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R18

Course Code: A30414



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Supplementary Examinations May-2023

Course Name: ELECTRONIC MEASUREMENTS & INSTRUMENTATION
(Electronics & Communication Engineering)

Date: 09.05.2023 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

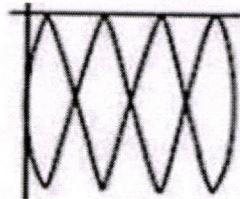
PART-A

Answer all TEN questions (Compulsory)

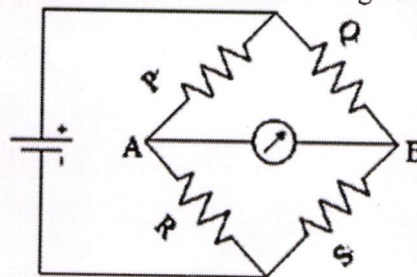
Each question carries TWO marks.

10x2=20M

1. A capacitance meter measured as 205.3nF of a 201.4nF valued capacitor. Determine the % relative error. Also mention the correction required for the meter. 2 M
2. A moving coil meter takes 50 mA to produce full scale deflection, the potential difference across its terminals be 75mV. Suggest shunt resistance for using the instrument as a ammeter for a range of 0-50A. 2 M
3. Recall the operating conditions (Barkhausen criteria) for oscillations of feedback RF and AF oscillators. 2 M
4. Enumerate the differences between dual beam and dual trace CROs. 2 M
5. From the below Lissajous patterns calculate the unknown frequency of the signal, if the time base signal frequency is 25 Hz. 2 M



6. Compare general purpose CRO with digital storage CRO. 2 M
7. List the various types of strain gauges. 2 M
8. Illustrate the working of magneto strictive transducer and mention its application. 2 M
9. If $P=10K\Omega$, $Q=15 K\Omega$, $R = 40 K\Omega$ in the Wheatstone bridge circuit, determine the value of S. 2 M



10. Write the working principle of electromagnetic flow meter. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Define and explain various types of possible errors in a measurement and give suggestion to minimise those errors. 10M

OR

11. B). Demonstrate the functional elements of a PMMC instrument and derive the expression for deflection in terms of current through coil. 10M

(P.T.O..)

12. A). Illustrate a Heterodyne wave analyser with a function block diagram and list the applications. 10M

OR

12. B). Examine the pulse characteristics and the terminology with a basic pulse wave form. 10M

13. A). Draw the basic block diagram of an analog CRO and explain the principle of signal display in CRO. 10M

OR

13. B). Explain a dual beam CRO with independent time bases and compare with dual trace CRO. 10M

14. A). Derive the expression of gauge factor of a strain gauge. 10M

OR

14. B). With a neat diagram explain the working of resistance temperature detector (RTD) and give the advantages and disadvantages. 10M

15. A). Analyze a DC bridge to measure resistance less than 1Ω and derive the expression which eliminates the effect of lead and contact resistances. 10M

OR

15. B). Draw the generalized block diagram of a digital data acquisition system and explain (DAS). 10M

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Course Code: A30411



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Supplementary Examinations May-2023

Course Name: ANTENNA & WAVE PROPAGATION

(Electronics & Communication Engineering)

Date: 11.05.2023 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 loop antenna and what are different loop antennas. 2 M
2. What are the radiation resistances of half wave and quarter wave monopole antennas? 2 M
3. List the types of horn antennas and its geometrical features. 2 M
4. Find the characteristics of folded dipole antenna. 2 M
5. Relate fast lens and delay lens antenna. 2 M
6. What are the features of microstrip patch antenna? 2 M
7. What are various gain measurement methods? 2 M
8. Explain clearly about the broadside array. 2 M
9. Define MUF and skip distance. 2 M
10. What are the characteristics of space wave Propagation? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) Illustrate current distributions and radiation patterns of vertical antennas of length $\lambda/2$, λ , $3\lambda/2$, 2λ and explain them. 5M
- ii) Define effective height of transmitting and receiving antenna. Show their equality using reciprocity theorem. 5M

OR

11. B). Develop the field produced by an oscillating electric dipole in radiation and near zones. Also find the expression for the power radiated. 10M
12. A). Show the typical geometry of a helical antenna radiating in axial mode. List out all its parameters and basic characteristics. Find the expressions for HPBW, BWFN, directivity and axial ratio. 10M

OR

12. B). i) Explain the need and configuration of a folded dipole antenna. Find its radiation pattern and compare its characteristics with those of a simple half wave dipole. 6M
- ii) Name the parasitic elements used in Yagi-Uda array. Explain their significance in array. 4M

(P.T.O.)

