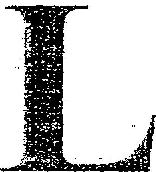
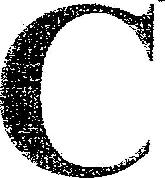
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(2nd Revised Edition)

Yashavant P. Kanetkar

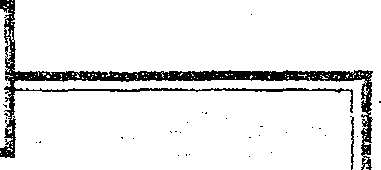
**BPB PUBLICATIONS**

**A**

B-14, CONNAUGHT PLACE, NEW DELHI-1

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**OTHER TITLES OF INTEREST I**



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*fia ter*

*gettingrted*

IA] Which of the following are invalid variable names and why?

InterestPaid : Valid

si-int : Invalid. No special symbol other than

underscore ( \_) can be used in a variable

name. AVERAGE. : Valid percent : Invalid. `.' is not allowed in a variable

name.

123 : Invalid. Variable name must begin with

an alphabet.

dist in km : Invalid. Blanks are not allowed within a

variable name.

of pay : Invalid. Blanks are not allowed within a

variable name.

Name : Valid

FLOAT Valid. Because float & FLOAT are

different..

|  |  |
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| C#.NET FUNDAS (W/CD) ...... \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 225/- |
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113j Point out the Errors, if any, in the following C statements:

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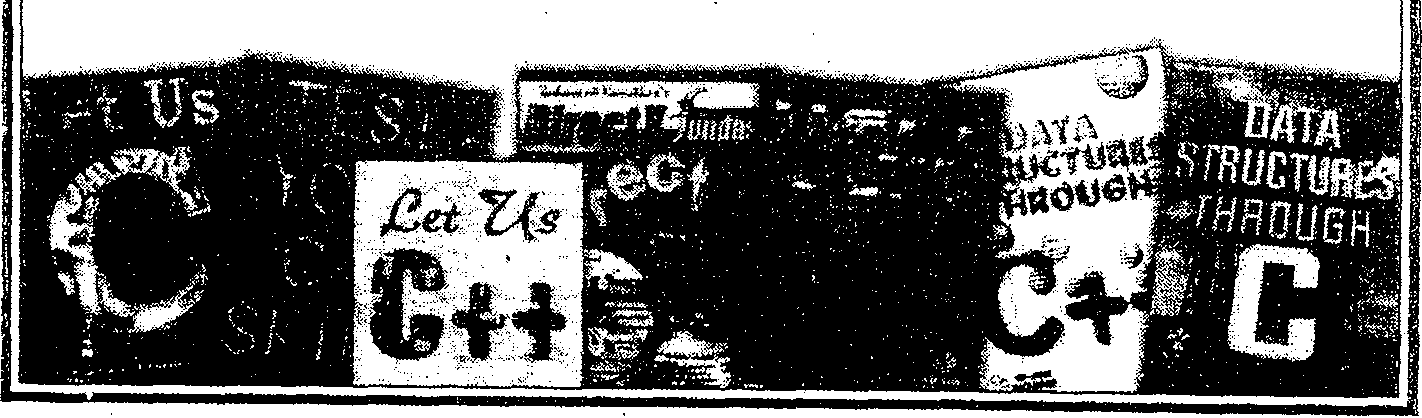
WORKING WITH C 165/-

(a) int = 314.562 \* 150 ;

Error. int is a keyword hence should not be used as a variable. (h) name = 'Ajay' ;

Error. `Ajay' is an invalid character constant.

WRITING TSR THROGH C 225/-



*Let Us C Solutions Chapter 1: Getting Started 3*

1. 3.14 \* r \* r = area ;

Error. On the left-hand side of equal to (—) there can only be a variable.

1. k=a\*b±c( 2.5a b ) ;

Error. Multiplication operator ( \* ) missing between variable'e & the opening parenthesis ( ( ) and between 2.5 and variable a.

1. m\_inst = rate of interest \* amount in rs ;

Error. rate of interest and amount in rs are invalid variable names.

1. si = principal \* rateofinterest \* numberofyears / 100 ; No Error

(s) area = 3.14 \* r \*\* 2 ;

Error. \*\* ' is an invalid operator.

