Assignment -3

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.  
Due on 2019-02-27, 23:59 IST.

1) An SSPA is driven with a 20 dBm input power signal. P1 dB input power is 24 dBm. Now a new signal with same PAPR but 25 dBm input power is applied:
- [ ] NMSE will decrease
- [ ] ACPR will decrease
- [ ] EVM will decrease
- [ ] ACLR will increase

No, the answer is incorrect.
Score: 0
Accepted Answers:
- [ ] ACPR will decrease

2) The signal $A_1 \sin(\omega t + \alpha_1)$ is applied to an TWTA, the output of TWTA is given by $15 A_1 \sin(\omega t + \alpha_1)$, which of the following sentences are true?
- [ ] AM/AM is 15 dB, AM/PM is zero radian.
- [ ] TWTA has gain of 15 dB.
- [ ] TWTA is working in linear region.
- [ ] All of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
- [ ] TWTA is working in linear region.

3) The Drain efficiency is always greater than power added efficiency:
- [ ] True
- [ ] False

No, the answer is incorrect.
Score: 0
5) For the following questions 5 to 12, please refer to the given commercial data-sheet for a variable gain SSPA from ‘Mini-Circuits’:

Should we use this PA in a transmitter working at 1 GHz?

- Yes
- No

No, the answer is incorrect.
Score: 0
Accepted Answers:
Yes

6) If we apply input signal with -25 dBm signal power, typically what power can we expect at PA output signal, considering typical gain flatness:

- 0 to 1 dBm
- 1 to 2 dBm
- 0 to 2 dBm
- 1 to 3 dBm

No, the answer is incorrect.
Score: 0
Accepted Answers:
1 to 2 dBm

7) What should be the input power for which the output power is compressed by 1dB with respect to output power if its linear range is extrapolated for higher powers at 800 MHz.

- -15.3 dBm
- -14.8 dBm
- -14.3 dBm
- -13.3 dBm

No, the answer is incorrect.
Score: 0
Accepted Answers:
-14.3 dBm

8) What would be gain of this variable gain SSPA, if control voltage of 3 V is applied:

- Approx. 27 dB
- Approx. 20 dB
- Approx. 0 dB
- Approx. -20 dB

No, the answer is incorrect.
Score: 0
Accepted Answers:
-20 dB
9) The gain of SSPA can be increased by:

- Working in higher temperature conditions for fixed frequency and control voltage
- Working in lower temperature conditions for fixed frequency and control voltage
- Working in higher frequency for fixed temperature and control voltage
- Applying higher control voltage for fixed frequency and temperature

No, the answer is incorrect.
Score: 0
Accepted Answers:
Approx. -20 dB

10) What is expected max. power at 3 dB compression?

- 11.48 dBm
- 12.44 dBm
- 10.64 dBm
- 11 dBm

No, the answer is incorrect.
Score: 0
Accepted Answers:
12.44 dBm

11) For the frequency of operation which provides max. power at 3 dB compression, is the gain also maximum?

- YES
- NO

No, the answer is incorrect.
Score: 0
Accepted Answers:
NO

12) What is expected C/IMD3 ratio for the given data at 1 GHz at 1-dB compression:

- Approx. 20 dBc
- Approx. 22 dBc
- Approx 17 dBc
- None of above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Approx 17 dBc