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RR-0820

Third Year B. Sc. (Electronics) Examination

March / April – 2010

Electronics : Paper - VII

(Analog & Digital Communication)

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

Instructions :

(1)

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

Name of the Examination :

☛ **T. Y. B. Sc. (ELECTRONICS)**

Name of the Subject :

☛ **ELECTRONICS : 7**

☛ Subject Code No. : **0 8 2 0** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Q. 1 is compulsory.

(3) Figures at the extreme right indicate full marks.

1 Answer in brief : **14**

(a) What do you mean by Vestigial Side Band system ?

(b) Define modulation.

(c) Compare AM and FM.

(d) Why do we need synchronization TV ?

(e) Define "Modulation Index".

(f) How many types of dispersion in fiber optics communication system ?

(g) Write ten names of different types of noise.

2 (a) Draw the block diagram of FM transmitter and explain each block. **6**

(b) Derive the equation for AM $m_a = \dfrac{E_{c\,\max} - E_{c\,\min}}{E_{c\,\max} + E_{c\,\min}}$. **5**

(c) In the US TV system N=525 lines per frame and p = 30 frames per second. Find the horizontal and vertical synchronization frequencies and the time required to scan one line. **3**

OR

2 (a) Explain Diode as detector. **6**

(b) Discuss Armstrong method in detail. **5**

(c) Calculate the percentage saving in power if only one sideband transmission is used over the DSBFC system at 80% modulation. **3**

3 (a) Draw the block diagram of TV receiver and explain each block. **9**

(b) Compare interlace and progressive scanning. **5**

OR

3 (a) Draw the block diagram of RADAR and explain each block and also discuss the uses of RADAR. **8**

(b) Discuss Ratio detector. **6**

4 (a) How light can transmission in fibre optics ? Prove the necessary equation for numerical aperture NA. **10**

(b) An optic fiber is made of with glass with a refractive index of 1.55 and is clad with another glass with a refractive index of 1.51. Lunching take place from air calculate the NA of fiber optics. **4**

OR

4 (a) Discuss the A-law and μ-law in detail. **7**

(b) Discuss sample and hold circuit. **7**

5 Write short notes : (any **two**) **14**

(1) Reactance modulator

(2) Composite video signal

(3) Image Orthicon

(4) Losses in fiber optics.