13. A). i) Explain the types of feed system in parabolic reflector. 6M
ii) Find the gain & capture area for a parabolic antenna with a 6 m diameter dish and dipole feed at the frequency of 10 GHz. 4M

OR

13. B). i) Explain the geometry, features and advantages of a microstrip antenna. 6M
ii) Illustrate the working principle of lens antenna. 4M

14. A). i) Examine the radiation pattern of 8 – isotropic elements fed in phase, spaced $\lambda/2$ apart with the principle of pattern multiplication. 6M
ii) Compare Broadside and End fire array. 4M

OR

14. B). i) Develop the expression for array factor of two-element array. 6M
ii) Illustrate the set-up for pattern measurements and explain it. 4M

15. A). i) Build the field strength equation at a distance in space wave propagation. 6M
ii) A HF radio link has to be established between two points at a distance of 2500 Km on earth's surface considering the ionospheric height to be 200 Km and its critical frequency 5 MHz. Find the MUF for the given path. 4M

OR

15. B). i) Explain the given terms: 6M
a) MUF, b) Virtual Height and c) Multi-hop Transmission.
ii) Explain in detail about Tropospheric wave propagation. 4M

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Course Code: A30412



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Supplementary Examinations May-2023

Course Name: LINEAR & DIGITAL IC APPLICATIONS

(Electronics & Communication Engineering)

Date: 13.05.2023 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. List out ideal values of voltage gain, Bandwidth, slew rate and CMRR of op-Amp. 2 M
2. Draw the symbol of three terminal fixed positive regulator and the specifications of terminals. 2 M
3. Mention the merits of active filters. 2 M
4. What are the applications of phase locked loop? 2 M
5. Define resolution and accuracy of ADC and DAC. 2 M
6. Why R-2R Ladder type DAC is preferred over weighted resistor? 2 M
7. Compare CMOS and TTL logic families. 2 M
8. What are the precautions to be taken when TTL IC is driving CMOS IC? 2 M
9. Draw the excitation of master-slave JK-Flip-flop. 2 M
10. Differentiate static and dynamic RAMS. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Derive the voltage gain of closed loop Op-Amp differential amplifier. Draw the circuit diagram. 10M
- OR**
11. B). Derive the expression for output of Op-Amp Instrumentation amplifier. Also draw its circuit diagram. 10M
12. A). Design and draw a first order band pass filter with band 1-2 KHz and mid band gain of 4. 10M
- OR**
12. B). Derive the time period and duty cycle of Astable multivibrator using IC555. 10M
13. A). Explain the operation of R-2R digital to analog converter with the help of circuit diagram. 10M
- OR**
13. B). Describe how analog voltage is converted in to digital using successive approximation ADC. 10M
14. A). Convert two numbers of 8-input multiplexers into 16-bit multiplexer. 10M
- OR**
14. B). Explain the operation of 9-bit parity generator/checker. 10M
15. A). Using TTL IC 74 series explain the operation of decade counter. 10M
- OR**
15. B). With the help of neat diagram explain the Architecture of ROM. 10M

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Course Code: A30413

**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**

(UGC AUTONOMOUS)

B.Tech V Semester Supplementary Examinations May-2023

Course Name: **DIGITAL SIGNAL PROCESSING**

(Electronics & Communication Engineering)

