

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**

Q1.

- a) Two factories produce identical clocks. The production of first factory consist of 10,000 clocks of which 100 are defective. The second factory produce 20,000 clocks of which 30 are defective. What is the probability that a particular defective clock was produced in first factory? **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) Calculate the virtual height of the reflecting layer if a pulse of a given frequency transmitted upward is received back after a period of 6 msec. **02 Credit Point**
- d) Explain what is aperture effect considering flat top sampling and how this is corrected. **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**

Q2.

- 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. Skip distance and skip zone 2. Maximum usable frequency and 3. Critical angle. **02 Credit Point**
- d) Explain type of sampling in detail. **02 Credit Point**
- e) Explain the term Quantization, Quantization noise and companding Explain differential pulse code modulation. **01 Credit Point**
- f) Explain frequency division multiplexing in detail. **01 Credit Point**

Q3.

- a) Explain the properties of probability density function. **02 Credit Point**
- b) Explain Autocovariance and Autocorrelation in detail. **02 Credit Point**
- c) Derive Friis formula for a calculation of received power of FM wave. **02 Credit Point**
- d) State and prove sampling theorem. **02 Credit Point**
- e)
- f) Explain PCM generation along with block diagram. **01 Credit Point**
- g) Explain time division multiplexing. **01 Credit Point**

Q4.

- a) Explain Bayes rule and prove it. **02 Credit Point**
- b) Explain stationary Process and Ergodic process. **02 Credit Point**
- c) Explain space wave propagation. **02 Credit Point**

- d) Explain PPM modulator and demodulator. **02 Credit Point**
- e) Derive the equation for transmission BW in PCM. **01 Credit Point**
- f) Compare PCM verses analog modulation. **01 Credit Point**