1. In QPSK, the real and imaginary components are respectively In-phase and quadrature

   Ans c

2. SNR for QPSK modulation is given as $\frac{P}{N_0}$

   Ans a

3. The symbol error rate (SER) for QPSK is approximately twice the BER. Hence, BER of QPSK is approximately half the SER

   Ans d

4. The SER of QPSK for $SNR = 18$ dB can be evaluated as follows

$$SER = 2 \times Q(\sqrt{SNR}) = 2 \times Q\left(\sqrt{10^{1.8}}\right) = 1.97 \times 10^{-15}$$

   Ans a

5. In $1024 -$QAM the number of bits per symbol is $\log_2 1024 = 10$

   Ans b

6. SER for $M = 256 -$QAM is

$$4\left(1 - \frac{1}{\sqrt{M}}\right) Q\left(\sqrt{\frac{3P}{N_0(M-1)}}\right) = 4\left(1 - \frac{1}{16}\right) Q\left(\sqrt{\frac{3P}{N_0 \times 255}}\right) = \frac{15}{4} Q\left(\sqrt{\frac{P}{85N_0}}\right)$$

   Ans b

7. In a wireless system, the channel is Fading

   Ans c

8. Multipath propagation in a wireless channel arises due to Scatterers

   Ans d

9. The wireless channel can be modeled as

$$y = hx + n$$

   Ans b

10. The channel magnitude $a = |h|$ follows the PDF given as

$$2ae^{-a^2}, a \geq 0$$

   Ans a