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R18

Course Code: A30013



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Regular/Supplementary Examinations May-2023

Course Name: BUSINESS MANAGEMENT & FINANCIAL ANALYSIS

(Common for EEE, ME & ECE)

Date: 08.05.2023 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Define the Management. 2 M
2. Explain the Delegation of authority. 2 M
3. Describe the Promotion of the product. 2 M
4. Explain the Performance appraisal. 2 M
5. Write about Social environment of business. 2 M
6. What is the importance of managerial economics? 2 M
7. Define the price. 2 M
8. Write about Monopoly market. 2 M
9. Explain the Venture capital. 2 M
10. Write the purpose of balance sheet. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the principles of modern management proposed by Henry Fayol, in detail. 10M
- OR**
11. B). Describe Maslow's need hierarchy theory of motivation with a suitable diagram. 10M
12. A). Enumerate the objectives and functions of Human Resource management. 10M
- OR**
12. B). Define plant layout and explain the main types of plant layout. 10M
13. A). What is National Income? Describe the significance of National Income. 10M
- OR**
13. B). How do you define Demand? Discuss the demand forecasting methods in detail. 10M
14. A). i) What is Break- even analysis? What are the applications of BEA? 5M
ii) Star Industries manufactures electrical goods for which the fixed costs stand at Rs 50,000 and the variable cost to produce a good is Rs 30. The firm sold these goods to produce with a sale price of Rs 50 per unit, find out the Break- even point? 5M
- OR**
14. B). Explain the concept of Production function with suitable examples, in detail. 10M
15. A). Define Liquidity. Describe the types and importance of liquidity ratios. 10M
- OR**
15. B). Define the business and explain the types of business enterprises. 10M

H.T No:

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R18

Course Code: A30421



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VI Semester Regular/Supplementary Examinations May-2023

Course Name: **MICROPROCESSORS & MICROCONTROLLERS**

(Common for EEE & ECE)

Date: 10.05.2023 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. What are the different types of registers in 8086 microprocessor architecture? 2 M
2. List the hardware interrupts in 8086 Microprocessor with pin numbers. 2 M
3. Illustrate register indirect addressing mode with an example. 2 M
4. Interpret any four data transfer instructions with the help of examples. 2 M
5. Show the control register structure for I/O mode in 8255 PPI. 2 M
6. Draw the pin diagram of 8255 PPI. 2 M
7. List out the features of 8051 microcontroller. 2 M
8. Differentiate between MOV, MOVC and MOVX instructions in 8051 microcontroller. 2 M
9. What is the use of timers in 8051? 2 M
10. How do microcontrollers handle interrupts? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the internal architecture of 8086 microprocessor with a neat sketch. 10M
- OR**
11. B). Illustrate the physical memory organization of 8086 microprocessor. 10M
12. A). Discuss about the branching instructions of 8086 microprocessor with examples. 10M
- OR**
12. B). List different assembler directives with suitable examples. 10M
13. A). Illustrate with an example, to interface an A/D converter with 8086 microprocessor. 10M
- OR**
13. B). Draw the block diagram of 8255 and explain each block. 10M
14. A). Illustrate the following registers of 8051 microcontroller: (i) TCON, (ii) SCON, (iii) SBUF and (iv) DPTR. 10M
- OR**
14. B). Explain different types of instructions in 8051 microcontroller with suitable examples. 10M
15. A). Interpret the serial communication in 8051 microcontroller. 10M
- OR**
15. B). Explain the programming of external hardware interrupts. 10M

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R18

Course Code: A30216



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Regular/Supplementary Examinations May-2023

Course Name: **COMPUTER METHODS IN POWER SYSTEMS**

(Electrical & Electronics Engineering)

Date: 12.05.2023 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Define the bus incidence matrix. 2 M
2. Illustrate tree and co-tree with an example. 2 M
3. What is the need for load flow studies? 2 M
4. What are the assumptions made in Fast decoupled load flow method to speed up the rate of convergence? 2 M
5. What is one-line diagram? How the power system components are represented for it? 2 M
6. What is the need for short circuit study (or) fault analysis? 2 M
7. What are sequence impedances and sequence networks? 2 M
8. When is Zero sequence network not required in sequence diagram and why? 2 M
9. Distinguish between steady state and transient stability. 2 M
10. Define critical clearing angle and critical clearing time. 2 M

