

Course Outline

Sl. No.	Course No.	Course Title
1	EEE 3200	Electrical and Electronic Circuit Simulation Lab
2	EEE 3203	Power Electronics
3	EEE 3204	Power Electronics Sessional
4	EEE 3205	Power plant Engineering and Economy
5	EEE 3209	Microprocessor, Interfacing and System design
6	EEE 3210	Microprocessor, Interfacing and System design Sessional
7	EEE 3211	Power System I
8	EEE 3212	Power System I Sessional
9	EEE 3217	Communication Engineering II
10	EEE 3218	Communication Engineering II Sessional

Lab Report :

Electrical and Electronic Circuit Simulation Lab(EEE 3200)

Experiment No.	Name of the Experiment
01	Circuit Simulation Using OrCAD pspice Software
02	DC Sweep, AC Sweep and Transient Analysis of Electrical Circuits in PSPICE
03	A Python Programme to calculate, read and write class test Output marks using Pandas
04	A Python Programme to form matrix, show different row or column using numpy
05	A Python Programme using matplotlib, lambda, pie plot function

Power Electronics Sessional (EEE 3204)

Experiment No.	Name of the Experiment
01	Performance Analysis of Half-wave Rectifier with resistive load
02	Experimental Investigation of Controlled Rectifier with resistive load
03	Experimental Analysis of Single phase Rectifier for resistive, Inductive and Motor load
04	Performance Analysis of Three Phase Star Rectifier
05	Experimental Analysis of Single Phase Half-wave and Full-wave AC Voltage Controller
06	Experimental Investigation of Boost Converter

Microprocessor, Interfacing and System design Sessional(EEE 3210)

Experiment No.	Name of the Experiment
01	Familiarization with MDA-8086 microprocessor kit and its operation in “Machine Code” mode
02	Arithmetic and Logic operations and programme control in Assembly language
03	Familiarization with the Machine and execution of ADD operation using the Machine
04	Displaying a 7-segment Display
05	Operation of Dot Matrix LED
06	Flashing an LED array by Interfacing with PPI 8255A with 8086
07	Familiarization with the “Serial Monitor” mode operation of MDA-8086 and verification of arithmetic operations

Power System I Sessional(EEE 3212)

Experiment No.	Name of the Experiment
01	Design of a 3-bus Power System in a Matlab Simulink
02	Design a 4-bus Power System in a Matlab Simulink
03	The Stability Enhancement of the bus voltage of a Simple 4-bus Power Network using a Static Var Compensator(SVC)
04	Experimental Study for IEEE 30-bus Y-Matrix
05	Modification of Y-bus Matrix when Tap changing Transformer is connected
06	Load flow Study of a Simple 4-bus Power System using Gauss Seidal method
07	Load flow Study of a Simple 4-bus Power System using Gauss Seidal method
08	Load flow Study of a Simple 4-bus Power System using Newton Raphson method
09	Load flow Study of a Simple 4-bus Power System using Newton Raphson method

Communication Engineering II Sessional(EEE 3218)

Experiment No.	Name of the Experiment
01	To get familiar with Communication Engineering Toolkit
02	Experimental Study of AM Transmitter and Receiver
03	Experimental Study of FM Transmitter and Receiver
04	Experimental Study of Pulse Width Modulation(PWM)
05	Experimental Study of Pulse Code Modulation(PCM)
06	Experimental Study of ASK and FSK Modulator

Important Questions Asked in lab :

Power Electronics (EEE 3203)

1) Why Freewheeling diode is used?

2) Working Procedure of AC Voltage Controller.

3) How firing angle works?

4) Operation Of Boost converter circuit.

5) Operation of 3-phase converter

6) What is AC/DC Coupling?

7) How much stable state in monostable multivibrator circuit?

8) What is the physical meaning of form factor, ripple factor, crest factor, TUF ?

9) What is THD?

10) What is Power electronics?

11) What is SCR?

12) Full meaning of SCR, IGBT, DIAC, TIAC, SVC

13) Difference between Power Electronics and Linear Electronics

14) What is Tuning Capacitor and Why it is used?

15) Introduce Yourself (most commonly asked question)

16) One experiment circuit operation

17) What is TUF? Physical meaning? Lower or higher value of TUF is advantageous?

18) Which motor is used in FAN?

19) Difference between AC coupling DC coupling.

20) Rating of Thyristor used in lab

21) A device name which works as controlled turn on and controlled turn off.

22) value of FF for ac,dc

23) Boost converter er load resistance increase korle output voltage increase kore keno?

