



2019 Floriculture CDE

Instructions for completion of exam: Choose the best answer for each of the Problem Solving Questions

PROBLEM SOLVING TEST

Problem Solving Question #1

You are preparing the wholesale floral order for a large event. The company needs 60 centerpieces for the dinner tables. Each centerpiece will include 6 sunflowers. Sunflowers come in bunch of 5 stems. How many bunches will you need to order from the wholesaler for the event?

- A. 60
- B. 50
- C. 72
- D. 84

Solution:

60 centerpieces x 6 sunflowers = 360 sunflowers

360 sunflowers / 5 stem bunches = 72 bunches

Answer is C

Problem Solving #2

A local florist is offering a Mother's Day special on a vase flower arrangement. They get a special discount if the order is placed one week before Mother's Day. The florist receives 172 orders but only 135 were placed one week before Mother's Day. The normal retail price for the vase arrangement is \$45.00 and the early discount is 25%. How much can the flower shop expect in gross sales from the Mother's Day vase flower sale?

- A. \$6,221.25
- B. \$1,665.00
- C. \$4,556.25
- D. \$7,740.00

Solution:

135 orders placed early receive a 25% discount: $\$45.00 \times 25\% = \11.25

$\$45.00 - \$11.25 = \$33.75$

37 orders at full price of $\$45.00 = \$1,665.00$

135 orders at the discounted price of $\$33.75 = \$4,556.25$

$\$1,665.00 + \$4,556.25 = \$6,221.25$

Answer is A

Problem Solving #3

NOZZLE DISCHARGE

Nozzle Pressure lbs./in ²	Gallons per Minute for a given Nozzle Diameter (Inches)			
	1/16	1/8	3/16	1/4
10	0.38	1.48	3.3	5.9
15	0.45	1.81	4.1	7.2
20	0.53	2.09	4.7	8.3
25	0.59	2.34	5.3	9.3
30	0.64	2.56	5.8	10.2
35	0.69	2.78	6.2	11.1
40	0.74	2.96	6.7	11.7
45	0.79	3.14	7.1	12.6
50	0.83	3.30	7.4	13.2
60	0.90	3.62	8.2	14.5
70	0.98	3.91	8.8	15.7
80	1.05	4.19	9.4	16.8
90	1.11	4.43	10.0	17.7
100	1.17	4.67	10.4	18.7
120	1.23	5.17	11.5	20.4
140	1.28	5.70	12.4	22.1
160	1.32	6.30	13.3	23.6
180	1.36	6.92	14.1	25.0
200	1.38	7.52	14.9	26.4

While testing your school greenhouse irrigation system, it is determined that the irrigation system is operating at about 120 lbs of pressure per nozzle. All of the over bench irrigation heads are 1/16 diameter nozzles. The irrigation is currently set to run for 30 minutes each morning and evening, 4 days a week. How much water does a single irrigation head use in a week?

- A. 36.90 gallons B. 73.80 gallons C. 147.60 gallons D. 295.20 gallons

Solution:

- 1.23 gallons per minute
- Irrigation runs for 60 minutes a day x 4 days a week = 240 minutes
- 240 x 1.23= 295.20 gallons per week

Answer is D

Problem Solving #4

As a buyer for Gold Brothers Greenhouses you need to order Sun-gro growing mix for the spring crops. You have the following list of how many pots/baskets/inserts are planned for the growing season:

725-4" geranium pots
510-6" azalea pots
250-8" azalea pots
225-10" baskets with saucers
175-10" baskets without saucers
290-1203 inserts
172-806 inserts

Using the Sun-gro information sheet how many bags of potting soil do you need to order?

- A. 76 bags
- B. 79 bags
- C. 32 bags
- D. 62 bags

Solutionr: You will need to use the chart from Sun-Gro to detemine how much mix will be needed for each of the seven items you are growing in the spring season.

4" geranium=4.26

6" azalea=9.62

8" azalea=11.36

10" baskets=16.07

10" saucerless basket=11.67

1203 inserts=14.5

806 inserts=8.6

This equals 76.08 bags=76 bags

Answer is A

Problem Solving #5

(Use the Ball Seed Catalog Information Provided)

As a Ball Seed salesperson a customer asks for recommendations on what tomato varieties to grow for the spring market. The customer wants nine varieties that meet the following criteria:

4 Indeterminate varieties

5 Determinate varieties

6 Slicer type varieties

1 Yellow variety

1 Variety for sauce

1 Variety of a smaller cherry type tomato

All varieties should have at least verticillium and some fusarium wilt tolerance

Which group of tomato varieties would include all of the above recommendations?

