

SANT GADGE BABA AMRVATI UNIVERSITY, AMRAVATI
Summer Examination 2020
HVPM's College of Engineering and Technology, Amravati
Department of Electronics & Tele communication Engineering
Bachelor of Engineering Sem. :- V

Subject :- Communication Engineering-II(New)

Code :- 5ET4

Instructions:-

- 1) Solve any two questions**
 - 2) All question carries equal marks**
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Q1.

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|--|------------------------|
| a) Explain Bayes rule and prove it. | 02 Credit Point |
| b) Explain Autocovariance and Autocorrelation in detail. | 02 Credit Point |
| c) Explain space wave propagation. | 02 Credit Point |
| d) State and prove sampling theorem. | 02 Credit Point |
| e) Explain PCM generation along with block diagram. | 01 Credit Point |
| f) Compare PCM verses analog modulation. | 01 Credit Point |

Q2.

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|---|------------------------|
| a) Explain central limit theorem for random variable. | 02 Credit Point |
| b) Show that the random process $x(t) = A \cos(W_c t + \theta)$ is wide sense stationary. Here θ is uniformly distributed in the range $(0, 2\pi)$. | 02 Credit Point |
| c) Explain ground wave propagation. | 02 Credit Point |
| d) Explain type of sampling in detail. | 02 Credit Point |
| e) Explain differential pulse code modulation. | 01 Credit Point |
| f) Explain time division multiplexing. | 01 Credit Point |

Q3.

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|---|------------------------|
| a) Explain the properties of probability density function. | 02 Credit Point |
| b) Explain stationary Process and Ergodic process. | 02 Credit Point |
| c) Explain sky wave propagation. | 02 Credit Point |
| d) Explain what is aperture effect considering flat top sampling and how this is corrected. | 02 Credit Point |
| e) Explain the term Quantization, Quantization noise and companding | 01 Credit Point |
| f) Explain frequency division multiplexing in detail. | 01 Credit Point |

Q4.

- a) Explain the elementary properties of probability. **02 Credit Point**
- b) Explain properties of Power Spectral Density function. **02 Credit Point**
- c) Define and explain 1. Virtual height, 2. Maximum usable frequency and 3. Critical angle. **02 Credit Point**
- d) Explain PAM modulator and demodulator. **02 Credit Point**
- e) Explain Delta modulator transmitter and receiver operation in detail. **01 Credit Point**
- f) Explain frequency division switching in detail. **01 Credit Point**