Title: **AC Sinewave** Test: 11

Course: Electrical Applications Unit: Electrical Theory CLO: 3

Name ANSWER KEY Grade 56pts. Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**

1. Student shall identify specific characteristics of an AC sinewave.
2. Student shall calculate various voltage and current quantities based on given information.

**Assessment**

Students shall demonstrate a comprehension of the objectives listed above by scoring a minimum of 75% on this Test. Grading shall be based on an answer key.

**Instructions**

Select the best answer to each multiple-choice question below.

1. What is the ERMS if the given voltage is 15VPP?
   1. 7.5V
   2. 10.606V
   3. 5.303V
   4. 42.426V
2. What is the IP if the source voltage is 25VPP with a resistive load of 1.2kΩ?
   1. 20.833mA
   2. 10.417mA
   3. 8.839mA
   4. 7.366mA
3. What is the EPP if the given voltage is 120VRMS?
   1. 169.706VPP
   2. 339.411VPP
   3. 84.853VPP
   4. 120VPP
4. What is the EP if the given voltage is 66.666VPP?
   1. 47.14VP
   2. 33.333VP
   3. 23.57VP
   4. 35VP
5. What is the EI@197˚ when the voltage is 20VPP?
   1. –5.847 Vi
   2. –2.924 Vi
   3. –68.406 Vi
   4. –340203 Vi
6. What is the EI@83˚ if the voltage given is 20VRMS?
   1. 28.284 Vi
   2. 20.150 Vi
   3. 19.815 Vi
   4. 28.073 Vi
7. What is the VRMS if the given voltage is 30V@75˚?
   1. 42.426 V
   2. 31.058 V
   3. 21.962 V
   4. 28.978 V

**Instructions**

Using the graphic above, identify each component of a sine wave.

|  |  |
| --- | --- |
| 1. Negative alteration G 2. Half-cycle F 3. Peak-to-peak voltage B 4. One cycle C or E 5. Peak voltage A 6. Time C or E 7. RMS voltage D |  |

**Circuits**

|  |  |
| --- | --- |
|  |  |
|  |  |

Series Circuit Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | P | I | R | ERMS | EP | EPP |
| R1 | 81mA | 18mA | 250Ω | 4.5V | 6.364V | 12.728V |
| R2 | 162mA | 18mA | 500Ω | 9V | 12.727V | 25.454V |
| R3 | 81mA | 18mA | 250Ω | 4.5V | 6.364V | 12.728V |
| Total | 324mA | 18mA | 1kΩ | 18V | 25.456V | 50.912V |

Parallel Circuit Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | P | I | R | ERMS | EP | EPP |
| R1 | 2.455W | 27.273mA | 3.3kΩ | 90V | 127.279V | 254.558V |
| R2 | 16.875W | 187.5mA | 480 | 90V | 127.279V | 254.558V |
| R3 | 6.75W | 75mA | 1.2k | 90V | 127.279V | 254.558V |
| Total | 26.08W | 289.773mA | 310.588 | 90V | 127.279V | 254.558V |