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Practice Test

FOR SYSTEM OPERATOR/SERVICE DISPATCHER PLACEMENT EXERCISE

INTRODUCTION

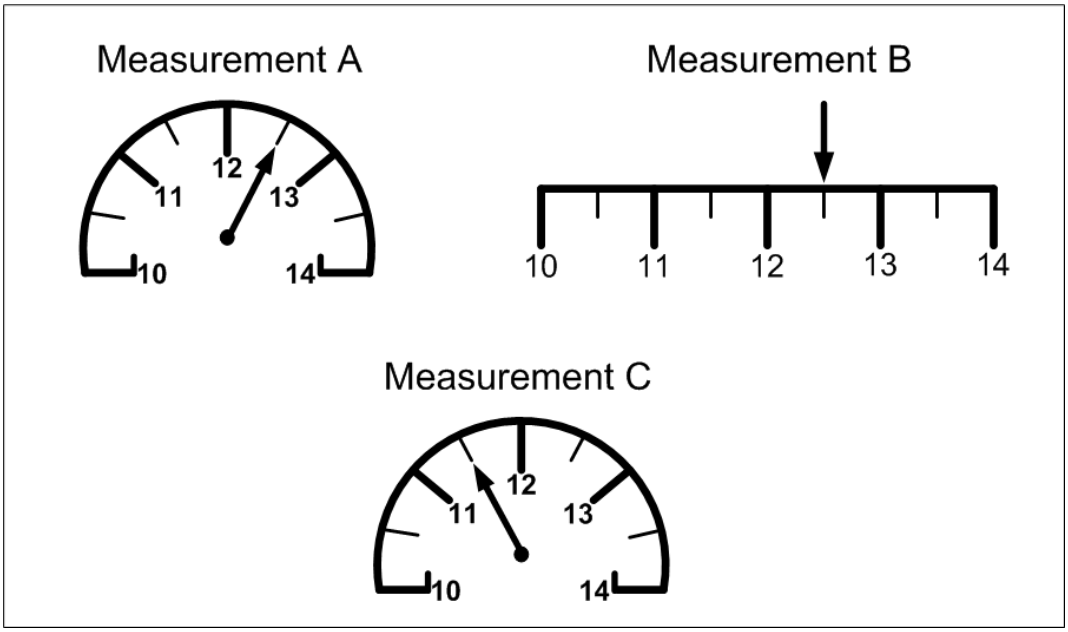
The purpose of this Practice Test is to help you prepare for the System Operator/Service Dispatcher Placement Exercise. A sample of questions based on the abilities measured in the actual placement exercise sections are included in this Practice Test. These questions are **not** the actual questions contained in the placement exercise, but rather are designed to help you practice solving questions requiring similar abilities.

IMPORTANT

The information in this Practice Test is for exercise purposes only and is not intended to replicate exact PSEG work practices, diagrams, procedures, etc.

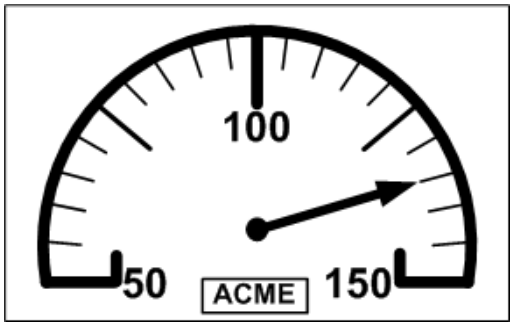
Perception, Memory and Concentration

1. The diagrams below that indicate the same measurement amounts are:



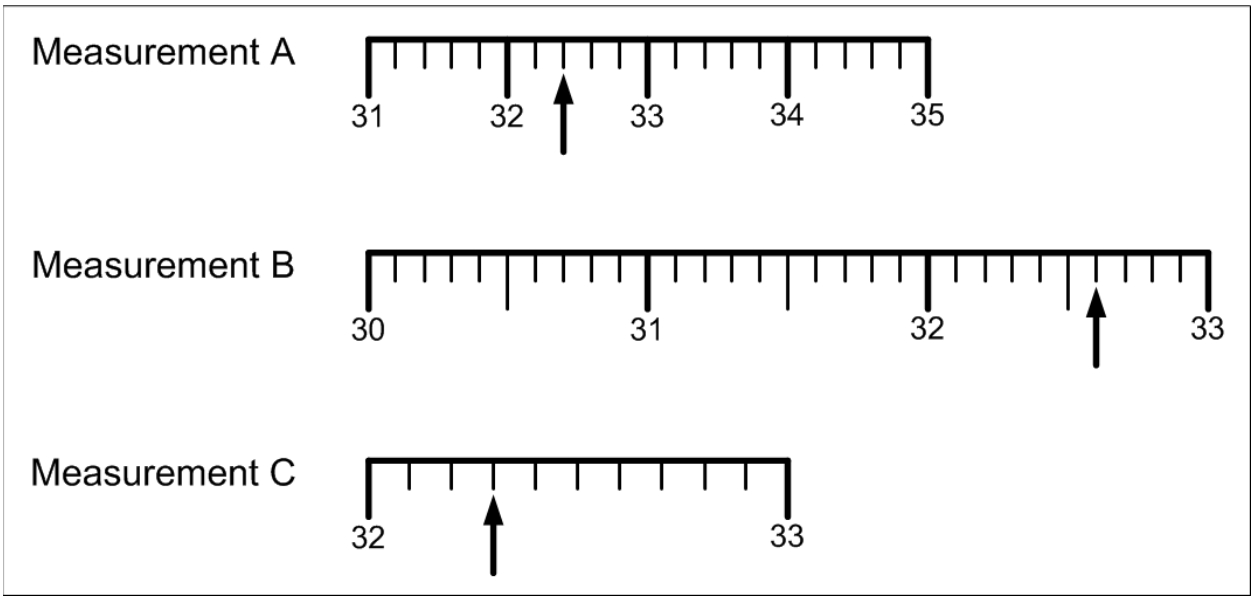
   a. Measurements A and B.
   b. Measurements B and C.
   c. Measurements A, B and C.
   d. None of the measurements are the same.