[C] Evaluate the following expressions and show their hierarchy: (a) g = big / 2 + big \* 4 / big - big + abc / 3 ;

(abc = 1.5, big = 3, assume g to be a float)

*Answer:*

g = 3 *I* 2 + 3 \*4 /3 — 3 + 1.5 / operation: /

3

g = 1 + 3\*4 / 3 —3 + 1.5/3 operation.\*

g = 1 + 12/ 3-3 + 1.5 /3 operation: /

g =1 + 4 —3 + 1.5/ 3 operation: /

g=1+4\_3+0.5 operation: +

g = 5-3 + 0.5 operation: -

g = 2 + 0.5 operation: +

g =2.5

1. on = ink \* act / 2 + 3 / 2 \* act + 2 tig ;

(ink = 3, act = 2, tig = 3.2, assume on to be an int) *Answer:*

*on =3\* 2* /2+3/23'2+2 operation: \*

+3.2

on= 6 / 2 +3 /2\*2 +2+ operation: /

3.2

on = 3 + 3/2\*2+2+3.2 operation:1

on=3+1\*2+2+3.2 operation: \*

on = 3+ 2 +2+3.2 operation: +

on = 5 + 2+ 3.2 operation: +

on = 7+ 3.2 operation: +

on = 10

1. s = qui \* add / 4 - 6 / 2 + 2 / 3 \* 6 / god ; (qui = 2, add = 4, god = 3, assume s to be an int) *Answer:*

-s=2\*4/4 —6/2+2/3\* operation:\*

6/3

s=8/4-6/2+2/3\*6/ operation: /

3

s=2-6/2+2/3\*6/3 operation: /

s=2-3+2/3\*6/3 operation: /

s=2-3+0\*6/3 operation:\*

s=2-3+0/3 operation: /

s =2 -3 + 0 operation: -

s = -1 + 0 operation: +

s = -1

[DJ Convert the following equations into corresponding C statements:

*4 Let Us C Solutions*

1. *Z* = 8.8(a ±b)2/c — 0.5 + *70, -r)*

(a + *b)\* (1 / m)*

*Answer:*

Z=((8.8\*(a +b) 2/c)—(0.5+2\*a/(q+r)))/((a+b) (1/m))

1. *X = —b+(b\*b)+*2 — *4ac*

*2a*

*Answer:*

X-=(-b+(b\*b) 2-4'a"c)/(2\*a)

*Chapter 1: Getting Started*

1. Ken Thompson
2. Dennis Ritchie -
3. Peter Norton.
4. Martin Richards

*Answer:*

(2.) Dennis Ritchie

(b) C language has been developed at

1. Microsoft Corp., USA
2. AT & T Bell Labs, USA
3. Borland International, USA
4. IBM, USA

2v + 6.22(c + *d)*

(c) *R = Answer:*

*g + v*

(2) AT & T Bell Labs, USA

(c) C language came into existence in the year

|  |  |
| --- | --- |
|  | 197.1 |
|  | 1957 |
|  | 1972 |
|  | 1983 |

*Answer:*

R=(2\*v+6.22\*(c+d))/(g+v)

[E] What would be the output of the following program segment?

int i = 2, j = 3, k, I ;

float a, *b;* k=i/j\*j; 1=j/i\*i; a=i/j\*j; b=j/i\*i; printf ( "%d %d %f %f", k, I, a, b ) ;

*Output:*

0 2 0.000000 2.000000

*Answer:*

(3) 1972 (d) Cis a

1. Middle level language
2. High level language
3. Low level language
4. None of the above

Pick up the correct alternative for each of the following *Answer:*

questions: *(1)* Middle level language

(a) C language has been developed by (e) C can be used on

|  |  |  |
| --- | --- | --- |
| *6 Let Us C Solutions* |  | *Chapter 1: Getting Started* |
|  |  |
|  |  |  |

1. Only MS-DOS operating system
2. Only Unix operating system
3. Only Xenix operating system
4. All the above

*Answer:*

(4) All the above

(f) C programs are converted into machine language with the help of

1. An interpreter
2. A compiler
3. An operating system
4. None of the above

*Answer:*

(2) A compiler

(g) The real constant in C can be expressed in which of the following forms

1. Fractional form only
2. Exponential form only
3. ASCII form only
4. Both fractional and exponential forms

*Answer:*

(4) Both fractional and exponential forms

(h) A character variable can at a time store

1. 1 character
2. 8 characters
3. 254 characters
4. None of the above

*Answer:*

(1) 1 character

(i) Which of the following is NOT a character constant

1. 'Thank You'
2. 'Enter values of P, N, R'
3. '23.56E-03'
4. All the above

*Answer:*

(4) All the above

(j) The maximum value that an integer constant can have is

|  |  |
| --- | --- |
|  | -32767 |
|  | 32767 |
|  | 1.7014e+38 |
|  | -1.7014e+38 |