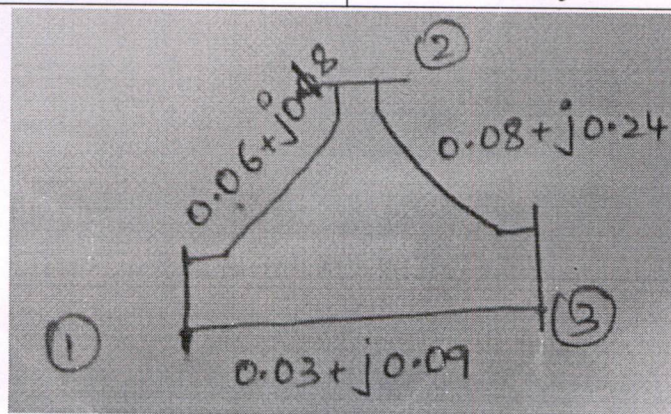
PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Determine Y_{bus} for the 3 bus system shown in the figure. The line series impedance is as follows: 10M

Line	Impedance(p.u)
1-2	$0.06+j0.18$
1-3	$0.03+j0.09$
2-3	$0.08+j0.24$

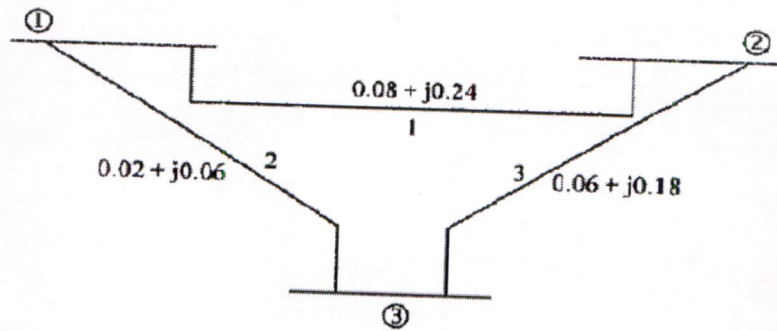


(P.T.O..)

OR

11. B). For the 3-bus system shown in the figure, Obtain the Z_{bus}

10M



12. A). i) Explain the Gauss-siedel method of Load flow studies when PV bus absent.
ii) Compare Gauss-siedel and Newton-Raphson method of Load flow studies.

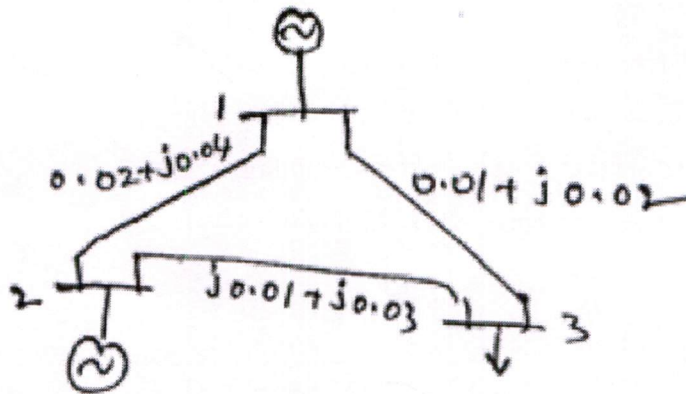
6M

4M

OR

12. B). For the power system network shown in the below network, obtain V_3 using Newton Raphson method after first iteration. The impedance values in p.u indicated in the network.

10M



Bus code	V	Generation		Load	
		MW	MVAR	MW	MVAR
1	1.05	--	--	-	-
2	1.02	10	--	7.5	7
3	1.0	0	0	30	15

13. A). Show that the per unit equivalent impedance of a two winding transformer is the same whether the calculations is made from H.V. side or the L.V. side.

10M

OR

13. B). Explain the types of reactors used in power systems and write their advantages and disadvantages.

10M

(P.T.O.)