2. The measurement indicated by the dial below is:



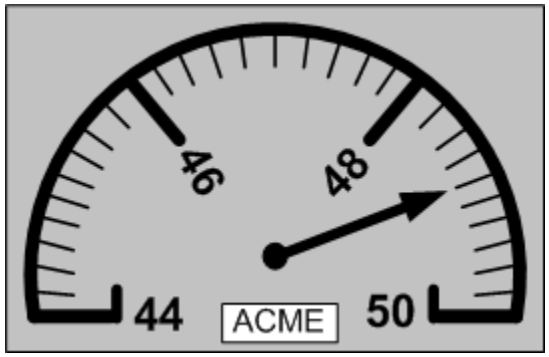
   a. 120
   b. 125
   c. 135
   d. 140

3. The diagrams below that indicate the same measurement amounts are:



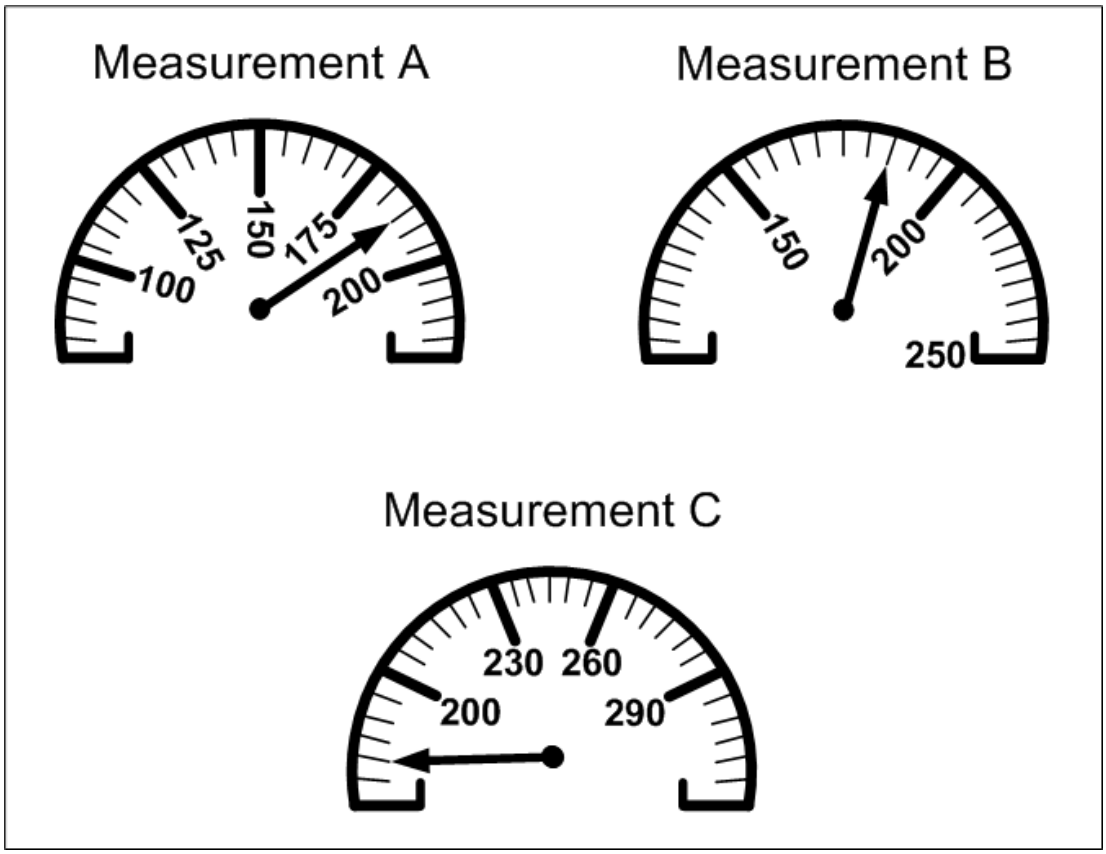
a. Measurements A and B.
b. Measurements B and C.
c. Measurements A, B and C.
d. None of the measurements are the same.

4. The measurement indicated by the dial below is:



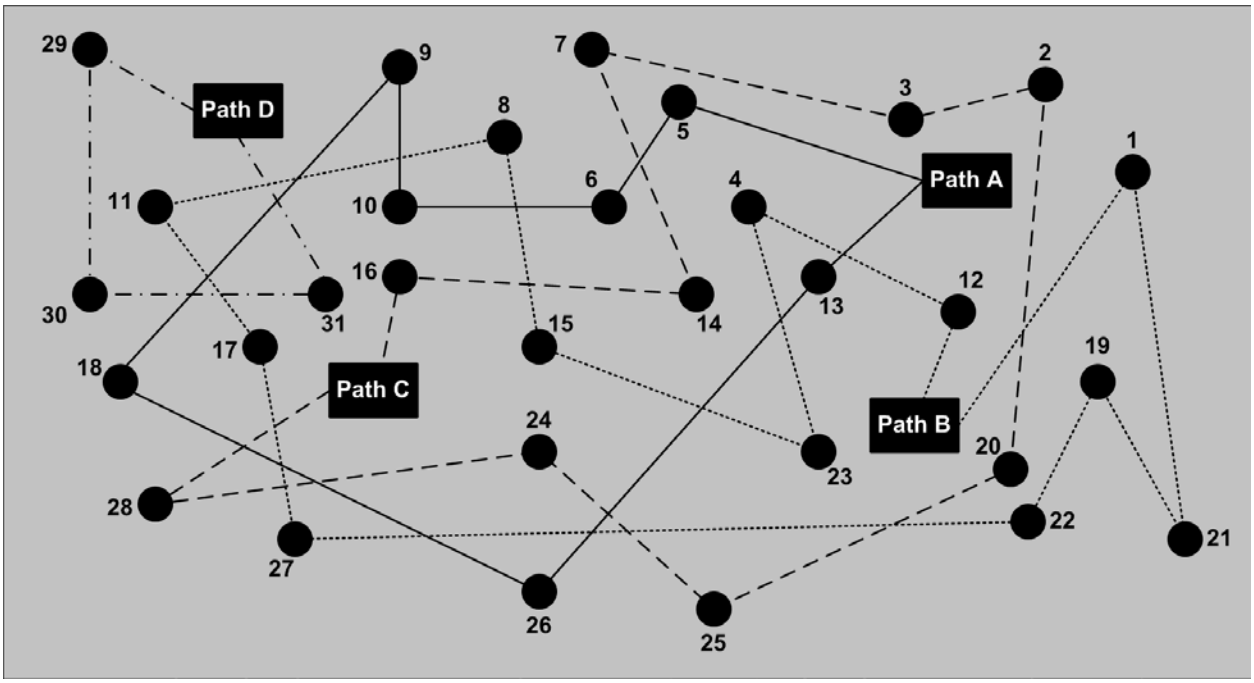
a. 48.8
b. 49
c. 49.2
d. 48.4

5. The diagrams below that indicate the same measurement amounts are:



a. Measurements A and B.
b. Measurements B and C.
c. Measurements A, B and C.
d. None of the measurements are the same.

Refer to the diagram below to answer items 6 – 7.