24) what is Harmonic distortion

25) Why firing angle is change if we change the load resistor?

26) Why DIAC and TIAC is used?

Power System (EEE 3211)

1. Why load flow study is important?
2. why SVC is used.
3. What is power System?

4. Tap changing keno kora hoy? Slack bus er power jana thake na keno?

5. Why generators are working most of the time in over excitation mood?
6. What is the main problem of load flow study?
7. What is load flow study?
8. What is bus and Types of bus?
9. What is SVC?
10. Why Tap changing transformer is used?
11. What is sparse matrix?
12. Why do we use Y bus in load flow study instead of X bus?
13. Load flow equation linear or non linear

14. What is Power factor?

15. Load flow study kore amra ki ki ber kori?

16. Guass seidal ar Newton Rapson er modde konta besi useful and Keno?

17. Sub-station gulote kon doroner Transformer use hoy?

18. power system of Bangladesh, power plant in Bangladesh, fault in power system details, z bus matrix, sparse matrix, different power company in bd

19. Kon fuel thekhe Bangladesh e besi power generation hoy?

20. Bangladesh er Generation capacity koto, demand koto, generation koto?

21. What is Black out?

22. What do know about Corona?

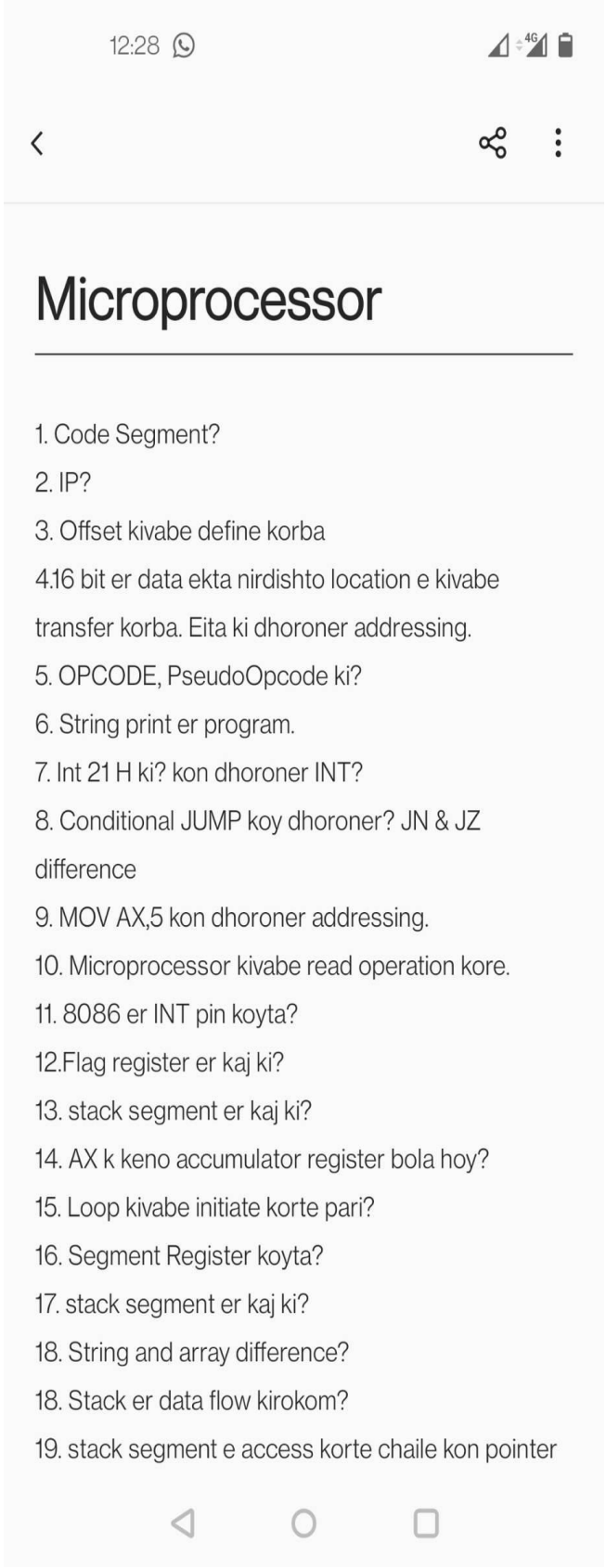
23. which one is voltage controlled bus, why it is called so
24. how to control voltage of PV bus
25. practical generator operates at over or under excitation
26. most of the loads leading or lagging
27. what is reactive power , necessary or not

28. What is pv bus,pq bus,swing bus?Why called pv/pq/swing bus..
29. What is per unit system? Advantage of pu system..
30. What is single line diagram.
31. How to control real and reactive power?

