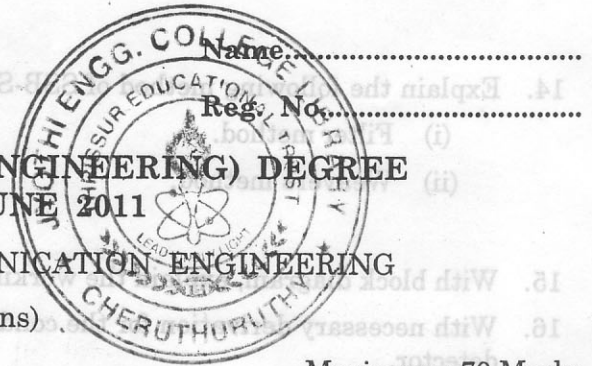


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FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE  
EXAMINATION, JUNE 2011

IT 09 404—PRINCIPLES OF COMMUNICATION ENGINEERING  
(2009 admissions)

Time : Three Hours

Maximum : 70 Marks

**Part A**

Answer all questions.

Each question carries 2 marks.

1. Define Amplitude Modulation.
2. State Sampling theorem.
3. What are the advantages of SSB-SC modulation over other forms of amplitude modulation ?
4. What are the types of AM detectors ?
5. Define Sensitivity.

(5 × 2 = 10 marks)

**Part B**

Answer any four questions.

Each question carries 5 marks.

6. Briefly explain the threshold effect.
7. Explain the quantization operation and derive the signal to quantization noise ratio of a PCM system.
8. Explain the operation of a balanced modulator.
9. How to convert an FM wave into a PM wave ?
10. Explain the working of a slope detector.
11. How a PDM wave is generated ? Explain.

(4 × 5 = 20 marks)

**Part C**

Answer any four questions.

Each question carries 10 marks.

12. Derive an expression for the wideband FM.
- Or
13. Discuss in detail about the operation of a PCM system.

Turn over

14. Explain the following method of SSB-SC generation :—

- (i) Filter method. (5 marks)  
 (ii) Weavers method. (5 marks)

Or

15. With block diagram, explain the working of a Armstrong FM system.

16. With necessary derivation for the condition of time constant, explain the operation of an envelop detector.

Or

17. Explain the demodulation of FM waves using phase locked loops.

18. Explain the operation of a :

- (a) Class B push-pull linear amplifier. (5 marks)  
 (b) IF section. (5 marks)

Or

19. Explain the various diversity reception techniques.

[4 × 10 = 40 marks]

(2 × 2 = 10 marks)

Part B

Answer any four questions.  
 Each question carries 5 marks.

6. Briefly explain the threshold effect.  
 7. Explain the quantization operation and derive the signal to quantization noise ratio of a PCM system.  
 8. Explain the operation of a balanced modulator.  
 9. How to convert an FM wave into a PM wave?  
 10. Explain the working of a slope detector.  
 11. How a PDM wave is generated? Explain.

(4 × 5 = 20 marks)

Part C

Answer any four questions.  
 Each question carries 10 marks.

12. Derive an expression for the wideband FM.  
 Or  
 13. Discuss in detail about the operation of a PCM system.

Turn over