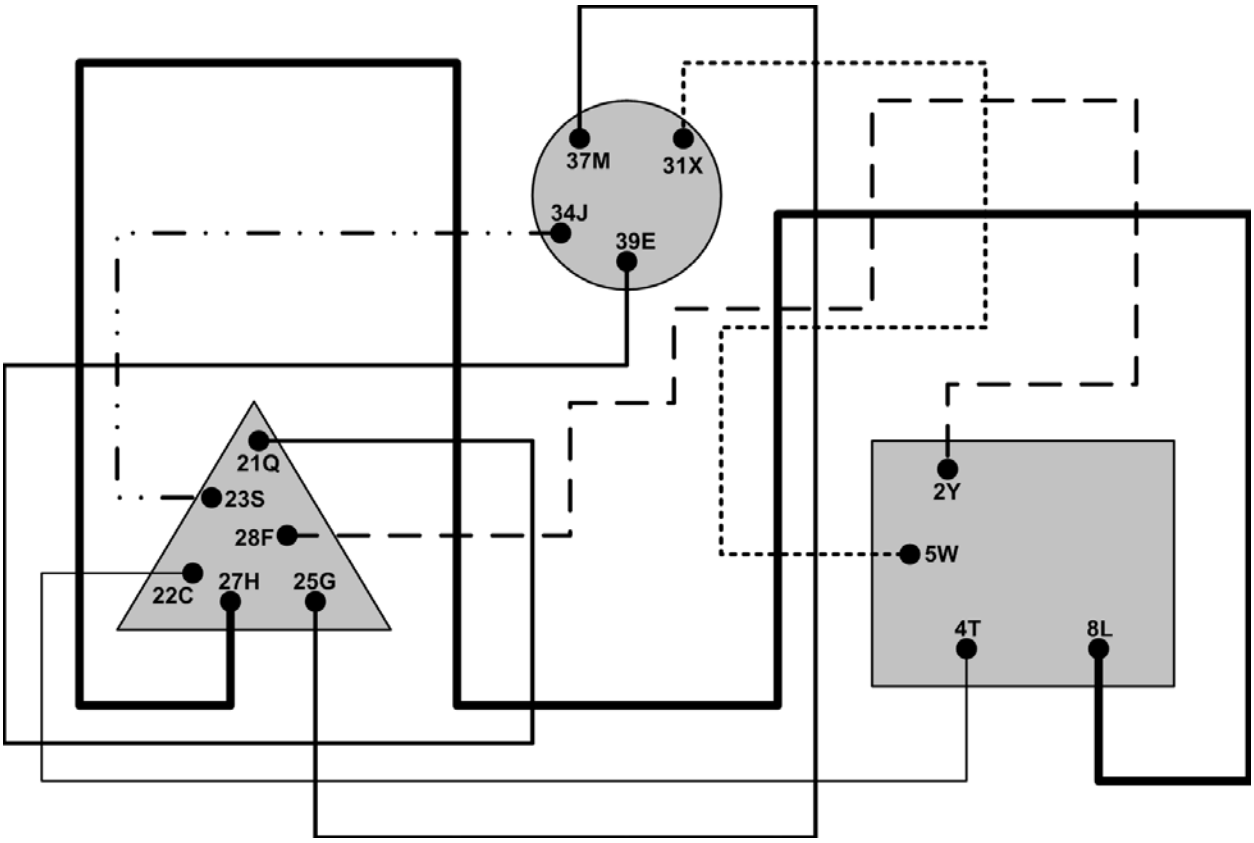
6. The route of Path B is through the following numbered points:

   a. 12-4-23-15-8-18-26-13
   b. 28-24-25-20-2-3-7-14-26
   c. 12-4-23-15-8-11-17-27-22-19-21-1
   d. 5-6-10-9-18-26-20-22-19-21-1

7. The route of Path C is through the following numbered points:

   a. 16-14-7-3-2-20-25-24-28-31-30-29
   b. 28-24-25-22-19-21-1
   c. 16-10-9-18-26-13-5-6
   d. 16-14-7-3-2-20-25-24-28

Refer to the diagram below to answer items 8 – 9.



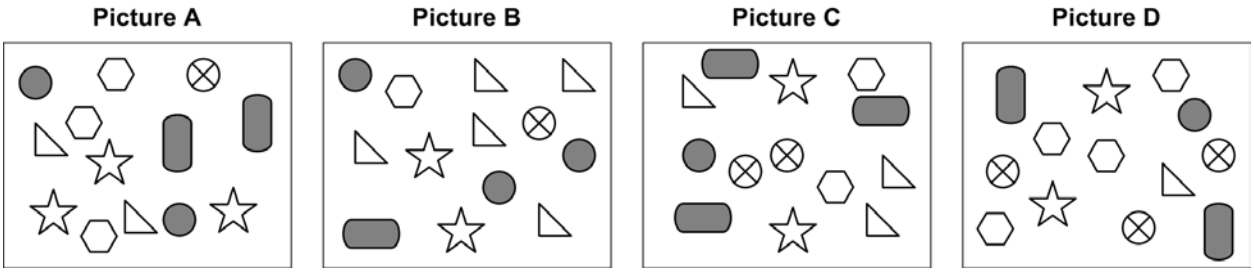
8. Point 8L is connected to _____ and Point 31X is connected to _____.

   a. Point 25G; Point 5W
   b. Point 27H; Point 5W
   c. Point 23S; Point 28F
   d. Point 28F; Point 2Y

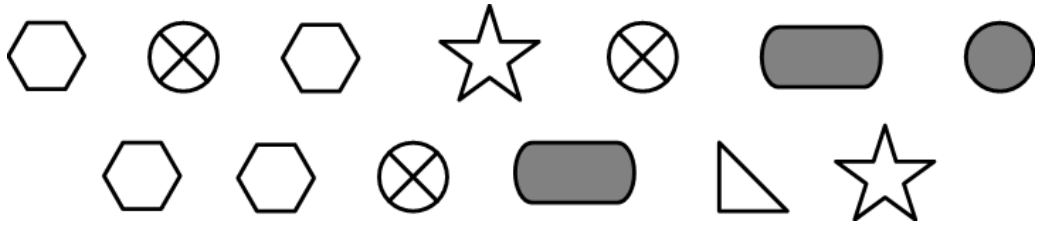
9. Points 21Q, 4T and 37M are connected to:

   a. Points 39E, 22C and 25G, respectively.
   b. Points 22C, 23S and 25G, respectively.
   c. Points 34J, 39E and 5W, respectively.
   d. Points 39E, 25G and 5W, respectively.

Refer to the diagram below to answer items 10 – 11.

