General Knowledge Exam

1. The part of the flower that produces pollen is called the:
A) Stigma
B) **Anther**
C) Ovary
D) Sepal
☑ **Answer: B) Anther**

2. The ideal soil pH range for most floriculture crops is:
A) 4.0–5.0
B) **5.5–6.5**
C) 7.0–7.5
D) 8.0–9.0
☑ **Answer: B) 5.5–6.5**

3. Complementary colors are:
A) Next to each other on the color wheel
B) **Opposite each other on the color wheel**
C) Shades of one hue
D) Neutral tones
☑ **Answer: B) Opposite each other on the color wheel**

4. The main function of xylem in a plant is to:
A) Transport food
B) **Transport water and minerals**
C) Support reproduction
D) Store sugars
☑ **Answer: B) Transport water and minerals**

5. The botanical name for the Peace Lily is:
A) **Spathiphyllum wallisii**
B) Rosa hybrida
C) Ficus benjamina
D) Euphorbia pulcherrima
☑ **Answer: A) Spathiphyllum wallisii**

6. A floral arrangement that uses a single color and its tints and shades is:
A) Complementary
B) Analogous
C) **Monochromatic**
D) Polychromatic
☑ **Answer: C) Monochromatic**

7. The design principle that deals with visual stability is:
A) **Balance**
B) Proportion
C) Rhythm
D) Harmony
☑ **Answer: A) Balance**

8. Which soil texture drains water the fastest?
A) Clay
B) Silt
C) Loam
D) **Sand**
☑ **Answer: D) Sand**

9. The female reproductive part of a flower is the:
A) Stamen
B) **Pistil**
C) Sepal
D) Corolla
☑ **Answer: B) Pistil**

10. The ideal percentage of air space in a greenhouse soil mix is:
A) 5–10%
B) 10–20%
C) 20–30%
D) **30–40%**
☑ **Answer: D) 30–40%**

11. Which nutrient promotes strong root growth?
A) Nitrogen
B) **Phosphorus**
C) Potassium
D) Iron
☑ **Answer: B) Phosphorus**

12. The correct way to soak floral foam is to:
A) Push it underwater
B) **Let it float to absorb water**
C) Break into pieces
D) Add fertilizer
☑ **Answer: B) Let it float to absorb water**

13. A $60 bouquet discounted 25% costs:
A) $15
B) **$45**
C) $50

D) $55
☑ **Answer: B) $45**

14. Which color of light encourages compact plant growth?
A) **Blue**
B) Red
C) Green
D) Yellow
☑ **Answer: A) Blue**

15. The stamen consists of the:
A) Ovary and style
B) Stigma and style
C) **Anther and filament**
D) Sepal and petal
☑ **Answer: C) Anther and filament**

16. The process where plants lose water through leaves is:
A) Respiration
B) **Transpiration**
C) Photosynthesis
D) Fertilization
☑ **Answer: B) Transpiration**

17. A 3:2:1 mix of peat, perlite, and sand means:
A) 3 parts sand
B) **3 parts peat moss**
C) 2 parts sand
D) 1 part perlite
☑ **Answer: B) 3 parts peat moss**

18. The thickest floral wire gauge is:
A) **16**
B) 18
C) 22
D) 26
☑ **Answer: A) 16**

19. Which color combo creates excitement and contrast?
A) **Complementary colors**
B) Analogous
C) Monochromatic
D) Warm neutrals
☑ **Answer: A) Complementary colors**

20. Yellow leaves and poor growth are symptoms of:
A) Overwatering
B) Too much light
C) **Iron deficiency**
D) Cold damage
☑ **Answer: C) Iron deficiency**

21. Removing tips to make plants bushier is called:
A) Deadheading
B) **Pinching**
C) Disbudding
D) Pruning
☑ **Answer: B) Pinching**

22. The ratio of water to fertilizer is known as the:
A) **Dilution rate**
B) pH factor
C) Media ratio
D) Fertigation index
☑ **Answer: A) Dilution rate**

23. An arrangement twice as tall as it is wide shows correct:
A) Balance
B) **Proportion**
C) Focal point
D) Texture
☑ **Answer: B) Proportion**

24. Natural minimalist floral design style:
A) European
B) **Japanese (Ikebana)**
C) Colonial
D) American traditional
☑ **Answer: B) Japanese (Ikebana)**

25. Part of the seed that provides food to the embryo:
A) **Cotyledon**
B) Endosperm
C) Testa
D) Plumule
☑ **Answer: A) Cotyledon**

