

THAPAR INSTITUTE OF ENGINEERING & TECHNOLOGY  
ELECTRICAL & INSTRUMENTATION ENGINEERING DEPARTMENT  
END SEMESTER EXAMINATION (2006-07 1ST SEMESTER)

Virtual Instrumentation (EI-013)

TIME 3 HR

MM 36

164

Note:

- Attempt any five questions
- Over attempted questions will not be evaluated
- Assume any missing data

1	(a)	Why Measurement & Automation Explorer is required? Explain the different functions of measurement and automation explorer.	4
	(b)	What is a virtual channel ? Why virtual channel is required? Create the virtual channel for voltage measurement .	3.2
2	(a)	With the help of circuit diagram explain the working of 4 bit successive approximation analog to digital converter.	4
	(b)	Explain (by giving examples at least one of each) the different Mechanical actions of Boolean switch.	3.2
3	(a)	Discuss in detail the biomedical and semiconductor applications of virtual instrumentation.	4
	(b)	Write down the five DSP operations that can be performed in LabVIEW. Explain the various functions that are used for their implementation also mention the various input and outputs required.	3.2
4	(a)	Draw and explain the flowchart showing the relationship between handshaking signals in GPIB. Also define all the handshaking signals.	5
	(b)	Discuss the different features of USB .	2.2
5	(a)	Discuss the various structures used in LabVIEW. Also compare the corresponding structures.	5
	(b)	Build a VI that acquires a image stored in a bit map file named aa .bmp. Convert that image into an array and display the result.	2.2
6	(a)	Build a VI that inputs the name and the password and compares both to the data already stored in the file . If the name and the password are same as that of stored in the file a message correct will display otherwise incorrect will display.	5
	(b)	Differentiate between AI sample channel and AI sample channels.	2.2
7	(a)	Build a VI to monitor a security system that uses a light sensor to determine whether a person has entered a restricted zone. When a signal is activated it returns a 0V TTL signal. The VI also returns the number of persons in the restricted zone. Draw the flow chart of the program also.	5
	(b)	Discuss the various debugging tools used in LabVIEW.	2.2