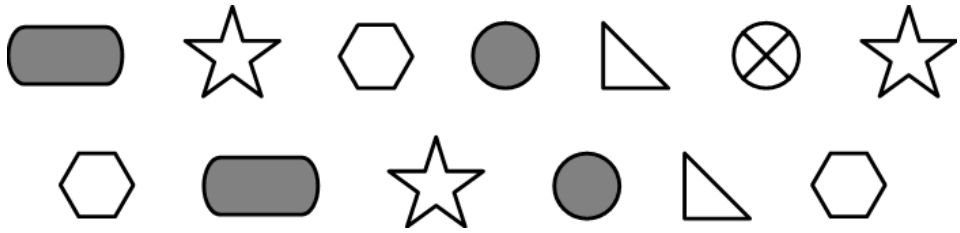


10. The picture above that contains exactly the following symbols is:



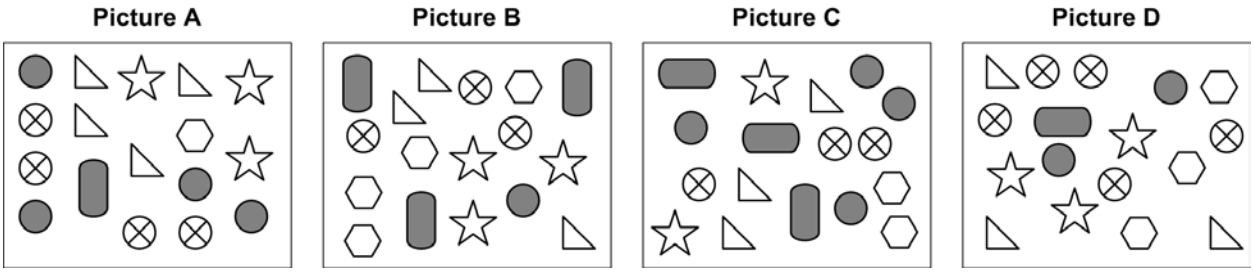
a. Picture A
b. Picture B
c. Picture C
d. Picture D

11. The picture above that contains exactly the following symbols is:

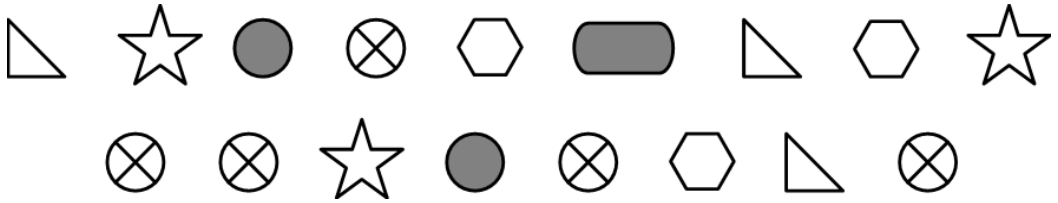


a. Picture A
b. Picture B
c. Picture C
d. Picture D

Refer to the diagram below to answer items 12 – 13.

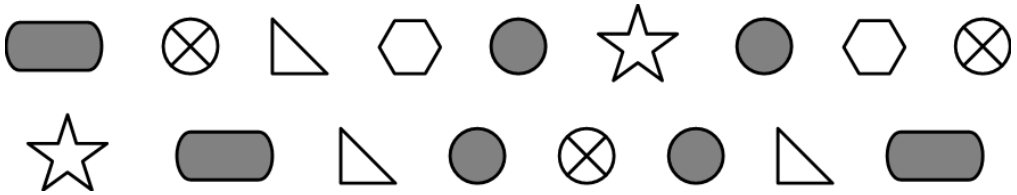


12. The picture above that contains exactly the following symbols is:



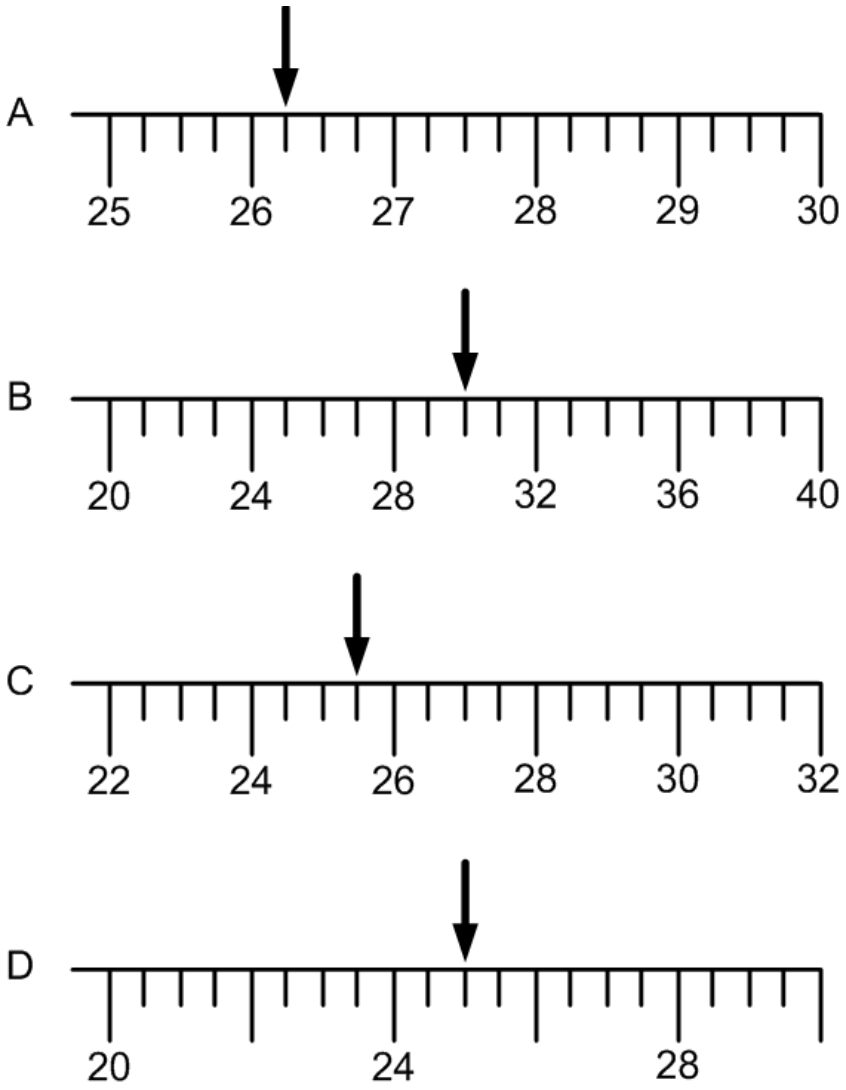
a. Picture A
b. Picture B
c. Picture C
d. Picture D

13. The picture above that contains exactly the following symbols is:



a. Picture A
b. Picture B
c. Picture C
d. Picture D

Refer to the diagram below to answer item 14. (Note: Diagram is not drawn to scale. You may assume that all measurements in the diagram are in inches).



