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RR-0612

First Year B. Sc. (Electronics) Examination

March / April – 2010

Electronics : Paper - I

(Electronics Devices & Components)

Time : **3** Hours] [Total Marks : **70**

Instruction :

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **F. Y. B. Sc. (Electronics)**

Name of the Subject :

☛ **Electronics - 1**

☛ Subject Code No. : **0 6 1 2** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

1 Answer in brief : **14**

(a) What is Electronics? Mention its use in various major fields.

(b) What is a resistor? Give its symbol and colour code for 56kΩ +/- 10%.

(c) Give the full form of BJT and MOSFET.

(d) What is the difference between ordinary diode and a zener diode and give their respective symbols ?

(e) What is an LDR? Give its symbol.

(f) Draw the Energy Band Diagram of p-type extrinsic semiconductor.

(g) What is a transformer?

2 (a) What are Passive components and classify them ? **7**

(b) What is a Resistor? Describe how to identify a resistor's value. Give the resistance value of the following colour code : Brown, Black, Red and Gold. **7**

OR

2	(a)	Enlist the differences between BJT and FET.	**10**
	(b)	State the differences between Rheostat and Potentiometer.	**4**
3	(a)	Explain the coefficient of coupling (k) in an inductor. Discuss the series and parallel combination of inductors.	**10**
	(b)	Two coils having an inductance of 500 μH have combined inductance of 1200 μH when connected in series aiding and 800 μH when connected in series opposing. Calculate their mutual inductance and coefficient of coupling.	**4**

OR

3	(a)	Explain the breakdown mechanism in Diodes.	**10**
	(b)	How is a zener diode used in a voltage regulator circuit?	**4**
4	(a)	Explain the two transistor analogy in a SCR?	**6**
	(b)	Explain the construction and working of a DIAC.	**8**

OR

4	(a)	What is a switch? Discuss in detail different types of switches.	**8**
	(b)	What is Opto-Electronics? Classify their different types and discuss in detail an LED.	**6**
5		Write short notes : (any **two**)	**14**
	(a)	Electrolytic capacitor	
	(b)	Types of Inductors	
	(c)	UJT	
	(d)	Transformer.	