14. A). Derive the expression for fault current in line to line fault on an unloaded generator in terms of symmetrical components. 10M

OR

14. B). A 25 MVA, 13.2Kv Alternator with solidly grounded neutral has a sub transient reactance of 0.25pu. The negative and zero sequence reactance are 0.35pu and 0.01pu respectively. If a double line to ground fault occurs at the terminals of the alternator, determine the current and line to line voltage at the fault. 10M

15. A). Derive the swing equation for stability studies in power system. 10M

OR

15. B). A generator with constant excitation supplies 35MW through a step up transformer and a high voltage line to an infinite bus bar. If the steady state stability limit of the system is 60MW, determine the maximum permissible sudden increase of generator output (resulting from sudden increase prime mover output) if the stability is to be maintained. Assuming resistance of generator, lines and transformers are neglected. 10M

H.T No:

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R18

Course Code: A30217



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Regular/Supplementary Examinations May-2023

Course Name: **POWER SEMICONDUCTOR DRIVES**

(Electrical & Electronics Engineering)

Date: 15.05.2023 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. What are the main factors which decide the choice of electrical drive for a given application? 2 M
2. List out the advantages of 3-phase converters over 1-phase converters. 2 M
3. Explain the plugging operation of DC drive. 2 M
4. What is meant by four quadrant operation? 2 M
5. What are the two control strategies of dc chopper? 2 M
6. List out the advantages of closed loop control of DC drives. 2 M
7. Enumerate the advantages of variable frequency control. 2 M
8. Explain the concept of slip power recovery. 2 M
9. What are the advantages of Load Commutated CSI fed Synchronous motor? 2 M
10. What are different speed control methods of synchronous machines? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Compare between single-phase drives and three-phase drives. With a neat diagram and necessary waveforms, discuss the operation of a three-phase full converter based separately excited DC motor drive. 10M

OR

11. B). A 220V, 1440rpm, 120A separately excited DC motor with armature resistance of 0.7Ω is fed from 3-phase fully controlled converter with an ac source line voltage 440V, 50 Hz supply. A star connected transformer is used to feed the armature so that motor terminal voltage equals rated voltage when converter firing angle is zero. Calculate the value of firing angle when motor is running at 1200 rpm at rated torque. 10M

12. A). Explain the four quadrant operation of D.C Motors by single phase dual converter in circulating and non-circulating mode of operation. 10M

OR

12. B). Explain regenerative braking operation of DC motor and list out the advantages of electric braking. 10M

13. A). Explain the principle of operation of chopper. Derive the expressions for average motor current; speed and torque for single quadrant chopper fed DC separately excited motor for motoring and regenerative braking. 10M

(P.T.O..)

OR

13. B). A 230 V, 960 rpm and 200A separately excited dc motor has an armature resistance of 0.02Ω . The motor is fed from a chopper, which is capable of providing both motoring and braking operations. The source has a voltage of 230 V. Assuming continuous conduction: Calculate the time ratio of chopper for the motoring action at rated torque and 350 rpm. 10M

14. A). Explain the control of induction motor by Voltage Source Inverter. List out the comparison between Voltage Source Inverter and Current source Inverter. 10M

OR

14. B). A static Kramer drive is used for the speed control of a 6-pole slip ring induction motor fed from 415 V, 50 Hz supply. The inverter is connected directly to the supply. If the motor is required to operate at 800 rpm, find the firing advance angle of the inverter. Voltage across the open-circuited slip rings at stand-still is 600 V. Allow a voltage drop of 0.7 V and 1.5 V across each of the diodes and thyristors respectively. Inductor drop is neglected? 10M

15. A). How is the output voltage of a VSI improved by PWM techniques? Explain how we will use this converter for speed control of a synchronous motor. 10M

OR

15. B). Explain the closed loop control operation of load commutated inverter Synchronous motor drive with neat block diagram. 10M

H.T No:

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R18

Course Code: A30235



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Regular/Supplementary Examinations May-2023

Course Name: NON CONVENTIONAL ENERGY SOURCES

(Electrical & Electronics Engineering)