14. A piece of equipment must be installed in a space that is 26 inches wide. The equipment must fit in this space with limited gap between the equipment and the wall. The gap may not exceed 0.5 inches on each side. The diagram above indicates the width of four different pieces of equipment (A, B, C and D). The pieces of equipment that will acceptably fit in the space are:

    a. Equipment A, Equipment C and Equipment D.
    b. Equipment C and Equipment D.
    c. Equipment B and Equipment C.
    d. No pieces of equipment will fit in the space.

Refer to the diagram below to answer item 15.

Diagram A

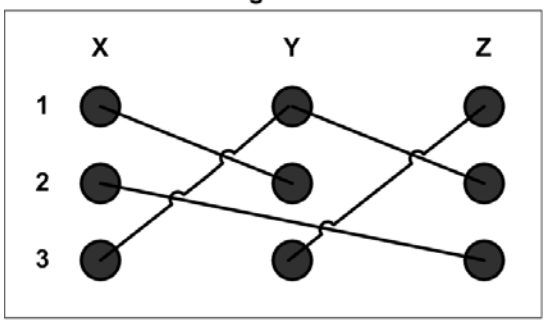


Diagram B

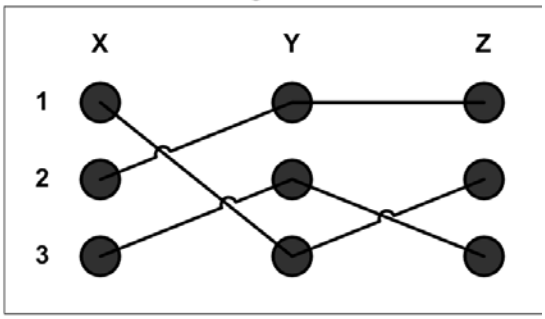


Diagram C

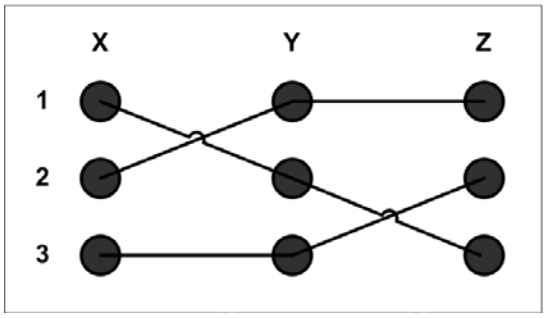
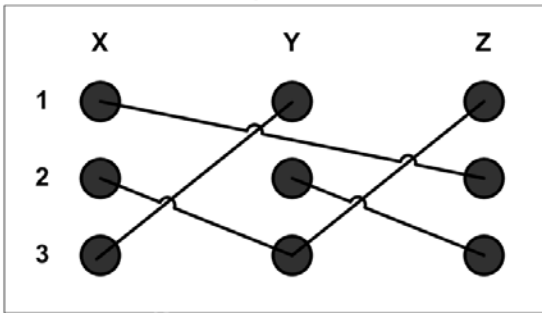


Diagram D



15. The following connections are required:

X1 to Y3	Y1 to Z1
X2 to Y1	Y2 to Z3
X3 to Y2	Y3 to Z2

The diagram that correctly depicts the required connections is:

a. Diagram A.
b. Diagram B.
c. Diagram C.
d. Diagram D.

Refer to the diagram below to answer item 16.

Diagram A

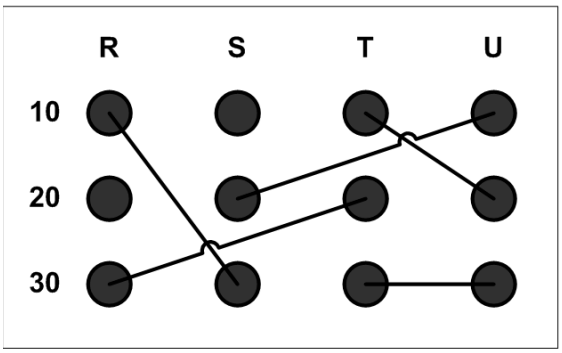


Diagram B

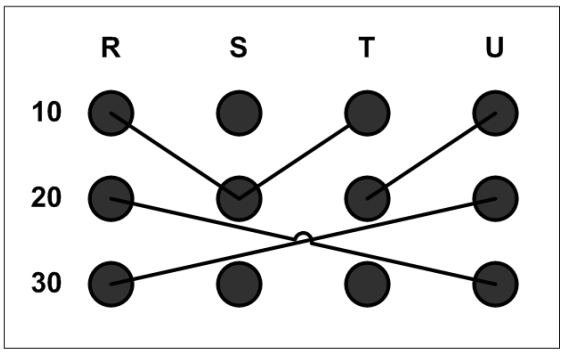


Diagram C

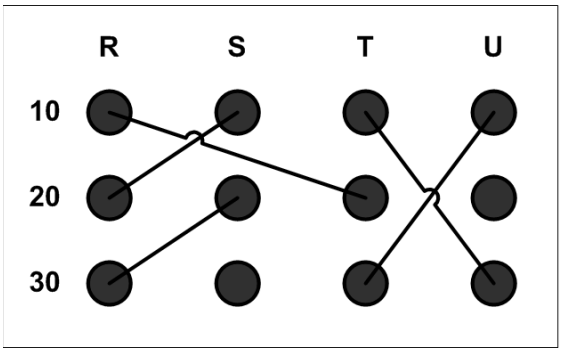
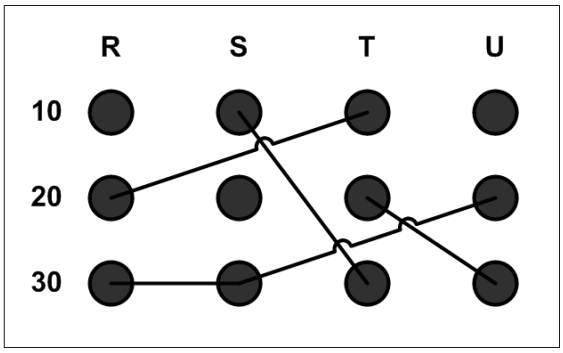


Diagram D



16. The following connections are required:

R10 to S30	T10 to U20
R30 to T20	T30 to U30
S20 to U10	

The diagram that correctly depicts the required connections is:

a. Diagram A.
b. Diagram B.
c. Diagram C.
d. Diagram D.

