

H.T No:

**R18**

Course Code: A30013



**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**  
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations December-2022

Course Name: **BUSINESS MANAGEMENT & FINANCIAL ANALYSIS**

(Common for EEE, MECH & ECE)

Date: 05.12.2022 FN

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 Principles of management. 2 M
2. Recall Functions of management. 2 M
3. Explain Financial management. 2 M
4. Explain Marketing management. 2 M
5. Define National Income. 2 M
6. Illustrate Business cycle. 2 M
7. Summarize Break even analysis. 2 M
8. Classify different Markets. 2 M
9. Outline Objectives of business enterprises. 2 M
10. Classify different Ratios. 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain about FW Taylor scientific theory of management. 10M
- OR**
11. B). Examine Henry fayol contributions to management. 10M
12. A). Explain about the Human resource management and its nature, scope. 10M
- OR**
12. B). Explain the resent trends in Marketing Management. 10M
13. A). Outline the Law of demand and factors influencing and its limitations. 10M
- OR**
13. B). Classify the different types of Demand forecasting methods 10M
14. A). Explain about Break even analysis and its assumptions, limitations and applications. 10M
- OR**
14. B). Compare various types of market structures with degree of competition. 10M

(P.T.O.)

15. A). Explain the Double entry book-keeping and prepare the Format of Balance sheet. 10M

OR

15. B). Evaluate the financial position of the firm by Preparing Trading, profit and loss and Balance sheet for the year ending 31-3-2011. 10M

| Particulars            | Amount (Rs) |
|------------------------|-------------|
| Drawings               | 4,000       |
| Discounts allowed      | 1,500       |
| Discounts Received     | 5,00        |
| Office expenses        | 2,000       |
| Manufacturing expenses | 1,200       |
| Bills payable          | 17,000      |
| Bills receivable       | 10,000      |
| Cash in hand           | 4,800       |
| Cash at bank           | 30,800      |
| Office rent            | 3,600       |
| Capital                | 2,00,000    |
| Machinery              | 60,000      |
| Stock (1.4.2014)       | 32,000      |
| Wages                  | 1,00,000    |
| Carriage inwards       | 1,000       |
| Salaries               | 10,000      |
| Factory rent           | 4,800       |
| Repairs                | 8,00        |
| Fuel and power         | 5,000       |
| Furniture              | 11,000      |
| Buildings              | 80,000      |
| Sundry debtors         | 40,000      |
| Sales                  | 4,07,200    |
| Purchases              | 2,44,000    |
| Creditors              | 25,000      |
| Return inwards         | 7,200       |
| Return outwards        | 4,000       |

Closing stock Rs 40,000.

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R18

Course Code: A30421



**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**  
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations December-2022

**Course Name: MICROPROCESSORS & MICROCONTROLLERS**  
(Common for EEE & ECE)

Date: 07.12.2022 FN

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. List out different registers used in 8086 microprocessor.           | 2 M |
| 2. What are the functions of segment registers in 8086 microprocessor? | 2 M |
| 3. Distinguish between CALL and RET instruction in 8086?               | 2 M |
| 4. Explain the function of ROL and RLC instructions in 8086.           | 2 M |
| 5. Outline the Mode-2 input control signals used in 8255.              | 2 M |
| 6. What is memory mapped I/O?  | 2 M |
| 7. Analyze DJNZ instruction in detail in 8051.                         | 2 M |
| 8. Write short notes on Register Banks in 8051 microcontroller.        | 2 M |
| 9. Describe the steps followed to service an interrupt.                | 2 M |
| 10. When are timer overflow bits set and reset?                        | 2 M |