Date: 17.05.2023 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

- | | |
|--|-----|
| 1. Distinguish between Beam and Diffuse Radiation. | 2 M |
| 2. Define: Solar constant. | 2 M |
| 3. Express the main application of wind energy. | 2 M |
| 4. Identify the problems associated with the wind power. | 2 M |
| 5. List out social benefits of Bio gas Utilization. | 2 M |
| 6. Recommend the raw materials required for fermentation. | 2 M |
| 7. Why hot spots are important in harnessing Geo-thermal energy? | 2 M |
| 8. List out few companies of tidal power producers in India. | 2 M |
| 9. Is fuel cell recommended for electricity generation? why? | 2 M |
| 10. Write short notes on a Carnot cycle. | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- | | |
|---|-----|
| 11.A). Derive the expression for monthly average of hourly global radiation on a tilted surface. | 10M |
| OR | |
| 11. B). i) Illustrate the principle of conversion of solar energy into heat. | 5M |
| ii) Identify the advantages and disadvantages of concentrating collectors over flat plate type collectors. | 5M |
| 12. A). Explain the main components and working of horizontal axis wind turbine. | 10M |
| OR | |
| 12. B). Compare the various designs of blades of VAWTs and their relative features. | 10M |
| 13. A). With a neat diagram, discuss the biomass gasification method. | 10M |
| OR | |
| 13. B). What are the factors affecting the performance of Biogas Digester? Explain the Constructional features of Drum and Dome type? | 10M |
| 14. A). With the help of neat layout diagrams, explain the operation of a closed cycle OTEC plant. | 10M |
| OR | |
| 14. B). List out the types of geo-thermal resources and explain with their applications. | 10M |
| 15. A). Illustrate the principle of working of Thermoelectric Generator? | 10M |
| OR | |
| 15. B). Explain direct energy conversion with any three examples. | 10M |

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R18

Course Code: A30531



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Regular/Supplementary Examinations May-2023

Course Name: PYTHON PROGRAMMING

(Common for CE, EEE, ME & ECE)

Date: 19.05.2023 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Evaluate the following arithmetic expressions using the rules of Operator Precedence in python 2 M
 - a) `5 * 6 ** 3`
 - b) `24 // 6 // 3`
2. Which of the following results is True? 2 M
 - a) `>>>9==9 and 1==1`
 - b) `>>>3==5 or 7==3`
 - c) `>>>9==9 or 1==1`
 - d) `>>>4<1 and 1>6`
3. How many numbers will be printed? 2 M

```

i=5
while i>=0:
    print(i)
    i=i-1

```
4. Find the output of the following code. 2 M

```

def f():
    s="Hello World!"
    print(s)

s="welcome to the python programming"
f()

```
5. Identify the output in the following statements 2 M

```

S= "Welcome"
print(S[1:3])
print(S[:6])

```
6. Differentiate between Tuple and List give an example. 2 M
7. With the help of an example explain the significance of the `__init__()` method. 2 M
8. Identify the role of **self** argument in the class methods. 2 M
9. The `-----` module has a variety of commonly used GUI elements. 2 M
10. Give examples of commonly used widgets. 2 M

(P.T.O.)

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Write a program to prepare grocery bill. For that enter the name of the items purchased, quantity in which it is purchased, and its price per unit. Then display the bill in the following format. 10M

*****BILL*****

Item Name	Item Quantity	Item Price
-----------	---------------	------------

Total Amount to be paid

OR

11. B). Write a program to calculate salary of an employee given his basic pay (to be entered by the user), HRA=10 percent of basic pay, TA= 5 percent of basic pay. Define HRA and TA as constants and use them to calculate the salary of the employee. 10M

12. A). i) Draw a comparison between recursive and iterative technique for problem solving. 5M
ii) Write a program to print the Fibonacci series without using recursion. 5M

OR

12. B). Write a short notes on the following with an example: 10M
i) Keyword arguments
ii) Default arguments
iii) Lambda functions

13. A). Write a program to get a string made of the first two and last two characters from a given string. If the string length is less than two return instead the empty string. 10M

OR

13. B). Write a program to print index at which a particular value exists. If the value exists at multiple locations in the list, then print all the indices. Also count the number of times that value is repeated in the list. 10M

