

<b>R07</b>
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**Code: R7221503**

B.Tech II Year II Semester (R07) Supplementary Examinations, April/May 2013

**DATA COMMUNICATIONS SYSTEMS**

(Computer Science &amp; Systems Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE questions  
All questions carry equal marks

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1. (a) Briefly explain layered network architecture with a neat diagram.  
(b) Write a short note on digital modulation.
2. (a) What is electromagnetic wave and explain its characteristics?  
(b) What are the advantages and disadvantages of optical fiber cables?  
(c) Write a short note on electromagnetic spectrum.
3. (a) Differentiate:  
(i) Linear versus nonlinear PCM codes (ii) Delta modulation PCM versus differential PCM.  
(b) Write a short notes on:  
(i) Frame synchronization (ii) Synchronous optical networks.
4. Define:  
(a) Inverse square law.  
(b) Wave attenuation.  
(c) Electromagnetic polarization.  
(d) Skip distance.
5. (a) Write a short note on paging systems.  
(b) Write a short note on:  
(i) Transmission parameters (ii) Private-line circuits.
6. Briefly explain the following:  
(a) First-Generation analog cellular telephone.  
(b) Second-Generation cellular telephone systems.
7. Explain:  
(a) Character codes.  
(b) Error correction codes.  
(c) Synchronous voice band modems.
8. (a) Differentiate character and bit oriented protocols.  
(b) What are the functions of data link protocol?

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