

Government College of Engineering, Aurangabad
(An Autonomous Institute of Government of Maharashtra)

S.E.(IT) REV Examination
End Semester Examination Nov 2016

IT 245:DATA COMMUNICATION AND NETWORKING

Time: Three Hours

12 3 NOV 2016

Max. Marks. 60

"Verify the course code and check whether you have got the correct question paper"

N.B:-

1. All questions are compulsory
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary and state clearly
4. Use of non-programmable calculator is allowed

Q.1) Attempt all.

(12)

- i) Rephrase the objectives of communication networks? What are the components of data communication?
- ii) How do the layers of the Internet model correlate to the layers of the OSI model?

Q.2) Attempt any Two.

(12)

- i) What is multiplexing and Explain different types of Multiplexing?
- ii) Explain Analog to analog Conversion techniques.
- iii) What is transmission medium? What are the different types of transmission medium?

Q.3) Attempt any Two.

(12)

- i) A code scheme has a Hamming distance $d_{\min} = 4$. What is the error detection and correction capability of this scheme?
- ii) Compare and Contrast: a) Detection vs. Correction b) FEC vs. Retransmission.
- iii) For any block code with minimum Hamming distance at least $2t + 1$ between codewords, show that:

$$2^{n-k} \geq 1 + \binom{n}{1} + \binom{n}{2} + \dots + \binom{n}{t}$$

Q.4) Attempt all.

(12)

- i) What is meant by piggybacking? List advantages and disadvantages. Also write about Stop and wait with ARQ protocol.
- ii) Explain pure-ALOHA and slotted- ALOHA systems. Give the expression for throughput for each, clearly explaining the various terms.

Q.5) Attempt any Two.

(12)

- i) Explain ATM reference model.
- ii) Summarize VLAN and Frame Relay.
- iii) Discuss on different networking connecting devices with neat sketches.

