



**Advanced Light Wave Communication
(1030)**

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any five** questions from 1 to 8.
5. Draw suitable diagrams wherever necessary.
6. Assume suitable data if necessary.
7. Figure to right indicates full marks.

1. a) How different components are selected for an optical fiber communication system. **10**
b) Enlist the Electro optic devices. Explain any one in detail. **10**
2. a) Describe fiber sensors for current & voltage measurement. **10**
b) List the advantages of optical fiber communication. **10**
3. a) Explain the Microwave photonics in detail. **10**
b) Explain the significance of an "Optical Amplifier". Enumerate the properties & applications of optical amplifiers. **10**
4. a) Give the brief idea about the Receiver sensitivity. **10**
b) Compare & contrast the attributes & drawbacks associated with direct modulation of the laser signal source & indirect modulation of the source in the both ASK & FSK coherent optical fiber communication system. **10**
5. a) Explain the multiplexing techniques for multichannel light wave system. **10**

- b) Consider a $(P, K) = (2, 2)$ shufflenet. **10**
i) Draw the interconnections between the nodes.
ii) How wavelengths are needed in the network.
6. a) Explain the solution based communication principles. **10**
b) Explain WDM solution system in detail. **10**
7. a) Describe with neat diagram the different "Network Topologies" used in "Optical Networks". **10**
b) Explain the SONET / SDH Rings in detail. **10**
8. a) Explain the wavelength routed network. Also explain the ultrahigh capacity network. **10**
b) Explain the phase diversity reception. Also explain the receiver sensitivity. **10**
