FG02 - Pre-Instructional Survey
(RTQ/RTA)

1. When you subtract 50 from 75 and divide the result by 5 your get?

   a. -5
   b. 5
   c. 25
   d. -25

2. When you multiply 3 times 24 and add 10 you get?

   a. 8
   b. 75
   c. 64
   d. 82

3. When you divide 3 by 30 you get?

   a. 0.1
   b. 0.01
   c. 10
   d. 1

4. When you add the following numbers10,+20,+50,+120, the answer is?

   a. 100
   b. 200
   c. 400
   d. 5

5. If you have ½ ft^3 of wheat flour, and 2/3 ft^3 of oat flour, how many total cubic feet of flour are there?

   a. 1.166
   b. $3/6^{th}$
   c. $2/6^{th}$
   d. 1.333

6. Convert 83.16 inches of water column to PSI.

   a. 2305
   b. 3
   c. 8.316
   d. 6.47

7. You have a fuel air ration of 10 parts fuel to 40 parts air what percentage of fuel makes up the total mixture?

   a. 500
   b. .2
   c. 20
   d. .001

8. Express 200 Micro volts in volts.

   a. .0002
   b. .000002
   c. 2000
   d. 2000000

9. Express $5x\ 10^3$ in a decimal number.

   a. 50000
   b. 5000
   c. 50
   d. .005

10. Express the decimal number of 2,300 in scientific notation (as a power of 10).

    a. $2300\ x10^2$
    b. $230\ x10^2$
    c. $23\ x10^3$
    d. $2.3\ x10^3$

11. Your bank called that you have a shortage of $10 in your account and you know that you have written another $20 worth of checks that had not been withdrawn from your account, but just now you deposited $50 in the bank. There is a charge of $20 for the overdrawn checks what would your balance be when all checks have cleared?

    a. $50
    b. $0
    c. $30
    d. $100

12. You have a speed sensor on a gear train that has a ratio of 300 to 10. The input shaft is rotating at 1725 RPM what RPM is the output gear turning at?

    a. 57.5
    b. 51750
    c. 56.7
    d. 5.75

13. Using Ohm's law (E=IxR)compute the current flow in the circuit if the circuit consists of two 100 ohm resistors in parallel with a 25 volt AC power source.

    a. .125 Amps
    b. 5 Amps
    c. .5 Amps
    d. .5 Milli Amps

14. What is the temperature expressed in Celsius if the Fahrenheit temperature is - 40°.

    a. -46.4°
    b. - 40°.
    c. - 9.8°
    d. + 40°

15. If the input signal of a properly calibrated I/P is 7mA what is the standard output signal?

a. 5.25PSI

b. 2.25PSI

c. 4.20PSI

d. 6.56 PSI

16. In a series circuit all resistance is added. What is the total resistance in the circuit if the current is 1 mAmp and voltage is 10VDC? (E=IR)

a. 10Ω
b. 100Ω
c. 10KΩ

d. .10KΩ

17. Using the vector formula there are two forces at 90 degrees to each other being applied to an object. One force is represented by a line 20 inches long while the other forces is represented by a line 10 inches long, what is the length, in inches, of the line representing the resultant force?

a. 30.00

b. 14.14

c. 22.36
d. 7.07

18. To compute capacitive reactance the following formula is used. $X_c = 1/ 2\Pi fc$. ("c" is expressed in farad and "f" is expressed in hertz.) What is the capacitive reactance if the frequency is 60 Hz and the capacitor size is 5 micro farad.

a. .019Ω

b. 5.31Ω
c. 531Ω
d. 5310Ω

19. The temperature range of a transmitter is 100 -300°F. The output signal range is 3-15PSI. What would be the expected output signal for an input temperature of 175°F.

a. 4.5PSI
b. 6PSI
c. 7.5PSI
d. 13.5PSI

20. If the flow rate remains constant in a fluid line and the pipe diameter in one section is 10 inch with a velocity of 2 feet per second what will be velocity through the pipe be when the fluid passes through the pipe when it is reduced to 4 inches? (The formula is Flow rate = velocity times area of the pipe. [Q=VA]The formula for area of the pipe is πR^2.)

a. 6.25 ft/sec
b. 12.5 ft/sec
c. 5.0 ft/sec
d. 1.25 ft/sec

21. During calibration, the maximum error was 2.5 units over a span of 50 units. What is the percent of span error?

a. 20%
b. 5%
c. .5%
d. 2.5%

22. When the AC voltage is at 45 degrees of it travel what is the voltage at that instant.(sine value@45 degrees =.707) The maximum voltage of the circuit is 169VAC. (Formula is maximum voltage (E max) times sine of 45 degrees = point voltage.)

a. 120
b. 239
c. 60
d. 185

23. On three phase power each phase is separated from the other phases by __degrees

a. 3
b. 120
c. 277
d. 60

24. Convert the binary number 10101 to a decimal number.

a. 15
b. 25
c. 3
d. 21

25. A plant has a 30 ft high water tank mounted on top of a 70 ft platform. What is the water level in the tank, measured in feet, if a pressure gage on the first floor, height 5 ft. reads 40 PSI?

a. 22.3
b. 27.3
c. 30
d. 10

FG02 - Pre-Instructional Survey Answers

1. b
2. d
3. a
4. b
5. a
6. b
7. c
8. a
9. b
10 d
11. b
12. a
13. c
14. b
15. a
16. c
17. c
18. c
19. c
20. b
21. b
22. a
23. b
24. d
25. b