C++ TEST-16 (STRUCTURE & UNION)

Total points 50/50

STUDENT NAME *

VIVA

✓ 1. **What is a structure in C++?** * 1/1

- (●) A) A collection of related data items of different types ✓
- ( ) B) A collection of same data types
- ( ) C) A function
- ( ) D) A pointer

✓ 2. **Which keyword is used to define a structure?** * 1/1

- (●) A) struct ✓
- ( ) B) structure
- ( ) C) record
- ( ) D) define

✓ 3. **How do you declare a structure in C++?** * 1/1

- ○ A) structure Student { ... };
- ◉ B) struct Student { ... }; ✓
- ○ C) Student struct { ... };
- ○ D) typedef Student { ... };

✓ 4. **What is a union in C++?** * 1/1

- ◉ A) A data type that can hold different data types but only one at a time ✓
- ○ B) A group of arrays
- ○ C) A class
- ○ D) A function

✓ 5. **Keyword used to define a union is:** * 1/1

- ○ A) struct
- ○ B) record
- ◉ C) union ✓
- ○ D) typedef

✓ 6. **Size of a structure is equal to:** * 1/1

- (●) A) Sum of sizes of all members ✓
- ( ) B) Size of largest member
- ( ) C) Product of members
- ( ) D) Always 1 byte

✓ 7. **Size of a union is equal to:** * 1/1

- ( ) A) Sum of sizes of all members
- (●) B) Size of largest member ✓
- ( ) C) 0
- ( ) D) Average of member sizes

✓ 8. **Which one can store multiple values at a time?** * 1/1

- (●) A) Structure ✓
- ( ) B) Union
- ( ) C) Both
- ( ) D) None

✓ 9. **Which one can store only one value at a time?** * 1/1

- ○ A) Structure
- ◉ B) Union ✓

✓ 10. **Members of a structure are accessed using:** * 1/1

- ○ A) Dot (.) operator
- ○ B) Arrow (->) operator
- ○ C) Star (*) operator
- ◉ D) Both A and B ✓

✓ 11. **Members of a structure pointer are accessed using:** * 1/1

- ○ A) Dot (.)
- ◉ B) Arrow (->) ✓
- ○ C) Both
- ○ D) None

✓ 12. **Can a structure contain functions?** * 1/1

- ◉ A) Yes ✓
- ○ B) No

✓ 13. **Can a union contain functions?** * 1/1

- (●) A) Yes ✓
- ( ) B) No

✓ 14. **Which of the following can use different data types in a single variable?** *1/1

- (●) A) Union ✓
- ( ) B) Structure
- ( ) C) Enum
- ( ) D) Array

✓ 15. **What is the default access specifier for structure members in C++?** * 1/1

- ( ) A) private
- ( ) B) protected
- (●) C) public ✓
- ( ) D) static

✓ 16. **What is the default access specifier for class members?** * 1/1

- ○ A) public
- ◉ B) private ✓
- ○ C) protected
- ○ D) None

✓ 17. **Can we nest structures inside other structures?** * 1/1

- ◉ A) Yes ✓
- ○ B) No

✓ 18. **How can we define a structure variable?** * 1/1

- ○ A) struct Student s1;
- ○ B) Student s1;
- ◉ C) Both A and B ✓
- ○ D) None

✓ 19. **Structure variables can be passed to functions as:** * 1/1

- ○ A) Call by value
- ○ B) Call by reference
- ◉ C) Both ✓
- ○ D) None

✓ 20. **Which operator is used to access members through a pointer to structure?** *1/1

- ◉ A) -> ✓
- ○ B) .
- ○ C) *
- ○ D) &

✓ 21. **A structure in C++ can also contain:** * 1/1

- ○ A) Functions
- ○ B) Arrays
- ○ C) Other structures
- ◉ D) All of the above ✓

✓ 22. **Can we define constructors inside structures?** * 1/1

- (●) A) Yes ✓
- ( ) B) No

✓ 23. **Can we use inheritance in structures?** * 1/1

- (●) A) Yes ✓
- ( ) B) No

✓ 24. **What is the size of the following structure?** struct A { int x; char y; }; * 1/1

- ( ) A) 5 bytes
- (●) B) 8 bytes (depends on padding) ✓
- ( ) C) 4 bytes
- ( ) D) 1 byte