*Answer:*

(2) 32767

(k) The maximum width of a C variable narne can be

1. 6 characters
2. 8 characters
3. 10 characters
4. 20 characters

*Answer:*

(2) 8 characters. New C compilers permit upto 32 characters (1) A C variable cannot start with

1. An alphabet
2. A number
3. A special symbol
4. Both (2) & (3) above

*Answer:*

(4) Both (2) & (3) above

|  |  |  |
| --- | --- | --- |
| *8* | *Let Us C Solutions* | *Chapter 1: Getting Started* |
|  |  |

(m) Which of the following statement is wrong

1. riles = 123.56 ;
2. con 'T' \* 'A' ;
3. this = 'T` \* 20 ;
4. 3 + a = b ;

*Answer:*

(4) 3 + a = b ;

(n) Which of the following shows the correct hierarchy of arithmetic operations in C

1. ( ), \*\*, \* or /, + or -
2. ( \*, ±, -
3. ( ), \*\*, /' \*, +, -
4. ( ), / or \*, - or +

*Answer:*

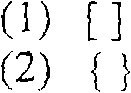
(4) (),/ or\*,- or+

(o) Inb= 6.6 /a+( 2 '''a+( 3 \*c)/a\*d)/( 2 /n); which operation will be performed first?

1. 6.6 / a
2. 2 \* a
3. 3 \* c
4. 2 / n

*Answer:* (3) 3 \* c

(p) Which of the following is allowed in a C Arithmetic instruction



1. ( )
2. None of the above

*Answer:*

(3) 0

(q) Which of the following statements is false

1. Each new C instruction has to be written on a separate line
2. Usually all C statements are entered in small case letters
3. Blank spaces may be inserted between two words in a C statement
4. Blank spaces cannot be inserted within a integer variable

*Answer:*

(1) Each new C instruction has to be written on a separate line

(r) If a is an integer variable, a = 5 / 2 ; will return a value

(I) 2.5

1. 3
2. 2
3. 0

*Answer:*

(2) 2

(s) The expression, a = 7 / 22 \* ( 3.14 + 2 ) \* 3 / 5 ; evaluates to

1. 8,28
2. 6.28
3. 3.14
4. 0

*Answer:*

(4) 0

(t) The expression, a = 30 \* 1000 + 2768: evaluates to

*10 Let Us C Solutions*

*Chapter I: Getting Started I I*

1. 32768
2. -32768
3. 113040
4. 0

*Answer:*

(2) -32768

(u) The expression x = 4 + 2 % -8 evaluates to

1. -6
2. 6
3. 4
4. None of the above

*Answer.*

(2) 6

(v) Hierarchy decides which operator

1. is most important
2. is used first
3. is fastest
4. operates on largest numbers

*Answer:*

(2) is used first

[G] Write C programs for the following:

(a) Ramesh's basic salary is input through the keyboard. His dearness allowance is 40% of basic salary, and house rent allowance is 20% of basic salary. Write a program to calculate his gross salary.

P To calculate the gross salary of Ramesh \*/

*Program:*

#include <stdio.h> #include <conio.h>

main( )

float bp, da, hra, grpay

cIrscr( ) ; /\* Clears Screen \*/

printf ( "\nEnter the Basic Pay of Ramesh : " ) ; scanf ( "%f', &bp ) ;

da = 0.4 \* bp ;

hra = 0.2 \*bp ;

grpay = by + da + hra ; /\* Gross Pay = sum of basic &

all allowances \*/

printf ( "\nBasic Pay of Ramesh = %f', bp ) ; printf ( "\nDearness Allowance = %f", da ) ; printf ( "\nHouse Rent Allowance = %f', hra ) ; printf ( "\nGross Pay of Ramesh is grpay ) ;

printf ( "\n\n\n\n\nPress any key to exit..." ) ; getch( ) ; /\* reads a character from keyboard \*/

}

(a) The distance between two cities (in km.) is input through the keyboard. Write a program to convert and print this distance in meters, feet, inches and centimeters.