Date: 16.05.2023 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. Classify the types of systems. 2 M
2. State properties of ROC. 2 M
3. State the properties of DFT. 2 M
4. How many multiplications and additions are required to compute N point DFT using radix2 FFT? 2 M
5. Classify the different types of filters based on impulse response. 2 M
6. Distinguish analog and digital filters. 2 M
7. What are the techniques of designing FIR filters? 2 M
8. Identify the steps involved in FIR filter design. 2 M
9. What is decimation? 2 M
10. What is meant by round – off noise error? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Test if the following systems are stable or not. 10M
- i) $y(n) = \cos x(n)$
 - ii) $y(n) = ax(n)$
 - iii) $y(n) = ax(n)$

OR

11. B). Apply the Z Transform property & find out the Z Transform of the following 10M
function: $x[n] = n \left(\frac{1}{2}\right) u[n]$

12. A). Determine the 4 point DFT of the signal $x(n)=\{1,1,1,1\}$ 10M

OR

12. B). Develop the 8-point flow diagram of radix-2 DIF-FFT algorithm and give the advantages of radix-2 FFT algorithm. 10M

13. A). Analyze bilinear transformation for an analog filter with system function $H(S) = b/S + a$ 10M

OR

13. B). For the analog transfer function 10M

$$H_a(s) = \frac{2}{(s+1)(s+3)}$$

determine H(z) if (a) T = 1 s and (b) T = 0.5 s using impulse invariant method.

(P.T.O.)

14. A). Determine a digital FIR low-pass filter using rectangular window by taking 5 samples of $w(n)$ and with a cutoff frequency of 1.2 rad/sec. 10M

OR

14. B). Comparison of IIR and FIR filters. 10M

15. A). What is round off noise in IIR digital filters? Explain its effects in IIR Filters. 10M

OR

15. B). Explore the multirate digital signal processing and write the few applications. 10M

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Course Code: A30441



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech V Semester Supplementary Examinations May-2023

Course Name: **DIGITAL DESIGN THROUGH VERILOG HDL**

(Electronics & Communication Engineering)

Date: 18.05.2023 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 is functional verification? 2 M
2. Define parameters and memory operators. 2 M
3. Illustrate with an example Array of Instances of Primitives. 2 M
4. Illustrate the concepts of Tristate gates. 2 M
5. Define Initial Construct. 2 M
6. Explain assignments with delays. 2 M
7. Interpret about time delays with switch primitives? 2 M
8. Explain parameter declaration and assignments. 2 M
9. Explain Feedback model. 2 M
10. Describe about test bench techniques. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain lexical conventions White space, strengths, Operators with suitable examples. 10M
- OR**
- 11.B). Discuss about Simulation versus synthesis, PLI and System Tasks relevant to Verilog HDL. 10M
- 12.A). Classify and explain strengths and contention resolution. 10M
- OR**
- 12.B). Illustrate about design of flipflops with gate primitives. 10M
- 13.A). Distinguish between begin-end and fork-blocks with examples. 10M
- OR**
- 13.B). Explain event construct in a module. 10M
- 14.A). Design half-adder using CMOS switches. 10M
- OR**
- 14.B). Explain and specify blocks of Path Delay Modeling. 10M
- 15.A). What are the various sequential memory storage models? Explain in detail. 10M
- OR**
- 15.B). Briefly explain any one method used for sequential circuit testing. 10M

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Course Code: A30457



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Supplementary Examinations May-2023

Course Name: **COMPUTER ORGANIZATION**

(Electronics & Communication Engineering)