Comprehension and Problem Solving

Refer to the passage below to answer items 17 – 19.

Tools and Materials – General Rules for Safety
(Source: PSEG Safety Standards & Procedures – Part III)

Use of Tools and Materials

Improper or unsafe tools or equipment shall not be used on any job. If the proper tools or equipment necessary for the safe performance of the job are not at hand, the work shall be deferred until they can be obtained.

Handling Tools and Materials

- The proper glove shall be worn when performing physical work.
- Tools, rubber line hose, hoods, etc. used by workers shall be raised and lowered in a bag and, when not being used, returned to the bag and not hung upon the wires or crossarm. When a worker is through using a tool such as a brace and bit, saw, chisel, etc., it shall be lowered to the ground in a bag. Braces shall not be raised or lowered with a bit in the brace.
- A worker shall never drop or throw tools or material from the pole to the ground nor shall any worker throw material or tools from the ground to people working on poles. Underground personnel shall never throw tools or material down into or up from a manhole. Tools, materials and equipment shall not be thrown from or onto any vehicle. Heavy objects such as reels of wire, pole transformers, etc. shall be handled whenever practicable with appropriate mechanical apparatus and shall be under control at all times.
- Tools and material not in use constitute a hazard to employees and members of the public if allowed to accumulate near the base of a pole or around a manhole. Such material or tools shall be put in their proper positions on the truck as soon as practicable. Tools and equipment shall be neatly stowed and good housekeeping shall be made a habit.
- Tools and/or materials in use near energized equipment constitute a hazard to employees if carelessly placed. Such tools and/or materials required during the performance of work shall not be placed or left lying about where the possibility of them accidentally spilling, falling or being tipped into equipment, whether energized or not, exists.

17. A worker has completed a task using a brace and bit on a pole. According to the passage on the previous page, before moving onto the next step in the task, the worker must first:

    a. return the brace and bit to the bag.
    b. remove the bit from the brace and lower both pieces to the ground in a bag.
    c. throw the brace and bit to the ground.
    d. return the brace and bit to the bag and then hang the bag from a nearby wire.

18. A worker has completed a task in a manhole using several hand tools. The worker must then perform another task that does not require using the hand tools he currently has with him. The worker is unsure if he will need these hand tools again today. According to the passage on the previous page, before moving onto the next task, it is acceptable for the worker to place the hand tools:

    a. in their proper positions on the truck.
    b. in a bag and left on the ground near the ladder.
    c. in his pockets or hanging from his belt.
    d. around the manhole opening.

19. The worker action that is consistent with the passage on the previous page is:

    a. placing a wrench on a crossarm when attaching a nut to a bolt.
    b. tossing a bolt into the proper bin from a distance less than two feet.
    c. placing a chisel in a bag before lowering it to the worker in a manhole.
    d. carrying a hammer when climbing a ladder down into the manhole.

Refer to the passage below to answer items 20 – 21.

Tags

(Source: PSEG Safety Standards & Procedures – Part III)

Red Blocking Tag: Blocks and prohibits the operation or use of equipment. Identifies the electrical or mechanical blocking point between any circuit or equipment that is energized (or could become energized) and the de-energized equipment upon which work is to be performed. Blocks and prohibits the operation of equipment. Identifies equipment within the work area which is isolated but is unsafe to be worked on because of inadequate safe working clearance to other energized or moving equipment.

Yellow Permissive Tag: Identifies equipment properly cleared. Safe for work, and which may be operated for test or adjustment by the person named on the tag. Distinctly marks electrical equipment that is safely isolated from any High Voltage sources. Used strictly on High Voltage electrical equipment.

White Caution Tag: Indicates abnormal conditions or limitations of circuits and equipment. Identifies any abnormal condition and may include special instructions of a temporary nature. When equipment is tagged for work that does not require a Red Blocking Tag or a Yellow Permissive Tag, a White Caution Tag shall be applied to each associated device or equipment that is not in its normal operating position or condition as a result of the switching.

Red/Yellow Workers Blocking Tag: Identifies mechanical or low voltage (less than 600 volts) blocking points and prohibits operation of equipment by individuals other than worker named on the tag.

Defective Equipment Tag: Indicates tools or test instruments which are unsafe, damaged or defective. Person applying this tag has responsibility for repair/replacement coordination.

20. Equipment that is marked with a _____ tag _____ be operated by _____ worker named on the _____.

a. yellow permissive; may not; any; tag
b. yellow permissive; may; only the; tag
c. white caution; may; only the; clearance list
d. white caution; may not; any; clearance list

21. The following is a correct statement concerning a Red Blocking Tag:

a. It distinctly marks the electrical equipment that is safely isolated from High Voltage sources.
b. It indicates tools or test instruments which are unsafe, damaged or defective.
c. It indicates abnormal conditions or limitations of circuits and equipment.
d. It blocks and prohibits the use or operation of equipment.

Refer to the passage below to answer items 22 – 23.

Tailboard

(Source: PSEG Safety Standards & Procedures – Part I)

The tailboard or job meeting encourages and exercises good communications. It will be successful when:

- Information is presented clearly and in logical sequence.
- The meeting is discussed, received, and understood.

The keys for a good Tailboard meeting are:

T - Talk about the job.
A - Assign employees specific duties.
I - Identify known hazards.
L - Let employees know what is expected.
B - Beware of creating additional hazards.
O - Observe applicable safety rules and work procedures.
A - Allow time to do the job safely.
R - Review protective equipment needs.
D - Determine if employees understand their duties.

To work in a safe manner, all employees must supervise themselves, and as the leader of a crew or group, be responsible for the safety of their team.

The concept of a "Tailboard Meeting" prior to the start of each job is that the time utilized before beginning work may very well prevent an accident resulting in a serious employee injury or interruption of service to our customers. It is also important to protect the public from possible injuries or property damage.

The job meeting is only successful when leaders and crews improve their communication with each other by "talking about the job," understanding the individual assignments, and watching out for each other by expressing their safety concerns.

