**Lab 3(Symtab Generation) and 4(Expr evaluation and error recovery) Evaluation is suggested to be done together for 20 marks.**

**test1.c (10 marks)**

Test case

| int main() {  int a=5;  float b=4.6;  double c=6.9845;  char d="c";  a=2;  int b; // redeclaration error } |
| --- |
| Expected output:  Variable b already declared  Error :b at 8  Valid syntax  here  Name size type lineno scope value  a 2 2 7 1 2  b 4 3 4 1 4.6  c 4 3 5 1 6.9845  d 1 1 6 1 "c" |
|  |

Subdivision:

**4 marks** if the error “**Variable b already declared**” is raised. The wording may differ, but the redeclaration must be caught.

**6 marks** for the **symbol table:**

* **2 mark** if entry for **a** in symtab matches (int)
* **2 mark** if entries for **b** and **c** in symtab match (float and double)
* **2 mark** if entry for **d** in symtab matches (char)

**test2.c (5 marks)**

Test case

| int main()  {  float x;  int y;  x = 3.4;  y = 45.4; // type is int, value assigned is float, flag type mismatch  if(5>6)  {  x=4.5;  }  else  {  int z=5\*6+5;  } }  Expected output:  Mismatch type  Error :45.4 at 6  Error :syntax error at 7  here  Name size type lineno scope value  x 4 3 5 1 3.4  y 2 2 6 1 45.4 |
| --- |

Subdivision:

**2 marks** if “**Type Mismatch**” is caught.

**test3\_valid.c (5 marks)**

Test case

| int main() {  int a=5;  b=3;  float c=4.5;  c=6.5;  double d=5.44;  double e=d+9.0-4.0/2.0; }  Expected output:  Variable b not declared  Error :b at 4  Valid syntax  here  Name size type lineno scope value  a 2 2 3 1 5  c 4 3 6 1 6.5  d 4 3 7 1 5.44  **e 4 3 8 1 12.440000**  Subdivision:  **2 marks** if “**variable b not declared**” is caught.  **3 marks** if symtab entry for **e** matches. **(expression evaluation is performed)** |
| --- |