

Model Question Paper-I/II with effect from 2022-23 (CBCS Scheme)

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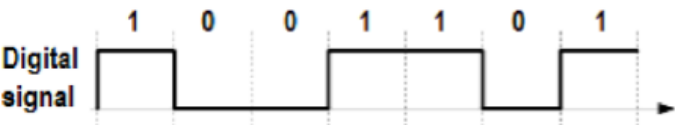
First/Second Semester B.E. Degree Examination Introduction to Electronics Engineering

TIME: 03 Hours

Max. Marks: 100

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

| Module -1 | | | *Bloom's Taxonomy Level | Marks |
|-----------|---|---|-------------------------------|-------|
| Q.01 | a | What is a regulated power supply? With neat block diagram Summarize the working of DC power supply. Also mention the principal components used in each block. | L2 | 6M |
| | b | Discuss the need of filter circuit. With circuit diagram and waveforms brief out the operation of smoothing filter for full wave rectifiers. | L2 | 7M |
| | c | With neat diagram Summarize working principle of the voltage divider bias CE amplifier with feedback. | L2 | 7M |
| OR | | | | |
| Q.02 | a | A 5V zener diode has a maximum rated power dissipation of 500 mW. If the diode is to be used in a simple regulator circuit to supply a regulated 5V to a load having a resistance of 500 Ω , determine a suitable value of series resistor for operation in conjunction with a supply of 9V. | L3 | 7M |
| | b | What is voltage multiplier and mention its applications? With circuit diagram brief out the operation of voltage Tripler circuit. | L2 | 7M |
| | c | Illustrate how BJT is used as a switch. | L4 | 6M |
| Module-2 | | | | |
| Q. 03 | a | Sketch the circuits of each of the following based on use of Operational Amplifier a) Differentiator. b) Integrator . | L1 | 6M |
| | b | Write a note on Ideal characteristics of Op-Amp | L1 | 7M |
| | c | Explain the operation of Single stage Astable Oscillator with its circuit diagram. | L2 | 7M |
| OR | | | | |
| Q.04 | a | Mention the condition of sustained oscillations. Determine the frequency of oscillations of a three stage ladder network in which C=10nF and R=10K Ω . | L2 | 6M |
| | b | With a neat circuit diagram and Waveforms, describe the operation of Crystal controlled Oscillator. | L2 | 7M |
| | c | With a neat circuit diagram explain single stage Multivibrators. | L2 | 7M |
| Module-3 | | | | |
| Q. 05 | a | With the help of truth table explain the operation of Full Adder with its circuit diagram and reduce the expression for Sum and carry. | L2 | 7M |
| | b | Mention the different theorems and Postulates of Boolean Algebra and Prove each of them with truth table. | L1 | 7M |
| | c | Subtract using (r-1)'s compliment method a) $4456_{(10)} - 34234_{(10)}$ Subtract using r's compliment method a) $1010100_{(2)} - 1000100_{(2)}$ | L3 | 6M |
| OR | | | | |
| Q. 06 | a | Convert the following a) $3A6.C58D_{(16)} = ?_{(8)}$ b) $0.6875_{(10)} = ?_{(2)}$ | L3 | 8M |

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|-----------------|---|---|----|----|
| | | c) Compute the 9's complement of $25.639_{(10)}$ d) Compute the 1's complement of $11101.0110_{(2)}$ | | |
| | b | State and prove De-morgan's Theorem with its truth table. | L1 | 5M |
| | c | Minimize the following function a) $F(x,y,z) = xy+x'z+yz$ Find the compliment of the function F1 and F2 $F1(x,y,z) = x'yz'+x'y'z$ $F2(x,y,z)=x(y'z'+yz')$ | L3 | 7M |
| Module-4 | | | | |
| Q. 07 | a | Compare Embedded Systems and General Computing Systems, also provide the applications of Embedded systems. | L2 | 5M |
| | b | Write a note on core of an Embedded systems with its block diagram. | L2 | 8M |
| | c | Write a note on Transducers? Explain one type of Sensor and Actuator with its operation. | L2 | 7M |
| OR | | | | |
| Q. 08 | a | Explain how 7 seg Display can be used to Display the data and write a brief note on operation of LED. | L2 | 7M |
| | b | What is an Embedded system and brief about the different elements of an Embedded systems. | L2 | 8M |
| | c | Write a note on classification of Embedded systems. | L2 | 6M |
| Module-5 | | | | |
| Q. 09 | a | Write a note on different types of modulations and briefly describe each in detail. | L2 | 8M |
| | b | Brief about Modern Communication System with its block diagram. | L2 | 7M |
| | c | List out the advantages of Digital Communication over Analog Communications. | L2 | 5M |
| OR | | | | |
| Q. 10 | a | Explain with a neat diagram the concept of Radio wave Propagation and its different types. | L2 | 7M |
| | b | Consider the following binary data and sketch the ASK, FSK & PSK modulated waveforms. <div style="text-align: center;">  <p>Figure 10.b</p> </div> | L2 | 6M |
| | c | Describe about Radio signal transmission and Multiple access techniques. | L2 | 7M |

*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.