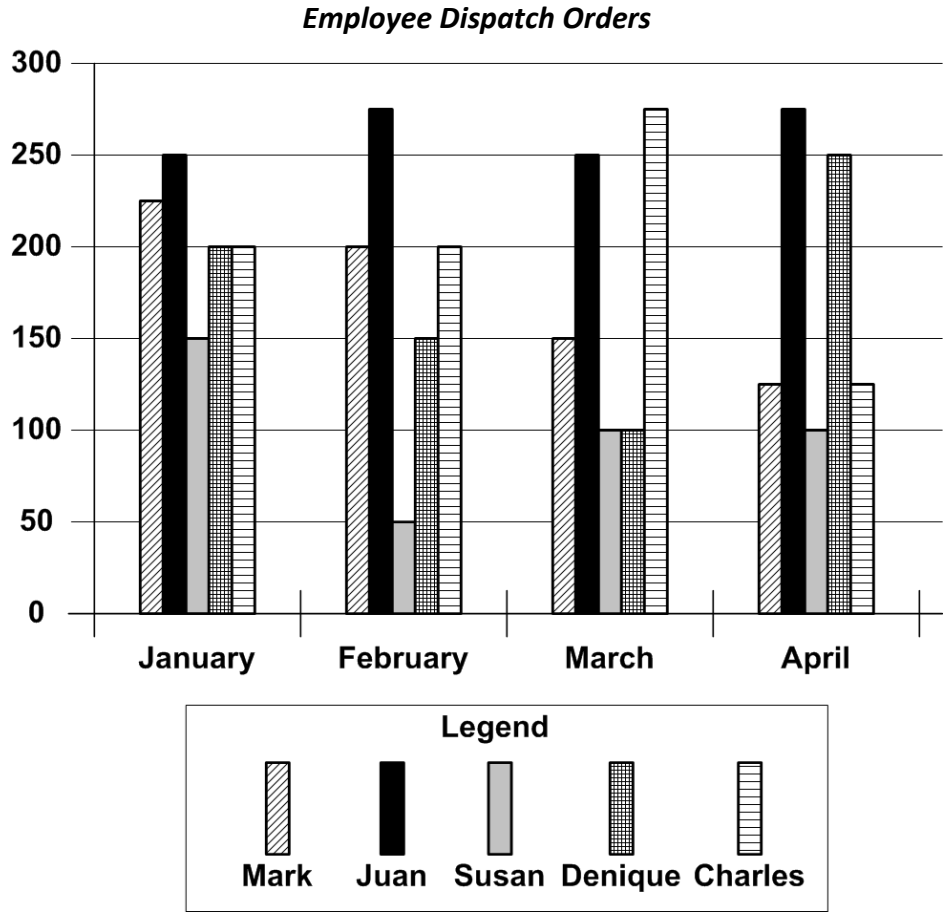
22. Each of the following topics is appropriate for a Tailboard meeting **except** a discussion of the:

    a. need to check rubber gloves for holes or cracks.
    b. steps required to complete the job.
    c. overtime schedule for the upcoming work.
    d. possibility of encountering a decayed utility pole.

23. The logic behind conducting Tailboard meetings prior to starting a job is best summarized as follows:

    a. The Tailboard meeting fulfills a legal obligation.
    b. The Tailboard meeting makes workers feel good about their job.
    c. Studies have shown that involving workers in meetings builds teamwork and better employee relations.
    d. Discussing the job before starting it will help prevent future accidents.

Refer to the Graph below to answer items 24 – 25.



24. The two employees that have the same number of dispatch orders in one month are:

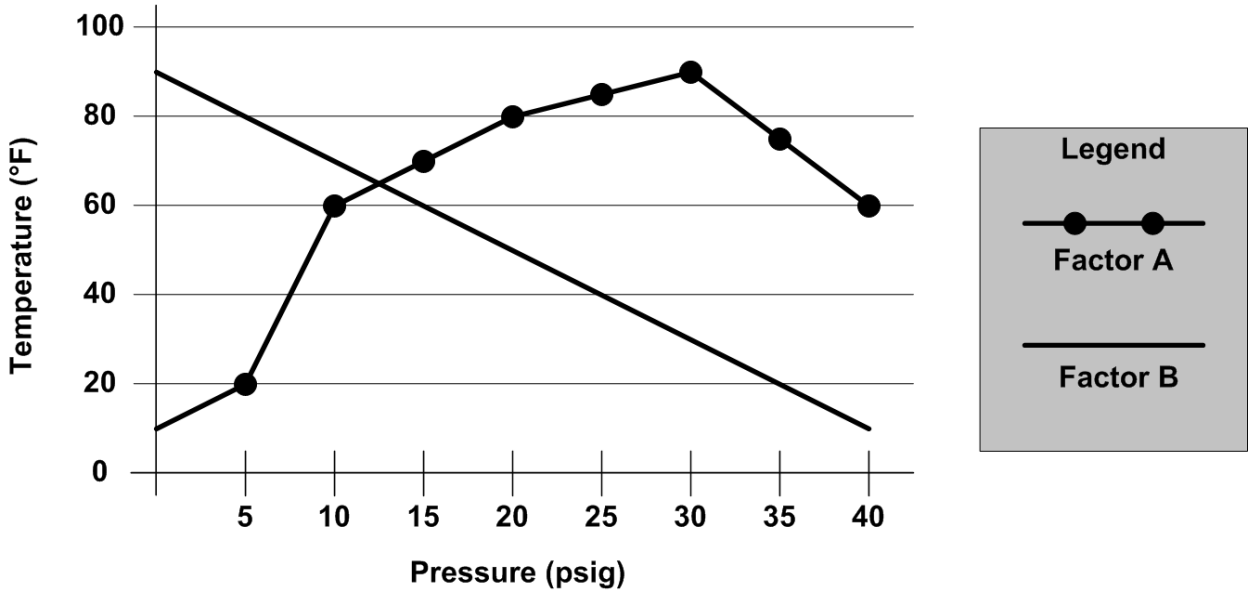
    a. Susan and Denique in March.
    b. Denique and Charles in March.
    c. Susan and Charles in January.
    d. Mark and Susan in April.

25. The employee who has shown the greatest increase in monthly dispatch orders from one month to the next is:

    a. Charles (from March to April).
    b. Susan (from February to March).
    c. Mark (from January to February).
    d. Denique (from March to April).

Refer to the Graph below to answer items 26 – 28.

Relationship of Temperature and Pressure of Two Factors



26. At a pressure of 30 psig, the temperature of Factor A is _____ the temperature of Factor B.

    a. double
    b. half
    c. three times
    d. four times

27. The largest increase in temperature of Factor A is observed when the pressure changes from:

    a. 30 – 40 psig
    b. 10 – 20 psig
    c. 25 – 30 psig
    d. 5 – 10 psig

28. The relationship between Pressure and Temperature for _____ is _____.

    a. Factor B; inversely proportional
    b. Factor A; inversely proportional
    c. Factor B; curvilinear
    d. Factor A; curvilinear

Refer to the Table below to answer items 29 – 30.