32. Generation site er voltage drop kivabe barano jay?
33. SVC kothay use hoy?
34. Uses of tap changing transformer

what is svc?
what power system?
how to control voltage and frequency in generation ?
why newton raphson is better than Gauss Seidal?
is power system's equation are linear or non linear?
why newton raphson converges easily than Gauss Seidal?
Which property control the real and reactive power flow?
How to boost up voltage in long transmission line ?
why voltage drop occurs drastically in long tranmission line?
why high voltage are desired to transmit power in long distance?
but why in bangladesh transmission voltage maximum 230 kv not 400kv on the otherhand why USA uses 400kv ?
maximum generation in bd?
total demand in bd?
which type of fault in transmission line is more dangerous?
why we have use distributed model in long transmission line?
what VAR and why it is used ?
long line transmission is developed by? nikola tesla
What is sparce matrix and why Y bus matrix is a sparce matrix?
what is the function of tap changing transformer ?
in Which side of a transmission line it is used?
what single line /one line diagram?
what is per unit ?
is per unit a real number or complex?
type of bus?
why swing bus is named swing bus or slag bus?
definition of all type of buses
what is load flow study and why we perform it?
which parameter we find out from load flow study?
what is difference between alternator and synchronous motor ?
name of major power generation station in bd
name of generation , transmission and distribution company in bd
why simulation is necessary in modern day ?

Microprocessor, Interfacing and System design Sessional(EEE 3210)



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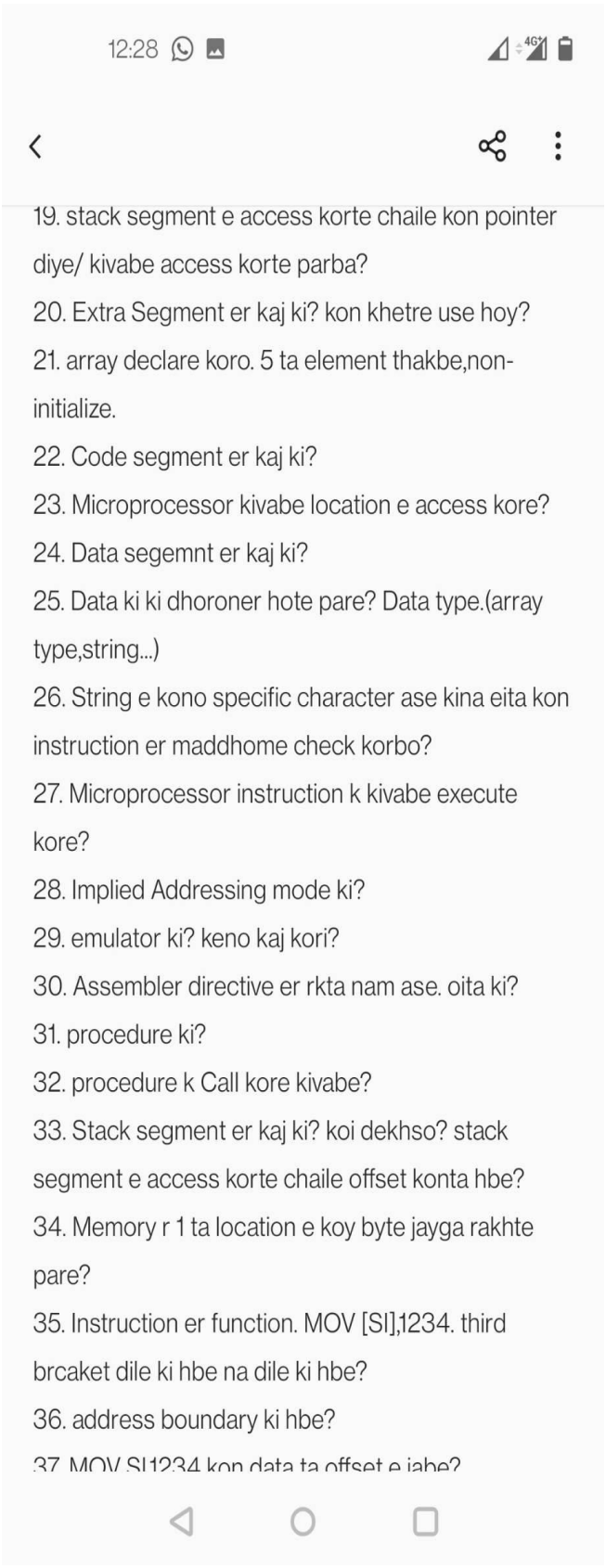
Microprocessor

