

PART-A**(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 Define Drift current and diffusion current.
- 2 Define rectifier and mention its types.
- 3 State the applications of Emitter Follower.
- 4 Define condition for oscillation.
- 5 Draw the symbols of DIAC and TRIAC.
- 6 Define breakover voltage of SCR.
- 7 How is opto electronic device classified?
- 8 Define negative feedback and mention its types.

PART-B**(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 Compare the characteristics of Half wave, Full wave and Bridge rectifiers.
- 10 Explain capacitor filter.
- 11 How transistor is used as an amplifier?
- 12 Differentiate FET and BJT.
- 13 Draw and explain the equivalent circuit of UJT.
- 14 Explain MOSFET as a switch.
- 15 Expand LED, LDR. Draw the symbol of them.
- 16 Draw the circuit diagram of Schmitt trigger using transistor.

PART-C**(5 x 10 = 50 Marks)****Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.****(ii) All questions carry equal marks.**

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| 17 | A | Explain the construction and working principle of PN junction diode and draw its VI characteristics. | 10 |
| | | (OR) | |
| | B | Explain the working principle of bridge rectifier with its circuit diagram and waveforms. | 10 |
| 18 | A | Explain the input and output characteristics of Common Base (CB) configuration, with diagram. | 10 |
| | | (OR) | |
| | B | Explain the RC coupled amplifier with its frequency response. | 10 |
| 19 | A | Draw and explain the operation of Hartley oscillator. | 10 |
| | | (OR) | |
| | B | Explain the working principle and characteristics of UJT. | 10 |
| 20 | A | Explain the working and VI characteristics of DIAC. | 10 |
| | | (OR) | |
| | B | Explain the characteristics of N-Channel and depletion mode MOSFET. | 10 |
| 21 | A | Draw the circuits, waveforms of negative clipper and positive clipper. | 10 |
| | | (OR) | |
| | B | Explain a monostable multivibrator circuit with waveforms. | 10 |

PART-A**(5 x 2 = 10 Marks)**

**Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.
(ii) All questions carry equal marks.**

- 1 Define power and write its unit.
- 2 Find the equivalent resistance when two resistors are connected in parallel.
- 3 Write the condition for resonance?
- 4 Write the EMF equation of a transformer.
- 5 What are the basic forces required for the indicating instruments?
- 6 What are the types of CRO?
- 7 What is a thermistor?
- 8 Write the applications of DC shunt motor.

PART-B**(5 x 3 = 15 Marks)**

**Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.
(ii) All questions carry equal marks.**

- 9 State and explain Kirchoff's current law.
- 10 State Super-position theorem.
- 11 Define impedance and state its unit
- 12 State the applications of transformer.
- 13 Differentiate single phase and three phase supply.
- 14 Compare Dual trace and dual beam CRO.
- 15 What are the advantages and disadvantages of PMMC?
- 16 What are the advantages of digital instruments over analog instruments?

PART-C**(5 x 10 = 50 Marks)**

Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.

(ii) All questions carry equal marks.

- 17 A State and explain Thevenin's theorem by using step by step procedure. 10
(OR)
B State the procedure for analyzing a circuit using mesh current method. 10
- 18 A Derive the expression for impedance of RLC series circuit. 10
(OR)
B i) A series RLC circuit has the following parameter $R=17$ ohms $L=100$ mH and $C=100$ μ f. 10
Calculate the resonant frequency.
ii) Compare series and parallel resonance.
- 19 A With neat diagram, explain the OC and SC test of transformer. 10
(OR)
B Explain the operation of capacitor start induction motor. 10
- 20 A With a neat diagram, explain the construction and working principle of PMMC instrument. 10
(OR)
B Draw the block diagram of CRO and explain each block. 10
- 21 A Explain the construction and operation of LVDT with a neat diagram and draw its characteristics. 10
(OR)
B Draw the block diagram of digital frequency counter and explain. 10

PART-A**(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 Define program and algorithm.
- 2 List the any two features of C language.
- 3 What are the key words used in switch statement?
- 4 Write down the syntax for scanf().
- 5 List out the function used for reading the string.
- 6 Define dynamic memory allocation.
- 7 List out the functions used in graphics.h header file.
- 8 Define Recursion.

PART-B**(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 What are identifiers? Write any two rules for identifiers.
- 10 Define flowchart and draw the symbols used in flowchart.
- 11 Write the syntax and use of goto statement.
- 12 State the use of clrscr(), isupper() and isalpha().
- 13 How will you access the array elements?
- 14 Write the C program to implement Ohm's law.
- 15 What is union? Write the syntax to define union.
- 16 Differentiate while loop and do-while loop.

PART-C**(5 x 10 = 50 Marks)****Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.****(ii) All questions carry equal marks.**

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| 17 | A | Briefly explain in detail about program development cycle. | 10 |
| | | (OR) | |
| | B | i) Explain the structure of C program. | 5 |
| | | ii) Explain how the variable is declared and initialized with an example. | 5 |
| 18 | A | i) Explain unformatted output function with an example. | 5 |
| | | ii) Explain for loop with an example. | 5 |
| | | (OR) | |
| | B | i) Explain about Logical and Relational operators with an example. | 5 |
| | | ii) Explain nested if statement with an example. | 5 |
| 19 | A | i) Write the syntax and example to declare and initialize two dimensional arrays. | 5 |
| | | ii) What is a function? Write the general form of defining a function. | 5 |
| | | (OR) | |
| | B | i) Describe the string handling functions with example. | 5 |
| | | ii) Discuss any five mathematical functions present in math.h header file. | 5 |
| 20 | A | i) How a pointer is declared and initialized? Explain with an example. | 5 |
| | | ii) Explain structure within structure with an example. | 5 |
| | | (OR) | |
| | B | Explain the functions used in dynamic memory allocation in C. | 10 |
| 21 | A | i) Write a C program to find the equivalent resistance of three resistors connected in series. | 5 |
| | | ii) Write a C program to find the sum of series using while loop. | 5 |
| | | (OR) | |
| | B | i) Write a C program to draw the symbol of NPN transistor using Graphics. | 5 |
| | | ii) Write a C program to swap two variables. | 5 |