Group A:

Sweet Candy
Carolina Gold
Big Boy

Celebrity
Candyland Sweet
Better Boy

Homeslice
Stellar
German Johnson

Group B:

Beef Master
Better Boy
Pink Girl

Celebrity
Bush Champion
Homeslice

Little Napoli
Tidy Treats
Sunny Boy

Group C:

Beef Master
Bush Champion II
Homeslice

Sweet Million
San Marzona
Sunny Boy

Stellar
Big League
Pink Girl

Group D:

Red Profusion
German Johnson
Celebrity

Chefs Choice
Big Boy
Homeslice

San Marzona
Big League
Bush Champion II

Solution to Problem #5:

All four answers include 4 indeterminate, 5 determinate, 1 yellow tomato, 1 sauce tomato, 1 smaller cherry type, and 6 slicing tomato varieties. That meets the first six recommendations.

In group A the Big Boy, German Johnson, and Stellar does not have the disease resistance

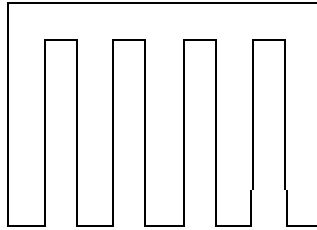
In group C Big Leaf and San Marzano has no disease resistance

In group D German Johnson and Big League have no disease resistance

In group B all the varieties have Verticillium and Fusarium Wilt resistance

Using the last criteria the correct answer is group B

Problem Solving #6



Piedmont FFA has TWO of the above benches that they use for their Poinsettia production. On both of the benches the long back benches are 2 ft wide and 50 ft long. The Peninsula benches are all 3 ft wide and 15 ft long.

Spacing	Plants/ Ft ²	Spacing	Plants/ Ft ²
8" X 9"	2.0	6" X 5"	4.8
8" X 8"	2.3	5" X 5"	5.8
8" X 7"	2.6	5" X 4"	7.2
8" X 6"	3.0	5" X 3"	9.6
6" X 7"	3.4	4" X 3"	12.0
6" X 6"	4.0		

If the Poinsettias are spaced using a 4" X 3" spacing, how many can be put in the greenhouse using all the bench space available?

- 2,400 B. 5,400 C. 7,800 D. 10,000

Solution:

2X 50 = 100 ft² area for one back bench

100ft² x 2 back benches = 200 ft²

3 x 15 = 45ft² area for one peninsula bench

45ft² x 10 for all peninsula benches = 450 ft²

200ft² + 450ft² = 650 ft² total bench space

12 Plants = 1 ft²

X 650 ft²

X = 7,800

Answer: C – 7,800

Problem Solving Question #7

Valentines Day should be the most profitable day of the year for a florist. On average most profit margins average between 200 and 300 percent. Using the below wholesale cost of materials how much would you charge for a bud vase to achieve a 300% profit?

Quantity	Item	Wholesale Price
1	Bud vase	\$ 1.00 /each
3	Leatherleaf	\$.10/each
3	Roses	\$ 1.50 /each
1	Baby's Breath Stem	\$.75/each
1	Bow	\$.50/each
1	Card	\$.10/each

A. \$ 7.15

B. \$ 14.30

C. \$ 21.45

D. \$ 28.60

Solution:

Quantity	Item	Wholesale Price	Total Cost
1	Bud vase	\$ 1.00 /each	1.00
3	Leatherleaf	\$.10/each	.30
3	Roses	\$ 1.50 /each	4.50
1	Baby's Breath Stem	\$.75/each	.75
1	Bow	\$.50/each	.50
1	Card	\$.10/each	.10
		Total	\$ 7.15

Cost of materials \$7.15 x 3 = \$21.45 profit needed

Cost of material \$7.15 + \$21.45 profit needed = \$28.60 selling price

Answer: D. \$28.60

Problem Solving Question #8



A Xeri-Bug Emitter Model No. XB-10PC1032 has a nominal flow rate of 0.5 gph. If the emitter is on a timer and runs 5 minutes every twenty minutes, how many gallons of water would be applied in a 24 hour period?