Relationship of Job Procedures to Process Accuracy				
Job Procedure	**Average Process Accuracy Rates by Employee (%)**			
	Employee 125	**Employee 248**	**Employee 471**	**Employee 364**
A	81	79	84	91
B	87	80	82	92
C	90	82	92	94
D	98	83	100	92
E	96	84	99	95
F	89	85	97	93

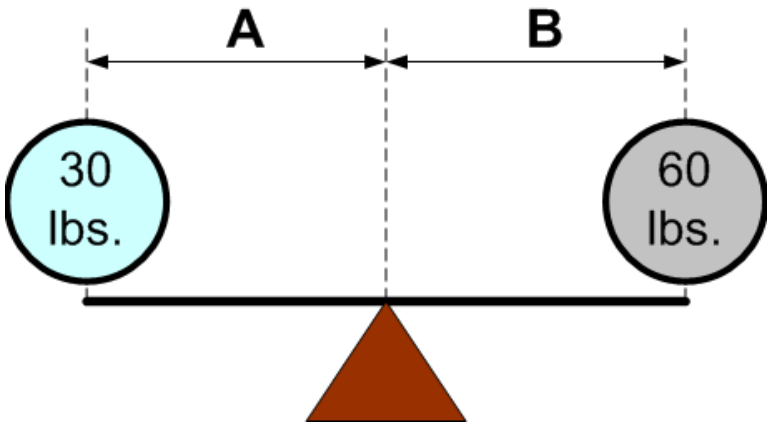
29. The employee that achieves the highest Process Accuracy rate for all Job Procedures is:

    a. Employee 125.
    b. Employee 248.
    c. Employee 471.
    d. Employee 364.

30. For Job Procedures D and B, the employees likely to achieve the highest Process Accuracy rates are:

    a. Employee 364 and Employee 364, respectively.
    b. Employee 125 and Employee 364, respectively.
    c. Employee 471 and Employee 364, respectively.
    d. Employee 364 and Employee 471, respectively.

31. If a 30 lb. object is placed on one side of the fulcrum (triangle) and a 60 lb. object is placed on the other side of the fulcrum, the two objects can be balanced if:



a. distances A and B are equal.
b. distance A is smaller than distance B.
c. distance A is greater than distance B.

Numerical Computation

(NOTE: Calculators are not permitted during the actual examination)

32. Express the fraction 3/4 in decimal terms:

    a. 0.80
    b. 0.65
    c. 0.50
    d. 0.75

33. Express the fraction 1/4 in decimal terms:

    a. 0.20
    b. 0.25
    c. 0.50
    d. 0.75

34. Express the fraction 3/8 in decimal terms:

    a. 0.0625
    b. 0.125
    c. 0.1625
    d. 0.375

35. Express 0.625 as a fraction:

    a. 5/8
    b. 1/6
    c. 6/7
    d. 2/5

36. Express 0.875 as a fraction:

    a. 31/32
    b. 9/16
    c. 5/8
    d. 7/8

37. 25.65 + 10.25 =

a. 36.00
b. 35.85
c. 35.90
d. 36.05

38. 0.625 – 0.25 =

a. 0.425
b. 0.475
c. 0.125
d. 0.375

39. There are 360° in a circle. 45° is equal to:

a. 3/8 of a circle.
b. 1/8 of a circle.
c. 1/4 of a circle.
d. 1/2 of a circle.

40. For every 10 blue boxes, there are 80 green boxes. The ratio of blue boxes to green boxes can also be expressed as:

a. 2:16
b. 5:10
c. 2:20
d. 1:40

41. There are 24 analog devices and 32 digital devices. The ratio of analog to digital devices can also be expressed as:

a. 2:4
b. 1:2
c. 3:4
d. 4:6

42. The ratio of X:Y is 1:5, respectively. When Y is 125, X is equal to:

a. 5
b. 15
c. 25
d. 625

43. The missing number in the equation below is:

3/15 = ?/120

a. 24
b. 18
c. 12
d. 28

44. The missing number in the equation below is:

15 : 345 = ? : 23

a. 2
b. 1
c. 3
d. 4

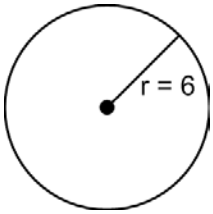
45. The average of 95, 65, 35, 25 and 100 is:

a. 52
b. 43
c. 64
d. 80

Use the following formulas to answer items 46 – 47.

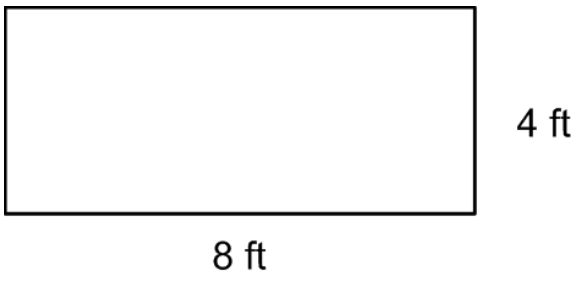
FORMULAS
Area of a Circle: πr^2 where: π = 3.14 r = radius of the circle Area of a Rectangle: LENGTH x WIDTH

46. The area of the circle in the diagram below is:



a. 226.08
b. 113.04
c. 37.68
d. 18.84

47. The area of the rectangle in the diagram below is:



a. 80 sq. ft.
b. 24 sq. ft.
c. 32 sq. ft.
d. 12 sq. ft.

Use the following formulas to answer items 48 – 50.

FORMULAS

$E = I \times R$

where: E = voltage (volts)
I = current (amps)
R = resistance (ohms)

$$KVA = \frac{\text{volts} \times \text{amps}}{1000}$$

1 horsepower = 746 watts

48. If E = 540 volts and R = 18 ohms, I is equal to:

a. .033 amps
b. 20 amps
c. 30 amps
d. 9,720 amps

49. Given 120 volts and 30 amps, KVA is equal to:

a. .36
b. 3.6
c. 36
d. 3600

50. 4,476 watts =

a. 6 horsepower
b. 4 horsepower
c. 12 horsepower
d. 3 horsepower

51. Transformer X is designed to reduce voltage from a maximum of 125 volts input voltage down to 75 volts output. Using the same ratio of reduction, an input voltage of 65 volts would be transformed down to an output voltage of:

a. 10 volts
b. 25 volts
c. 15 volts
d. 39 volts

Practice Test for Placement Exercise
Answer Key

Question	Answer		Question	Answer
1	A		31	C
2	C		32	D
3	D		33	B
4	A		34	D
5	A		35	A
6	C		36	D
7	D		37	C
8	B		38	D
9	A		39	B
10	D		40	A
11	A		41	C
12	D		42	C
13	C		43	A
14	B		44	B
15	B		45	C
16	A		46	B
17	B		47	C
18	A		48	C
19	C		49	B
20	B		50	A
21	D		51	D
22	C			
23	D			
24	A			
25	D			
26	C			
27	D			
28	A			
29	D			
30	C			