



# BRAINWARE UNIVERSITY

**Term End Examination 2021 - 22**

**Programme – Bachelor of Technology in Electronics & Communication Engineering**

**Course Name – Analog and Digital Communication**

**Course Code - PCC-EC401**

**( Semester IV )**

**Time allotted : 1 Hrs.15 Min.**

**Full Marks : 60**

[The figure in the margin indicates full marks.]

## Group-A

(Multiple Choice Type Question)

1 x 60=60

*Choose the correct alternative from the following :*

- (1) In communication system noise is most likely to affect the signal
 

a) at transmitter	b) in channel
c) in information source	d) at destination
- (2) The threshold effect is more dominant in
 

a) FM	b) AM
c) PCM	d) PM
- (3) Maximum efficiency in AM is
 

a) 33.3%	b) 50%
c) 22.2%	d) 87%
- (4) In TV telecast, the sound signal is modulated in
 

a) VSB	b) SSB
c) FM	d) AM
- (5) The spectral density of white noise is
 

a) exponential	b) uniform
c) Poisson	d) Gaussian
- (6) Companding is used
 

a) to overcome quantized noise in PCM	b) to protect small signals in PCM from quantizing distortion
c) to overcome impulse noise	d) none of these
- (7) Guard band increase the BW for
 

a) FDM	b) TDM
c) both FDM and TDM	d) none of these
- (8) The signal to quantization noise ratio in n bit PCM system
 

a) is independent of value n	b) increase with increasing value of n
c) depends upon the sampling frequency employed	d) decreases with the increasing value of n
- (9) Voice frequency bandwidth of telephone system is approximately





- c) analog and digital pulse modulation
- (39) The aliasing effect can be eliminated by
- a) using an antialiasing filter  
b) reducing the sampling frequency  
c) increasing the sampling frequency  
d) increasing the modulating frequency
- (40) Granular noise is associated with
- a) PCM  
b) DPCM  
c) DM  
d) QAM
- (41) Demodulation of DSB-SC signal requires
- a) an envelope detector  
b) an integrator  
c) a synchronous detector  
d) a discriminator
- (42) The transmitted power in an FM system is
- a) dependent on the number of sidebands  
b) dependent on the carrier power and sidebands  
c) always constant  
d) none of these
- (43) The amplitude modulator works on the principle of
- a) multiplication  
b) addition  
c) subtraction  
d) division
- (44) The function of the input transducer in a communication system is
- a) to transmit the message signal  
b) to modulate the message signal  
c) to convert message signal into electrical signal  
d) none of these
- (45) The broadcasting frequency range used in frequency modulator is
- a) 30 MHz to 300 MHz  
b) 88 MHz to 108 MHz  
c) 3 MHz to 30 MHz  
d) 1 MHz to 3 MHz
- (46) FM signal can be converted into AM signal using
- a) frequency discriminator  
b) square law detector  
c) slope detector  
d) none of these
- (47) If  $f_m$  is the modulating frequency of an AM wave, the sideband frequencies of this wave are
- a) greater than  $f_m$   
b) equal to  $f_m$   
c) less than  $f_m$   
d) none of these
- (48) The number of bits required to represent a 256 level quantization in PCM is
- a) 7  
b) 8  
c) 5  
d) 6
- (49) In digital communication system, the data transmission rate is specified in
- a) MHz  
b) GHz  
c) bytes/second  
d) bauds
- (50) Modulation is primarily accomplished to-
- a) produce side-bands  
b) mix two waves of different frequencies  
c) transmit-audio frequency signals over long distances  
d) improve transmission efficiency
- (51) Amplitude modulation is used for broadcasting because-
- a) it is more noise immune than other modulation system  
b) it consumes less transmitting power  
c) its use avoids receiver complexity  
d) no other modulation system can provide the necessary bandwidth for high fidelity
- (52) Balanced modulators are used to
- a) produce suppressed carrier signal  
b) produce SSB signal  
c) produced PCM signal  
d) none of these
- (53) The bandwidth requirement of AM wave is

- a)  $2f_m$  where  $f_m$  is the highest modulating frequency  
 b)  $2f_m$
- c)  $2nf_m$  where  $n$  is number of significant side-bands  
 d)  $f_c + f_m$  where  $f_c$  is the carrier frequency
- (54) A balanced modulator circuit is used to reject
- a) carrier  
 b) LSB  
 c) USB  
 d) LSB and USB
- (55) Bandwidth required for PM is
- a) same as FM signal  
 b) greater than FM signal  
 c) less than FM signal  
 d) less than SSB-SC signal
- (56) VSB modulation as compared to SSB modulation, occupies
- a) more bandwidth  
 b) less bandwidth  
 c) same bandwidth  
 d) signal-dependent bandwidth
- (57) Which one of the following modulation techniques has got maximum SNR?
- a) AM-SSB  
 b) AM-DSB  
 c) FM  
 d) AM-SC
- (58) Which of the following are the advantages of FM broadcasting over AM broadcasting? i. better S/N ratio ii. not subject to signal fading iii. Power efficiency is superior iv. demodulation is simpler. Select the correct answer from the code given below
- a) 1 and 2  
 b) 1,2 and 4  
 c) 2,3 and 4  
 d) 1 and 3
- (59) Which one of the following is an indirect way of generating FM?
- a) reactance FET modulator  
 b) varactor diode modulator  
 c) armstrong modulator  
 d) reactance tube modulator
- (60) Major advantage of Armstrong modulator is that
- a) it is capable to producing WBFM signals  
 b) the centre frequency (carrier frequency when unmodulated) is extremely stable  
 c) a large depth of modulation can be achieved  
 d) none of these