1. Code Segment?
2. IP?
3. Offset kivabe define korba
4. 16 bit er data ekta nirdishto location e kivabe transfer korba. Eita ki dhoroner addressing.
5. OPCODE, PseudoOpcode ki?
6. String print er program.
7. Int 21 H ki? kon dhoroner INT?
8. Conditional JUMP koy dhoroner? JN & JZ difference
9. MOV AX,5 kon dhoroner addressing.
10. Microprocessor kivabe read operation kore.
11. 8086 er INT pin koyta?
12. Flag register er kaj ki?
13. stack segment er kaj ki?
14. AX k keno accumulator register bola hoy?
15. Loop kivabe initiate korte pari?
16. Segment Register koyta?
17. stack segment er kaj ki?
18. String and array difference?
18. Stack er data flow kirokom?
19. stack segment e access korte chaile kon pointer



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19. stack segment e access korte chaile kon pointer diye/ kivabe access korte parba?
20. Extra Segment er kaj ki? kon khetre use hoy?
21. array declare koro. 5 ta element thakbe,non-initialize.
22. Code segment er kaj ki?
23. Microprocessor kivabe location e access kore?
24. Data segemnt er kaj ki?
25. Data ki ki dhoroner hote pare? Data type.(array type,string...)
26. String e kono specific character ase kina eita kon instruction er maddhome check korbo?
27. Microprocessor instruction k kivabe execute kore?
28. Implied Addressing mode ki?
29. emulator ki? keno kaj kori?
30. Assembler directive er rkta nam ase. oita ki?
31. procedure ki?
32. procedure k Call kore kivabe?
33. Stack segment er kaj ki? koi dekhso? stack segment e access korte chaile offset konta hbe?
34. Memory r 1 ta location e koy byte jayga rakhte pare?
35. Instruction er function. MOV [SI],1234. third brcaket dile ki hbe na dile ki hbe?
36. address boundary ki hbe?
37. MOV SI,1234 kon data ta offset e jabe?

37. MOV SI,1234 kon data ta offset e jabe?

38. Data memory te jeye store hoilo, Data r alignment kirokom?

39. MOV DS,0100

40. Call instruction dewar por data kothay jabe?

41. String,array r moddhe parthokko

42. String er kono element e access korte chaile kivabe korbo?

43.Counter k initialize korte chai. 50 bar rotate korbe. lekho.

44. kono specific bit (0 naki 1) kivabe check korbo?

45. Relative addressing mode ki?

46. IN AL,DX thik ache?

47. Implied addressing mode ki?

48. Parity flag er kaj ki?

49. MOV AL,0AH

DAA (AL er value koto hbe?)

50. MOV AL,32H

AAA (value koto hbe?)

51. Direct I/O port addressing, Indirect I/O port addressing er parthokko ki?

52. kono port er address 8 bit hbe naki 16 bit. kar upor deepnd kore?

53. Microprocessor kivabe write operation kore? steps gula ki?

54. Data bus operate korte koto shomoy lage?

54. Data bus operate korte koto shomoy lage?

55. Ready pin er kaj ki? input/output?

56. Data bus er sathe keno buffer use kori?

57. 8255PPI - full form. keno use kori?

58. Parallel operation kora hoy...

59. 8254 er IC kaj ki?

60. 8254 & 8253 er parthokko?

61. clock frequency beshi hole clock time koto hoy?

62. same pulse generate korbe 8254 & 8253 er moddhe parthokko ki hbe?

63. 8086 ekta DMA k grant korle state kmn hbe?

64. Ekta procedure er structure?

65. DX register er rkta nam ase? AX register er rkta nam ase ki?

66. Extra segment er kaj ki?

67. String er ekta element k copy kore onno kono jaygay rakhlam. jei jaygay rkahlam sheta kothay?

68. DATA segment e data thakle kivabe access kori?

Extra segment e thakle access ki hbe?

69. String 1 er jnno logical address ki hbe. string 2 er jnno logical address ki hbe?

70. 8086 er Data multiplex keno kora hoy? demultiplex kivabe kore?

71. High impedence state bolte ki bujho?

72. 8086 er bus jodi onno keu use korte na pare taile kon instruction bebohar kora hoy?

