

M.Sc.(Physics) (CBCS Pattern) Semester-I
PSCPHYT03 - Core Paper-III - Electronics

P. Pages : 1

Time : Three Hours



GUG/W/24/11181

Max. Marks : 80

Either:

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|----|----|---|---|
| 1. | a) | Explain construction and working of silicon controlled rectifier. | 8 |
| | b) | What is quantum mechanical tunnelling in tunnel diode? Explain V-I characteristics of tunnel diode. | 8 |

OR

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| | e) | Explain construction and working of n-channel enhancement MOSFET. | 8 |
| | f) | Discuss in details Schottky and Tunnel diodes. | 8 |

Either:

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| 2. | a) | Explain construction and working of Zener regulated power supply. | 8 |
| | b) | Explain construction of Hartley Oscillator. Determine the frequency of oscillator. | 8 |

OR

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| | e) | Explain working of JFET as an amplifier. | 8 |
| | f) | Discuss RC-Coupled amplifier. | 8 |

Either:

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| 3. | a) | Explain in details, NAND and NOR gates using basic building blocks. | 8 |
| | b) | Explain working of OPAMP as a adder and differentiator. | 8 |

OR

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| | e) | Discuss OP-AMP as inverting and non-inverting amplifier. | 8 |
| | f) | Discuss D/A convertor. | 8 |

Either:

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| 4. | a) | Discuss frequency and phase modulation. | 8 |
| | b) | Explain digital (PCM) modulation. | 8 |

OR

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| | e) | Explain Klystron and Gunn diode oscillator. | 8 |
| | f) | Explain working of cavity resonators. | 8 |

5. Attempt all of the following.

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|----|---|---|
| a) | Explain construction of LED. | 4 |
| b) | Construct OR and AND gate using transistor. | 4 |
| c) | Discuss shift registers. | 4 |
| d) | Discuss standing wave detector. | 4 |