*Program..*

/\* Conversion of distance \*/

#include <stdio.h> #include <conio.h>

*Let Us C Solutions Chapter 1: Getting Started 13*

main( )

float km, m , cm, ft, inch ;

clrscr( ) ;

printf ( "\nEnter the distance in Kilometers : " ) ; scanf ( "%V', &km ) ;

m = km \* 1000 ; cm=m\*100;

inch = cm / 2.54 ; ft = inch / 12 ;

printf ( "InDistance in meters = %f', m) ; printf ( "InDistance in centimeter = %f', cm ) ; printf ( "InDistance in feet = %f", ft ) ;

printf ( "lnDistance in inches = %f', inch ) ;

printf ( "In \Mn\nInPress any key to exit..." ) ; getch( ) ;

}

(b) If the marks obtained by a student in five different subjects are input through the keyboard, find out the aggregate marks and percentage marks obtained by the student. Assume that the maximum marks that can be obtained by a student in each subject is 100.

*Program:*

/\* Calculation of aggregate & percentage marks \*I #include <stdio.h>

#inciude <conio.h> \_ main( )

int ml, m2, m3, m4, m5, aggr ; float per ;

cirscr( ) ;

printf ( "InEnter marks in 5 subjects :" ) ;

scanf ( "%d %d %d %d %d", &ml, &m2, &m3, &m4, &m5 ) ;

aggr = m1 + m2 + m3 + m4 + m5 ; per = aggr / 5;

printf ( "InAggregate Marks = %d ", aggr ) ; printf ( "InPercentage Marks = %f", per ) ;

printf ( "\n\rilnIn\nPress any key to exit..." ) ; getch( ) ;

(c) Temperature of a city in fahrenheit degrees is input through the keyboard. Write a program to convert this temperature into centigrade degrees.

*Program..*

I\* Conversion of temperature from Fahrenheit to Centigrade \*/

#include <stdio.h> #include <conio.h>

main( )

float fr, cent ;

*14 Let Us C Solutions Chapter 1: Getting Started 15*

|  |  |
| --- | --- |
| clrscr() ;  printf ( "InEnter the temperature (F) ; " ) ; scanf ( "%f, &fr ) ; | printf ( "InPerimeter of Rectangle = %d ", perimeter) ;  printf ( "InInEnter Radius of circle " ) ; scanf ( "%d", &r ) ; |

cent = 5.0 / 9.0 \* ( fr - 32 ) ;

printf ( "InTemperature in centigrade = %r, cent ) ; area2 = 3.14 \* r \* r ; /\* Area of Circle \*/

circum = 2 \* 3.14 \* r ; /\* Circumference of a circle \*/

printf ( '')n)MnInInPress any key to exit..." ) ;

getch( ) ; printf ( Area of Circle = %f ", area2 ) ;

printf ( "\nCircumference of Circle = %f', circum ) ;

(d) The length & breadth of a rectangle and radius of a circle are input through the keyboard. Write a program to calculate the area & perimeter of the rectangle, and the area & circumference of the circle.

*Program:*

I\* Calculation of perimeter & area of rectangle and circle \*/

#include <stdio.h> #include <conio.h>

main( )

int I, b, r, areal, perimeter ; float area2, circum ;

printf ( "In 1nInInInPress any key to exit..." ) ; getch( ) ;

(e) Two numbers are input through the keyboard into two locations C and D. Write a program to interchange the contents of C and D.

*Program:*

/\* Interchanging of contents of two variables c & d \*/

#include <stdio.h> #include <conio.h>

main( )

clrscr() ; int c, d, e ;

printf ( "InEnter Length & Breadth of Rectangle " ) ;

scanf ( "%d %d", &I, &b ) ; cirscr( ) ;

printf ( "\nEnter the number at location C: " ) ; areal = I \* b ; /\* Area of a rectangle \*/ scanf ( "%d", &c ) ;

perimeter = 2 \*I + 2 \* b ; /\* Perimeter of a rectangle \*/

printf ( "\nEnter the number at location D: " ) ; printf ( "InArea of Rectangle = %d ", areal ) ; scanf ( "%cr, &d ) ;