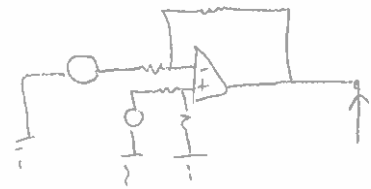


27-6-2022



## Measurements and Instrumentations for TLCs.

Answer the following questions in an explanatory way to prove your knowledge of the different subjects.

- 1) Draw the scheme and derive the input/output transfer function of an analog circuit based on operational amplifiers suitable for doing the difference of two signals. In case the design signal bandwidth is equal to 10 kHz define the essential specification of the operational amplifiers to be used.
- 2) Draw the block schematic of a real-time spectrum analyzer. Explain the principle of operation of the instrument.
- 3) For the optical link shown below, compute the available power at the output expressed in watts.



- 4) Explain the principle of operation of a thermoelectric optical power sensor. Which are the strength points of an optical power meter based on the thermoelectric sensor?
- 5) Explain in detail how the fibers of a fiber cable can be tested without interrupting the data communication.

dark fibers

The total available time is two hours.