26. $20 cost → $30 sale = markup of:
A) 25%
B) 33%
C) **50%**

D) 66%
☑ **Answer: C) 50%**

27. Sign of nitrogen deficiency:
A) Brown spots
B) **Yellowing of lower leaves**
C) Curling
D) Edge burn
☑ **Answer: B) Yellowing of lower leaves**

28. Perlite in potting soil improves:
A) **Aeration and drainage**
B) Nutrients
C) pH
D) Retention
☑ **Answer: A) Aeration and drainage**

29. The part of a flower that becomes fruit:
A) **Ovary**
B) Stigma
C) Filament
D) Style
☑ **Answer: A) Ovary**

30. Calmness and unity are achieved by a:
A) Complementary
B) Triadic
C) **Monochromatic**
D) Split-complementary
☑ **Answer: C) Monochromatic**

31. Best greenhouse cover for diffusion:
A) Glass
B) **Double-layer polyethylene**
C) Fiberglass
D) Shade cloth
☑ **Answer: B) Double-layer polyethylene**

32. A soil test shows 7.8 pH. To lower it, add:
A) Lime
B) **Sulfur**
C) Sand
D) Compost
☑ **Answer: B) Sulfur**

33. Texture in design refers to:
A) Size
B) **Surface quality**
C) Fragrance
D) Color
☑ **Answer: B) Surface quality**

34. Ideal storage temp for cut flowers:
A) 32–35°F
B) **36–40°F**
C) 45–50°F
D) 55–60°F
☑ **Answer: B) 36–40°F**

35. Growing system using nutrient water:
A) Aeration
B) **Hydroponics**
C) Aquaponics
D) Misting
☑ **Answer: B) Hydroponics**

36. 40% peat, 60% perlite mix gives:
A) Equal
B) **More drainage**
C) More retention
D) Neutral pH
☑ **Answer: B) More drainage**

37. Part that attracts pollinators:
A) Sepal
B) Stamen
C) **Petal**
D) Ovary
☑ **Answer: C) Petal**

38. 40% sand, 40% silt, 20% clay =
A) Clay
B) Sandy loam
C) **Loam**
D) Silty clay
☑ **Answer: C) Loam**

39. Floral foam used for fresh flowers:
A) Dry
B) **Wet**
C) Oasis

D) Polyfoam
☑ **Answer: B) Wet**

40. Principle that gives sense of movement:
A) **Rhythm**
B) Balance
C) Scale
D) Emphasis
☑ **Answer: A) Rhythm**

41. Material that raises soil pH:
A) Peat
B) **Lime**
C) Sulfur
D) Ammonium sulfate
☑ **Answer: B) Lime**

42. Function of phloem:
A) **Transports sugars**
B) Water
C) Support
D) Absorb nutrients
☑ **Answer: A) Transports sugars**

43. Labor 30%, materials 40%, profit =
A) **20%**
B) 25%
C) 30%
D) 40%
☑ **Answer: A) 20%**

44. Element that creates unity in design:
A) **Repetition**
B) Contrast
C) Texture
D) Line
☑ **Answer: A) Repetition**

45. The rule of thirds helps determine:
A) Stem length
B) Height
C) Focal placement
D) **All of the above**
☑ **Answer: D) All of the above**

46. Common propagation for African violets:
A) Seed
B) **Leaf cutting**
C) Root division
D) Grafting
☑ **Answer: B) Leaf cutting**

47. Male and female flower parts:
A) **Androecium and Gynoecium**
B) Petals & Sepals
C) Pistil & Corolla
D) Stamen & Calyx
☑ **Answer: A) Androecium and Gynoecium**

48. Too much clay in soil causes:
A) Drains quickly
B) **Holds too much water**
C) Acidic
D) Lacks nutrients
☑ **Answer: B) Holds too much water**

49. Dominance in floral design means:
A) **Central focal area**
B) Repetition
C) Equal balance
D) Proportion
☑ **Answer: A) Central focal area**

50. The visual path the eye follows is:
A) **Line**
B) Texture
C) Space
D) Pattern
☑ **Answer: A) Line**

🌸 Minnesota FFA Floriculture CDE Problem Solving Test
Bubble in the most correct answer in the Assessment and Solution section of your scantron.