Date: 18.05.2023 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. Draw the block diagram of basic functional units of a computer. | 2 M |
| 2. Define big-endian and little-endian assignments. | 2 M |
| 3. Perform following arithmetic operations in signed 2's complement representation.
a)11010-10000, b)100-110000 | 2 M |
| 4. What is positional number system? | 2 M |
| 5. Difference between privileged and non-privileged instructions. | 2 M |
| 6. Define interrupt. | 2 M |
| 7. What is cache coherency? | 2 M |
| 8. Define throughput and speedup. | 2 M |
| 9. List out replacement algorithms. | 2 M |
| 10. Explain about Write policies. | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- | | |
|---|-----|
| 11.A). Define addressing modes. Explain any five types of addressing modes with examples. | 10M |
| OR | |
| 11. B). Explain CISC and RISC instruction set with example. | 10M |
| 12. A). Explain about floating – point arithmetic operations. | 10M |
| OR | |
| 12. B). Given, multiplicand A= +22 and multiplier B = -11. Perform the multiplication of A and B using Booth's algorithm. | 10M |
| 13. A). i) Explain the role of interrupts in process state transitions. | 4M |
| ii) Explain the architecture of 8086 with neat diagram. | 6M |
| OR | |
| 13. B). Explain about hardwired and microprogrammed design approaches. | 10M |
| 14. A). Explain about Flynn's taxonomy of classification of parallel processors. | 10M |
| OR | |
| 14. B). What is Pipelining? Explain the five stage Instruction pipeline with timing diagram. | 10M |
| 15. A). Write a short note on Memory hierarchy. | 10M |
| OR | |
| 15. B). What is Cache memory? Analyze the three mapping functions of cache memory. | 10M |

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Course Code: C30166



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech V Semester Supplementary Examinations May-2023

Course Name: **BUSINESS ETHICS & CORPORATE GOVERNANCE**

(Common for ECE, CSE, CSC & CSM)

Date: 22.05.2023 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 Business Ethics and Corporate governance. 2 M
2. What is Ethical Dilemma? Discuss. 2 M
3. Explain the Moral Development. 2 M
4. List the five myths about business ethics. 2 M
5. Outline the Ethics of Hospital Services. 2 M
6. Brief about software challenges. 2 M
7. Define the Hacking. Discuss. 2 M
8. Discuss the following: a) Auditors, b) Directors. 2 M
9. What is Internal Control? Illustrate. 2 M
10. Role of Banking in Corporate Governance? Any five. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss various principles of ethics and their implications in the present day business world. 10M
- OR**
11. B). Write in detail about modern ethical models for decision making. 10M
12. A). Explain the ethics to be followed in workplace. 10M
- OR**
12. B). Explain ethical issues in HRM. 10M
13. A). Briefly state and explain the code of ethics adopted by the business firms in combating frauds. 10M
- OR**
13. B). Critically Examine the Mindset of Hackers and cyber Criminals. 10M
14. A). Elucidate the structures and processes of corporate governance. 10M
- OR**
14. B). What is Indian model of corporate governance? Explain it comprehensively. 10M
15. A). What are the recommendations of JJ Irani Committee? Discuss. 10M
- OR**
15. B). Does the political lobbying affect corporate governance? Elaborate with examples. 10M

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Course Code: C30162



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech V Semester Supplementary Examinations May-2023

Course Name: **KNOWLEDGE MANAGEMENT**

(Common for ECE, CSE, IT & CSC)

Date: 22.05.2023 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 Data Information. 2 M
2. What do you mean by Organizational Knowledge? 2 M
3. What do you mean by Knowledge Management System? 2 M
4. What is BPR? 2 M
5. List out the challenges faced by Manufacturing Sector. 2 M
6. List out the challenges faced by service sector industry. 2 M
7. What do you mean by Relationship Management? 2 M
8. What is CRM? 2 M
9. How Net Banking in India works? Explain. 2 M
10. Define Information Architecture. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). What are the characteristics, nature and Types of Knowledge Management? Explain. 10M
- OR**
11. B). Explain the key components of Organizational Knowledge. 10M
12. A). Explain the importance of Information Technology in Knowledge Management Systems. 10M
- OR**
12. B). Differentiate between Data Warehousing and Data Mining. 10M
13. A). Explain the role of Knowledge Management in Service industry. 10M
- OR**
13. B). What are the challenges and future of Knowledge Management? Explain. 10M
14. A). Explain how Business Ethics is interrelated with Knowledge Management. 10M
- OR**
14. B). Explain the Imperatives of new age in the Knowledge Process. 10M
15. A). How Business Intelligence is interlinked with Internet Platforms? Explain. 10M
- OR**
15. B). Explain the role of Knowledge Management in Organizational Restructuring. 10M