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- |  |     |
|--|-----|
| 11.A). Explain about internal architecture of 8086 microprocessor with a neat diagram.   | 10M |
| <b>OR</b>  |     |
| 11. B). Explain the operation of minimum mode of 8086 system with block diagram and timing diagram.  | 10M |
| 12. A). i) What is an addressing mode? Illustrate the various addressing modes of 8086 microprocessor with examples.                       | 7M  |
| ii) Explain about any six data transfer instructions with examples in 8086.  | 3M  |
| <b>OR</b>  |     |
| 12. B). The contents of different registers are given below. Calculate the 20 bit physical address of data for the following instructions. | 10M |
| [SI]=3000H [DI]=4000H [DS]= 5000H [ES]=6000H [BX]=7000H [AX]= 8000H  |     |
| i) MOV AX, [SI]  |     |
| ii) ADD AX, [BX]   |     |
| iii) MOV CX, 6000H[DI]   |     |
| iv) MOV DX, [SI][BX]   |     |
| v) SUB AX, 8000H[BX][DI]   |     |

(P.T.O..)

13. A). Interface an 8255 with 8086 to work as I/O port. Initialize port A as output port, port B as input port and port C as output port. Port A address should be 0740H. Write an ALP to sense the switch positions SW0-SW7 connected at port B. The sensed pattern is to be displayed on Port A, to which 8 LEDs are connected, while the port C lower displays number of ON switches out of 8 switches. 10M

**OR**

13. B). Design an interface between 8086 CPU and two chips of 16Kx8 EPROM and two chips of 32Kx8 RAM. Select the starting address of EPROM suitably. The RAM address must start at 00000H. 10M

14. A). Draw and explain the internal architecture of 8051 in detail. 10M

**OR**

14. B). i) Explain about 8051 logical instructions in detail. 6M  
ii) Write 8051 program to find number of zeros within a byte. 4M

15. A). i) Explain the interrupt structure of 8051 microcontroller. 7M  
ii) Distinguish between Timer and Counter in 8051 microcontroller. 3M

**OR**

15. B). Find the baud rate for the following, if XTAL=11.0592 MHz and SMOD=0 and SMOD=1 10M  
i) MOV TH1,#-10  
ii) MOV TH1,#-25  
iii) MOV TH1,#-200  
iv) MOV TH1, #-180

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**R18**

Course Code: A30419

**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**  
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations December-2022

Course Name: MICROWAVE ENGINEERING

(Electronics &amp; Communication Engineering)

Date: 09.12.2022 FN

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. Differentiate phase velocity and group velocity. 2 M
2. Why TEM wave cannot propagate in a rectangular waveguide? 2 M
3. The power input to port 1 of a directional coupler is 1mW. Its directivity is 15dB and coupling factor is 30dB. Find the power in isolated port. 2 M
4. Justify, "four port circulator can be used as a duplexer". 2 M
5. List the methods to improve the bandwidth in a multi-cavity Klystron amplifier. 2 M
6. Sketch the admittance spiral as applicable for reflex klystron and mark the region of oscillation. 2 M
7. What are spokes and degenerate modes in cylindrical magnetron? 2 M
8. Define Helix pitch in travelling wave tube amplifier. 2 M
9. State GUNN effect. 2 M
10. List any 2 methods to measure VSWR experimentally. 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Derive all the field components of TM waves in a rectangular waveguide. 10M
- OR**
11. B). i) Mathematically prove that the dominant mode for rectangular waveguide is TE<sub>10</sub>. 6M  
ii) An air-filled rectangular copper waveguide of cross section 2.2x1 cm is operated at 10 GHz. Calculate the attenuation constant in dB/m. Find the frequency and attenuation at which the attenuation is minimum for TE<sub>10</sub> mode. 4M
12. A). i) State and prove unitary and phase shift properties of S-parameters. 6M  
ii) A series reactance  $Z=jX$  is connected between two lines with characteristic impedance  $Z_1$  and  $Z_2$ . Find S matrix of the junction. 4M
- OR**
12. B). i) The specifications of a 3-port ferrite circulator are Insertion loss= 1dB, Isolation loss=25dB and VSWR=1.4. Characterize the circulator by its S-parameter. 5M  
ii) Derive the S matrix of an E-plane Tee. 5M
13. A). What is velocity modulation? Explain the working principle of operation of 2 Cavity Klystron amplifiers with neat diagram. 10M
- OR**
13. B). i) Differentiate Klystron amplifier from Reflex Klystron. 4M  
ii) Summarize the limitations of vacuum tubes for microwave applications. 6M

(P.T.O.)