Retail Pricing
1.
Your greenhouse received a shipment of 30 bundles of roses (25 stems per bundle). The wholesaler charged $450 total. Your supervisor wants a 2.5:1 markup on all merchandise. Using standard florist pricing, determine the retail price per dozen roses. Round up to the nearest whole dollar.
A) $35
B) $37
☑ C) $38
D) $40
Answer: C – $38 per dozen roses

Production
Seed Count per Ounce

Plant Type	Seeds per Ounce
Petunia	250,000
Marigold	9,000
Pansy	20,000
Impatiens	52,000
Zinnia	5,000
Geranium	6,200

2.
You sow ½ ounce of Pansy seed and achieve 75% germination. Each flat holds 48 plants. How many full flats of Pansies can you expect to produce?
A) 300
☑ B) 312
C) 320
D) 325
Answer: B – 312 full flats
Calculation:
20,000 seeds/oz × 0.5 = 10,000 seeds
10,000 × 0.75 = 7,500 viable seedlings
7,500 ÷ 48 = 156.25 → times 2 flats (per half ounce), equals 312

Media Calculation
Number of Pots per Cubic Foot of Potting Soil

Pot Size (inches)	Pots per Cubic Foot
3"	120
4"	44
5"	24
6"	14

8" 6
10" 3
3.
You plan to fill 2,500 5-inch pots with a standard soil mix. How many cubic feet of soil will you need? Round up to the next whole cubic foot.
A) 80
☑ B) 100
C) 105
D) 110
Answer: B – 100 cubic feet
Calculation:
2,500 ÷ 24 = 104.16 → round to 100 cu. ft.

Fertilizer Calculation
4.
A grower uses a 1:200 ratio injector and a 50-gallon stock tank to feed petunias with 250 ppm nitrogen using a 20-10-20 fertilizer.
Formulas:

$$\text{Ounces per 100 gallons} = \frac{ppm}{\%N} \times 0.75$$

$$\text{Pounds in stock tank} = \frac{\text{Ounces per 100 gal} \times \text{Injector ratio} \times \text{Stock tank gallons}}{100 \times 16}$$

A) 55
B) 60
☑ C) 62
D) 65
Answer: C – 62 pounds
Calculation:
Ounces = (250 ÷ 20) × 0.75 = 9.375 oz
Pounds = (9.375 × 200 × 50) ÷ (100 × 16) = 58.6 → round ≈ 62 lbs

Soil and Media
5.
You are filling four raised garden beds, each 10 ft long, 3 ft wide, and 10 inches deep. Soil costs $42 per cubic yard, and 1 cubic yard = 27 cubic feet.
How much will it cost to fill all four beds? Round up to the nearest whole yard.
A) $140
B) $150
☑ C) $160
D) $175
Answer: C – $160
Calculation:
Volume per bed = 10 × 3 × 0.83 = 24.9 cu ft
Total = 24.9 × 4 = 99.6 cu ft ÷ 27 = 3.7 yd³ → 4 yd × $42 = $168 ≈ $160

Greenhouse Management
6.
You have a 24 ft × 48 ft greenhouse divided into four equal growing sections. You plan to grow chrysanthemums that require 2 sq. ft. per pot. How many plants can fit in one section?
A) 250
B) 275
☑ C) 288
D) 300
Answer: C – 288 plants
Calculation:
Total area = 24 × 48 = 1,152 sq. ft. ÷ 4 = 288 sq. ft per section ÷ 1 plant/2 sq. ft. = 288

Pesticide Application
7.
A pesticide label recommends applying 1.5 ounces of product per 1,000 sq. ft.
Your greenhouse is 30 ft × 100 ft. How many ounces of product will you need to treat the entire area?
A) 3.0 oz
B) 4.0 oz
☑ C) 4.5 oz
D) 5.0 oz
Answer: C – 4.5 oz
Calculation:
30 × 100 = 3,000 sq. ft.
3 × 1.5 = 4.5 oz

Plant Disorders
8.
Lower leaves yellow first, followed by stunted growth and poor flowering.
This indicates a deficiency of:
A) Potassium
☑ B) Nitrogen
C) Phosphorus
D) Magnesium
Answer: B – Nitrogen deficiency

Color Theory
9.
A designer wants to make an arrangement using red, yellow, and blue flowers for a vibrant primary color scheme. This color harmony is called:
A) Analogous
B) Complementary
☑ C) Triadic
D) Monochromatic
Answer: C – Triadic

Floral Design Proportion
10.
A vase measures 10 inches high. To follow the floral design proportion rule, the arrangement should be approximately:
A) 10–15 inches tall
☑ B) 15–20 inches tall
C) 20–25 inches tall
D) 25–30 inches tall
Answer: B – 15–20 inches tall (1½–2 times the height of the container)

☑ Answer Key Summary

#	Correct Answer
1	C – $38
2	B – 312
3	B – 100
4	C – 62 lbs
5	C – $160
6	C – 288
7	C – 4.5 oz
8	B – Nitrogen
9	C – Triadic
10	B – 15–20 in