

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

P. Pages : 2

Time : Three Hours



**GUG/S/25/11181**

Max. Marks : 80

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**Either:**

- |    |     |  |   |
|----|-----|--|---|
| 1. | a)  | Explain construction and working of UJT. | 8 |
|    | b)  | Write a short note on-                   | 8 |
|    | i)  | Solar cell                               |   |
|    | ii) | LCD                                      |   |

**OR**

- |    |   |   |
|----|---|---|
| e) | Explain construction and working of p-channel JFET. | 8 |
| f) | Discuss photo-transistor.                           | 8 |

**Either:**

- |    |    |  |   |
|----|----|--|---|
| 2. | a) | Explain JFET as an amplifier.                              | 8 |
|    | b) | Explain construction and working of R-C coupled amplifier. | 8 |

**OR**

- |    |                                       |                               |  |
|----|---------------------------------------|-------------------------------|--|
| e) | Write a short note on-                | 8                             |  |
|    | i)                                    | Hartley Oscillator            |  |
|    | ii)                                   | Crystal controlled oscillator |  |
| f) | Discuss clipping & clamping circuits. | 8                             |  |

**Either:**

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|----|----|--------------------------|---|
| 3. | a) | Discuss shift registers. | 8 |
|    | b) | Discuss D/A converter.   | 8 |

**OR**

- |    |   |   |
|----|---|---|
| e) | Explain construction and working of Astable multivibrator.  | 8 |
| f) | Explain Op-Amp as comparator and Schmitt trigger generator. | 8 |

**Either:**

- |           |    |   |          |
|-----------|----|---|----------|
| <b>4.</b> | a) | Discuss in detail, fundamentals of optical communication. | <b>8</b> |
|           | b) | Discuss different types of microwave oscillators.         | <b>8</b> |

**OR**

- |           |    |  |          |
|-----------|----|--|----------|
|           | e) | Explain in detail digital pulse code modulation.         | <b>8</b> |
|           | f) | Explain working of Klystron and Gunn diode oscillator.   | <b>8</b> |
| <b>5.</b> |    | Attempt all the followings-                              |          |
|           | a) | Write a short note on Silicon Controlled Rectifier (SCR) | <b>4</b> |
|           | b) | Explain need of feedback in amplifier.                   | <b>4</b> |
|           | c) | Explain working of J-K flip-flop.                        | <b>4</b> |
|           | d) | Discuss standing wave detectors.                         | <b>4</b> |

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