14. A). Sketch the structure of a travelling wave tube and explain its working as an amplifier. 10M

**OR**

14. B). i) Illustrate and describe the operation of Magnetron. 5M

ii) Derive the equation for Hull cut-off voltage and magnetic flux density in a magnetron. 5M

15. A). i) Mathematically prove that GUNN diode is a Negative resistance device. 5M

ii) Explain the RWH theory of n-GaAs GUNN diode. 5M

**OR**

15. B). Draw a neat block diagram for microwave power measurement and explain the procedure in detail. 10M

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**R18**

Course Code: A30420



**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**  
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations December-2022

Course Name: VLSI DESIGN

(Electronics & Communication Engineering)

Date: 12.12.2022 FN

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. State Body effect.                                | 2 M |
| 2. Define Threshold voltage.                         | 2 M |
| 3. Explain different MOS layers.                     | 2 M |
| 4. Demonstrate the transfer characteristics of CMOS. | 2 M |
| 5. What is sheet resistance?                         | 2 M |
| 6. Define Delay time.                                | 2 M |
| 7. Write categories of memory arrays.                | 2 M |
| 8. Draw the circuit of zero detector with AND gates. | 2 M |
| 9. Explain about FPGA.                               | 2 M |
| 10. Explain about CPLD.                              | 2 M |

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- |  |     |
|--|-----|
| 11.A). Distinguish CMOS and Bipolar technologies.  | 10M |
| <b>OR</b>  |     |
| 11. B). Construct the fabrication steps for NMOS transistor and explain.   | 10M |
| 12. A). Draw and give the importance of VLSI design flow.  | 10M |
| <b>OR</b>  |     |
| 12. B). Draw the Stick diagram for two input AND gate.   | 10M |
| 13. A). Design using Complex logic gates $Y = \overline{(A+B)CD}$  | 10M |
| <b>OR</b>  |     |
| 13. B). Describe about the methods for driving large capacitance loads.  | 10M |
| 14. A). Name the types of memories and explain principal of SRAM.  | 10M |
| <b>OR</b>  |     |
| 14. B). Design a four-bit parity generator using only XOR gates and draw the schematic of it.                        | 10M |
| 15. A). Design the standard cell-based ASIC design.  | 10M |
| <b>OR</b>  |     |
| 15. B). What are the draw backs of PLAs? How PLAs are used to implement combinational and sequential logic circuits? | 10M |

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Course Code: A30516



**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**  
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations December-2022

Course Name: **OPERATING SYSTEM**

(Electronics & Communication Engineering)

Date: 14.12.2022 FN

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. Can multiple user level threads achieve better performance on a multiprocessor system than a single processor system? Justify your answer. 2 M
2. What does the CPU do when there are no user programs to run? 2 M
3. Define Mutual Exclusion. 2 M
4. List out the data fields associated with Process Control Blocks. 2 M
5. Give the necessary conditions for deadlock to occur. 2 M
6. What is Inter process communication? List out the calls involved in it? 2 M
7. Define Virtual Memory. 2 M
8. Mention the two main approaches to identify and reuse free memory area in a heap. 2 M
9. List the attributes of a file. 2 M
10. What are the responsibilities of File Manager? 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the purpose and importance of system calls in detail with examples. 10M
- OR**
11. B). What are the different types of operating systems and explain any two types of operating systems in detail? 10M
12. A). Discuss how scheduling algorithms are selected for a system. What are the criteria considered? 10M
- OR**
12. B). Explain the differences in the degree to which FCFS, RR and Non-preemptive SJF scheduling algorithms, discriminate in favor of short process. 10M
13. A). Discuss in details the critical section problem and also write the algorithms for Readers – Writers problems with semaphores. 10M
- OR**
13. B). How does a deadlock can be avoided using Banker's algorithms? 10M

(P.T.O..)