24 gallons B. 12 gallons C. 6 Gallons D. 3 Gallons

Solution:

5 min every 20 minutes = 15 min/hour (60 Minutes)

24 hours (1440 minutes)

$$\begin{array}{r} \underline{15 \text{ min}} = \underline{60 \text{ minutes}} \\ \times \quad \quad 1440 \text{ minutes} \end{array}$$

$$\begin{array}{r} \underline{60x} = \underline{21,600} \text{ minutes} \\ 60 \quad 60 \end{array} \quad x = 360 \text{ minutes}$$

$$360\text{mins} / 60 = 6 \text{ hours}$$

$$0.5\text{gph} \times 6 \text{ hours} = 3 \text{ gallons}$$

Answer: D 3 gallons

Problem Solving #9

A local Garden Center is running a 15% Off Sale on all bedding flowers. This is the Garden Center sales information: Marigolds \$1.75/six-pack; Petunias \$2.25/six-pack; Impatiens \$2.50/four-pack; and Gerber Daisies at \$4.50 each. A customer needs 36 Petunias, 18 Marigolds, 28 Impatiens, and 12 Gerber Daisies. If the sales tax is 5.3%, what is the total cost to the customer?

- A. \$95.03
- B. \$90.25
- C. \$80.78
- D. \$79.30

Solution:

36 petunias: $\$2.25/6\text{pk} - \text{need } 6 \text{ packs} \times \$2.25 = \$13.50$

18 marigolds: $\$1.75/6\text{pk} - \text{need } 3 \text{ packs} \times \$1.75 = \$5.25$

28 impatiens: $\$2.50/4\text{pk} - \text{need } 7 \text{ packs} \times 2.50 = \17.50

12 gerber daisies: $\$4.50 \text{ each} = \54.00

$\$13.50 + \$5.25 + \$17.50 + \$54.00 = \$90.25$

$\$90.25 \times 25\% \text{ off} = \13.54

$\$90.25 - \$13.54 = \$76.71$

$\$76.71 \times 5.3\% \text{ sales tax} = \4.07

$\$76.71 + \$4.07 = \$80.78$

Answers is C

Problem Solving #10

Your FFA chapter is planning to sell One Dozen Red Rose Vases for Valentine's Day to raise funds to attend State Convention. Students want to make \$20 profit from each bouquet they sell. Using the following wholesale prices for the appropriate recipe, determine a retail price point that would allow for the fundraising profit.

Vases \$28 for a case of 4 vases

Roses \$50 per bunch of 25 stems

Leather Leaf Fern \$6 per bunch

Baby's Breath Filler Flower \$12 per bunch

Your design needs:

- 1 Vase
- 12 roses
- 1/2 bunch fern
- 1/2 bunch filler

- A. \$40
- B. \$75
- C. \$100
- D. \$60

Vases = \$28 divided by 4 =	\$7
Roses =\$50 divided by 25 stems = \$2 per stem x 12 stems needed =	\$24
Foliage =\$6 per bunch, divided by 1/2 bunch =	\$3
Filler = \$12 per bunch, divided by 1/2 bunch =	\$6
Total Wholesale Cost =	\$40
With \$20 profit for fundraising =	\$60

Answer is D

FLORICULTURE PROBLEM SOLVING EXAM KEY

Question	Answer	Point Value	Standard	Standard	Standard
1.	C	20	ABS.01.01.01.b CS.02.01.02.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c	CRP.08.02.02.c CRP.08.03.01.c CRP.08.03.02.c
2.	A	20	ABS.01.01.01.b CS.02.01.02.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c	CRP.08.02.02.c CRP.08.03.01.c CRP.08.03.02.c
3.	D	20	ABS.01.01.01.b CS.02.01.02.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c
4.	A	20	ABS.01.01.01.b CS.02.01.02.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c
5.	B	20	ABS.01.01.01.b CS.02.01.02.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c
6.	C	20	ABS.01.01.01.b CS.02.01.02.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c
7.	C	20	ABS.01.01.01.b CS.02.01.02.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c
8.	D	20	ABS.01.01.01.b CS.02.01.02.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c
9.	C	20	ABS.01.01.01.b CS.02.01.02.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c
10.	D	20	ABS.01.01.01.b CS.02.01.02.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c	CRP.08.01.01.c CRP.08.01.02.b CRP.08.02.01.c