14. A). Write a program with class Employee that keeps a track of the number of employees in an organization and also stores their name, designation and salary details. 10M

OR

14. B). What will happen when a class inherits from another class with the same attributes or methods? Will it override them? 10M

15. A). i) Write a program to print the screen size using tkinter. 5M
ii) Write a program to make the window fullscreen. 5M

OR

15. B). Explain the following widgets and their functions: 10M
i) Frame
ii) Button
iii) Text
iv) Canvas
v) Listbox

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R18

Course Code: A30166



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Regular/Supplementary Examinations May-2023

Course Name: ENVIRONMENTAL PROTECTION & MANAGEMENT

(Common for EEE, ECE, CSE & IT)

Date: 19.05.2023 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

- | | |
|--|-----|
| 1. Define Pollution. | 2 M |
| 2. What do you mean by sustainability? | 2 M |
| 3. What is clean technology? | 2 M |
| 4. Define zero discharge technology. | 2 M |
| 5. Give the full form of EMAS and EMS. | 2 M |
| 6. Define hazardous waste. | 2 M |
| 7. Give any two roles of an environmental auditor. | 2 M |
| 8. What is compliance audit? | 2 M |
| 9. What do you mean by transboundary? | 2 M |
| 10. Name some metals present in tanning industry effluent. | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- | | |
|--|-----|
| 11.A). i) Discuss on the various national policy for environmental protection and Management. | 5M |
| ii) Enumerate the barriers for sustainable development. | 5M |
| OR | |
| 11. B). What is abatement of pollution. Discuss the major activities initiated under the various schemes on pollution abatement. | 10M |
| 12. A). Discuss cleaner production and cleaner technologies. | 10M |
| OR | |
| 12. B). i) Distinguish between pollution control and pollution prevention. | 5M |
| ii) concentration and mass standards. | 5M |
| 13. A). Discuss the merits and barriers in implementing ISO 14001 in an organization. | 10M |
| OR | |
| 13. B). i) Discuss the objectives and targets of an environmental management programme. | 5M |
| ii) Appraise the significance of training awareness on environmental protection. | 5M |
| 14. A). Write a process flow diagram for the Management of an Audit Programme as per ISO-19011. | 10M |
| OR | |
| 14. B). Write a note on Waste Minimisation Planning in an Industry. | 10M |
| 15. A). Write in brief about air and water pollution prevention opportunities in textile industries. | 10M |
| OR | |
| 15. B). Write in brief about disposal of hazardous wastes in a landfill. | 10M |

H.T No:

R18

Course Code: A30554



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations May-2023

Course Name: JAVA PROGRAMMING

(Common for EEE & ECE)

Date: 19.05.2023 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. What do you mean by byte code in Java programming? 2 M
2. Differentiate type conversion and type casting. 2 M
3. What are the various types of inheritance supported by Java? 2 M
4. What are the uses of super keyword? 2 M
5. Define a package. 2 M
6. Differentiate checked exceptions and unchecked exceptions. 2 M
7. What are the different states in the life cycle of a thread? 2 M
8. Define thread synchronization. 2 M
9. What are the three standard streams of Java? 2 M
10. What is the purpose of Scanner class? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the Features of Java. 10M
- OR**
11. B). i) Explain the concept of method overloading with the help of a program. 6M
ii) Write a short note on static keyword. 4M
12. A). Explain the properties of an inner class in Java. Demonstrate with the help of a program. 10M
- OR**
12. B). Explain the concept of multi level inheritance with an example program. 10M
13. A). Explain the concept of access protection with the help of packages in Java. 10M
- OR**
13. B). What are the exception handling keywords in Java? Explain exception handling with an example program. 10M
14. A). What are the different ways of creating threads in Java? Explain the process of thread creation using Runnable interface with a program. 10M
- OR**
14. B). i) Discuss thread priorities. 3M
ii) Explain the process of synchronization with a program. 7M
15. A). Write a Java program to copy the content of one file to another using File Class. 10M
- OR**
15. B). Discuss the BufferedInputStream class with an example program. 10M