14. A). What do you mean by paging? Discuss in detail about structure of page tables with appropriate examples. 10M

**OR**

14. B). Explain any two-page replacement algorithms. 10M

15. A). Explain how file system management is done in Linux 10M

**OR**

15. B). Discuss the different file allocation methods with suitable example. 10M

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Course Code: A30444



**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**  
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations December-2022

**Course Name: CELLULAR & MOBILE COMMUNICATIONS**  
(Electronics & Communication Engineering)

Date: 14.12.2022 FN

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. Mention the limitations of conventional mobile telephone systems. 2 M
2. Discuss the dependence of frequency reuse distance on cell reuse pattern. 2 M
3. Mention the effect on coverage and interference of mobile link by decrease in transmitted power level. 2 M
4. Explain Polarization diversity. 2 M
5. State the factors on which the minimum separation of cell site antenna depends. 2 M
6. List the antennas used for space diversity. 2 M
7. List any three techniques for increasing frequency spectrum utilization. 2 M
8. Define Spectrum utilization factor. 2 M
9. Draw a simple two-level handoff scheme diagram. 2 M
10. Define Inter system Hand-off 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the steps involved in planning a cellular system. Illustrate how the performance criteria is evaluated. 10M
- OR**
11. B). Explain briefly different ways of improving coverage and capacity in cellular systems. 10M
12. A). Determine the real time co-channel interference measurement of mobile radio transceivers. 10M
- OR**
12. B). Explain the near field and far field interference and how to avoid it. 10M
13. A). Derive the path loss prediction model in non-obstructive condition. 10M
- OR**
13. B). Explain Umbrella patterns in detail. Explain in detail about the long-distance propagation. 10M
14. A). Explain how channel sharing and borrowing is performed. Compare omni and sectorized cells for seven cell system in fixed channel assignment. 10M
- OR**
14. B). Illustrate the frequency measurement chart and spectrum allocation for 666 channels and discuss the functions of setup and voice channels. 10M

(P.T.O.)



15. A). Explain in detail about the need for handoff and determine the probability of requirement of handoff. 10M

**OR**

15. B). Explain about: 10M

- i) Dropped calls
- ii) Mobile assisted Handoff
- iii) Soft Handoff.

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**R18**

Course Code: A30555



**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**  
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations December-2022

**Course Name: INTRODUCTION TO DATABASE MANAGEMENT SYSTEM**  
(Electronics & Communication Engineering)

Date: 16.12.2022 FN

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. Who are the different types of database users? 2 M
2. Write about any two aggregate operations in Relational Algebra. 2 M
3. Explain Referential Integrity constraints. 2 M
4. What is an Index? Write the syntax to create and delete an Index? 2 M
5. Distinguish between ANY and ALL. 2 M
6. What is the usage of 'group by' and 'having' clauses in SQL? 2 M
7. What is Cursor and how to use it? 2 M
8. What are Stored Procedures? 2 M
9. List out the types of functional dependencies. 2 M
10. How can we identify that the relation is in BCNF? 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Define DBMS. Discuss the main characteristics of the database approach and how it differs from traditional file system? 10M
- OR**
11. B). What are the different types of Data Models? Explain about Relational Model. 10M
12. A). Give syntax for DDL commands? Show their operations with an example? 10M
- OR**
12. B). What is a View? Explain the syntax and different types of views. 10M
13. A). Explain about the following clauses with example queries 10M
  - i) Order by
  - ii) Exists
  - iii) Union
  - iv) Inner Join
- OR**
13. B). Define Sub-query? Consider the following database schema to write queries in SQL 10M

Sailors (sid, sname, rating, age)  
Boats(bid, bname, color)  
Reserves(sid, bid, day)

  - i) Find the names of sailors who have reserved boat 103 using IN operator.
  - ii) Find the name and the age of the oldest sailor.
  - iii) Find the sailors with the highest rating.

(P.T.O..)



14. A). Explain about Control Statements with example(s). 10M

**OR**

14. B). What are Triggers? Explain the different types of Triggers with suitable example. 10M

15. A). Discuss the problems caused by redundancy and the purpose of normalization. 10M

**OR**

15. B). What is Normalization? Explain any three normal forms with suitable example(s). 10M

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