73. Call instruction k kivabe microprocessor execute kore?
74. Flag register er kaj ki?
75. Control flag er kaj ki?
76. Assembler er kaj ki?
77. Interfacing e ki kono assembler use kori?
78. assembler r compiler er moddhe parthokko ki?
79. Emulator er kaj ki? Keno namkoron kora hoy.
80. single step execute korte chaile kon control bebohar kora hoy?
81. IN AL,2OH er kaj ki?
82. 8255 er jnno Control word lekho. Port A hbe Input, Port C output,...
83. Microprocessor & Micro controller er difference
84. 8255 er moddhe Port B ki kaj korte pare?
85. Handshake er kaj ki?
86. Data strobe signal active mane ki bujhay?
87. Interrupt ki?
88. 8255 er application?
89. 8255 k kon mode e kaj koraisi?
90. Stack segment er use kothay? (push,pop)
91. string k amra kothay define kori?
92. Program structure ki?
93.. Model kothay define kori?
94. segment definition koy dhoroner?
95.. CODE kon dhoroner segment

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93.. Model kothay define kori?
94. segment definition koy dhoroner?
95.. CODE kon dhoroner segment definition? /.DATA/.STACK kon dhoroner segment definition. (simplified)
96.. DATA r vitor ki ache? generalise form ki hbe?
97. string er element k move korte chaile movement kmn hbe? data move korte chaile kmn hbe? kon jayga theke kon jaygay jay?
98. MOV [SI],[0100] valid kina?
99. MOV SI,0100
MOV DI,0001
MOV SB valid kina?
100. ekta string er moddhe rkta sub string ase kina kivabe check korbo?
101. ekta memory theke word data read korte hbe? kivabe read korba?
102. Microprocessor er maddhome read operation korte chacchi? memory theke read hbe naki I/O theke read hbe?
103. Instruction queue er kaj ki?
104.

1. Write down features of MDA 8086 Kit.

1. Program download and trace function
2. Display the register content
3. Memory contents modification
4. Interrupt experiments
5. Program debugging function

2. How can we select different modes of MDA 8086 Kit?

By selecting either
1. PC MODE
2. KIT MODE

3. Where will the quotient of a unsigned division operation store in case of 32 bit dividend?

AX

4. In unsigned multiplication, what is the default register for the number to be multiplied?

AX

5. A bit pattern is given as AL= 10100011 Find RCL AL, 3 when CF=0

11010100

6. What is the difference between ROL and RCL

In RCL, the value of carry is rotated to the right, and the value of msb is moved to the carry flag. While in ROL, the msb is directly moved to both the lsb position and the carry flag.

7. How do you generate a new line and cursor return in Assembly language programming?

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By using 0AH,0DH

8. MOV AH, 4CH ; INT 21 H what is It's operation?

To stop the program

9. Function of INT 3H Assembly language programming.

One byte interrupt

10. Write down the function of i) AD, ii) REG, iii) : , iv) STP

i) Set memory address key
ii) register status
iii) take the cursor from segment to offset
iv) Show the display

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12. What is the escaping command while modifying memory element on serial monitor operation mode in MDA 8086 Kit ?

Your answer

13. Write down the steps in converting a . ASM code into . ABS file.

Your answer

14. Write down the steps for loading program to mda kit and to execute it.

iv) Show the display

i) offset initiate
ii) display the register value
iii) setting cursor to offset
iv) single step execution

REG, shows the value of register. STP, starts entering the the machine code that we got from EMU8086.
AD. to ready to allow input.

12. What is the escaping command while modifying memory element on serial monitor operation mode in MDA 8086 Kit ?

2 responses

MOV AH,4CH
INT 21H

INT 3

13. Write down the steps in converting a . ASM code into . ABS file.

49 responses

1.Open .ASM file and save the file name . Them .obj is created.2.Open LOD186 then wirte the file name that was saved as obj

14. Write down the steps for loading program to mda kit and to execute it.

1.initiate the kit into kit mode
2.Than press AD
3.press :
4Then press DA
5.Then +
6.Press machine Code
7.STP
process repeat
8.REG

15. Write a simple program to display a message.

```
.MODEL SMALL
.STACK 100H
.DATA
MSG DB 0AH,0DH' HELLO WORLD', '$',
.CODE
MAIN PROC

MOV AX,@DATA
MOV DS,AX

LEA DX,MSG
MOV AH,9H
INT 21H
```

15. Write a simple program to display a message.

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.MODEL SMALL
.STACK 100H
.DATA
MSG DB 0AH,0DH' HELLO WORLD', '$',
.CODE
MAIN PROC

MOV AX,@DATA
MOV DS,AX

LEA DX,MSG
MOV AH,9H
INT 21H
MAIN ENDP
END MAIN
```

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