✓ 25. **What is structure padding?** * 1/1

- (●) A) Adding extra bytes for alignment ✓
- ( ) B) Removing unused bytes
- ( ) C) Compressing structure size
- ( ) D) Allocating equal memory for all members

✓ 26. **What will happen if you access a union member other than the one most recently assigned?** *1/1

- (●) A) Undefined behavior ✓
- ( ) B) Error
- ( ) C) Previous value retained
- ( ) D) All values printed

✓ 27. **A union can have:** * 1/1

- (●) A) Only one active member at a time ✓
- ( ) B) All members active
- ( ) C) No active members
- ( ) D) None

✓ 28. **A structure variable can be initialized at the time of declaration.** * 1/1

- (●) A) True ✓
- ( ) B) False

✓ 29. **Which one consumes less memory — structure or union?** * 1/1

- (●) A) Union ✓
- ( ) B) Structure

✓ 30. **What happens if you define a union with two members of size 2 and 4 bytes respectively?** *1/1

- (●) A) Total size = 4 bytes ✓
- ( ) B) Total size = 6 bytes
- ( ) C) Total size = 2 bytes
- ( ) D) Error

✓ 31. **Which is more memory efficient?** * 1/1

- (●) A) Union ✓
- ( ) B) Structure

✓ 32. **A structure can be used to represent:** * 1/1

- (●) A) A record in a database ✓
- ( ) B) A single integer
- ( ) C) A single float
- ( ) D) A macro

✓ 33. **Union is used when:** * 1/1

- (●) A) Only one variable needs to store values at a time ✓
- ( ) B) All members need simultaneous storage
- ( ) C) Both
- ( ) D) None

✓ 34. **Can we use typedef with structures and unions?** * 1/1

- (●) A) Yes ✓
- ( ) B) No

✓ 35. **Which of the following is valid?** * 1/1

- ( ) A) typedef struct {int x;} data;
- ( ) B) typedef union {int x;} item;
- (●) C) Both ✓
- ( ) D) None

✓ 36. **How are members of a structure stored in memory?** * 1/1

- (●) A) In contiguous memory locations ✓
- ( ) B) Randomly
- ( ) C) Separately allocated
- ( ) D) Dynamically linked

✓ 37. **How are members of a union stored in memory?** * 1/1

- (●) A) In overlapping memory locations ✓
- ( ) B) Contiguously
- ( ) C) Separately
- ( ) D) Randomly

✓ 38. **Can arrays of structures be created?** * 1/1

- (●) A) Yes ✓
- ( ) B) No

✓ 39. **Can arrays of unions be created?** * 1/1

- (●) A) Yes ✓
- ( ) B) No

✓ 40. **Structure members are accessed using which operator?** * 1/1

- ○ A) . (dot)
- ○ B) -> (arrow)
- ◉ C) Both ✓

✓ 41. **Can we compare two structure variables directly using ==?** * 1/1

- ◉ A) No ✓
- ○ B) Yes

✓ 42. **Can we assign one structure variable to another of the same type?** * 1/1

- ◉ A) Yes ✓
- ○ B) No

✓ 43. **In a union, when one member is updated:** * 1/1

- ◉ A) Other members get affected ✓
- ○ B) Other members retain old values
- ○ C) Other members remain unchanged
- ○ D) It causes error

✓ 44. **Which keyword is used to share the same memory for multiple members?** *1/1

- (●) A) union ✓
- ( ) B) struct
- ( ) C) static
- ( ) D) friend

✓ 45. **Can a structure have static members?** * 1/1

- (●) A) Yes ✓
- ( ) B) No

✓ 46. **Can a union have static members?** * 1/1

- (●) A) No ✓
- ( ) B) Yes

✓ 47. **In which case should a union be used instead of a structure?** * 1/1

- (●) A) When only one member is used at a time ✓
- ( ) B) When all members are used together

✓ 48. **Which one is faster in execution?** * 1/1

- (●) A) Union ✓
- ( ) B) Structure
- ( ) C) Both same

✓ 49. **Which of the following can be nested?** * 1/1

- ( ) A) Structure
- ( ) B) Union
- (●) C) Both ✓

✓ 50. **What is the output size of the following union?** * 1/1

union test { int a; char b; double c; };

- ( ) A) 4 bytes
- ( ) B) 8 bytes
- (●) C) Size of double (typically 8 bytes) ✓
- ( ) D) 12 bytes