



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

PEPERIKSAAN AKHIR SEMESTER II SESI 2008/2009

NAMA MATA PELAJARAN : PENGATURCARAAN KOMPUTER
KOD MATA PELAJARAN : BTI 1022
KURSUS : 2 BDD, 3 BDD, 4 BDD
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JANGKA MASA : 2 JAM 30 MINIT
ARAHAN : JAWAB SEMUA SOALAN.

KERTAS SOALAN INI MENGANDUNGI LIMA BELAS (15) MUKA SURAT

SECTION A

Instruction: State whether the following statements are **TRUE** or **FALSE**.

Q1 The following code should print the values 1 to 10.

```
n=1;
while (n < 10)
    printf("%d", n++);
```

Q2 A statement `char selection = 'yes'` is both a declaration and a definition.

Q3 C considers the variables `today` and `Today` to be identical.

Q4 The default case is required in the `switch` selection statement.

Q5 A variable that is known only within the function in which it is defined is called local variable.

Q6 The arithmetic operator `*`, `/`, `%`, `+` and `-` all have same level of precedence.

Q7 Function prototype informs the compiler that the program has function definition.

Q8 The `break` statement is required in the default case of a `switch` selection statement.

Q9 Function `printf` always begins printing at the beginning of a new line.

Q10 An expression containing the `||` operator is true if either or both of its operand is true.

(10 marks)

SECTION BInstruction: Answer **ALL** questions.**Q11** Fix the errors for each of the statement below:

(a) `x = 1;`
`while (x <= 1);`
`x++;`
`}`

(1 mark)

(b) `switch (num){`
`case 1 :`
`printf("\nThe number is 1");`
`case 2 :`
`printf("\nThe number is 2");`
`brake`
`default ;`
`printf("\nThe number is not 1 or 2");`
`}`

(3 marks)

(c) `int sum(int x, int y)`
`{`
`int result;`
`result = x - y;`
`}`

(2 marks)

(d) `scanf ("%2f", value);`
`printf ("%f," &value);`

(2 marks)

(e) `if (d < 1);`
`printf("D is less than 1\n");`

(1 mark)

(f) `if (d => 1)`
`printf("D is equal to or greater than 1\n");`

(1 mark)

Q12 State the output for the following segment code:

(a) `int a = 10, b = 12;`
`a += (b -= 2);`
`printf ("%d %d", a, b);`

(2 marks)

(b) `int counter = 4, a = 5, b = -7, c;`
`c = a * ++counter - b;`
`printf("%d %d", counter, c);`

(2 marks)

(c) `int p = 5;`
`int q = 10;`
`int r = 10;`
`while (p > 0)`
`{`
`printf("\n%d %d", ++q, r--);`
`--p;`
`}`

(5 marks)

(d) Given `int i = 4, j = 10, k;` `float p = 0.005, q = 0.01, r;`

Use the values originally assigned to the variables for each expression.

- (i) `i += 2`
- (ii) `p * = 2`
- (iii) `i % = j`
- (iv) `i + = (j-2)`
- (v) `k = p + q`
- (vi) `k = p = r`

(12 marks)

Q13 Write a C statement to accomplish each of the following:

(a) Assign the sum of `x` and `y` to `z` and increment the value of `x` by 1 after calculation.

(2 marks)

(b) Print the value 111.2222 with 2 digits of precision.

(2 marks)

(c) Define the variable `total` and `y` to be of type `int`.

(2 marks)

- (d) Test if the value of the variable `count` is greater than 5. If it is, print "Count is greater than 5."
(3 marks)
- (e) Print "The product is" followed by the value of the integer variable `result`.
(3 marks)

Q14 State the output of the following programs segment:

- (a) `printf ("*\n**\n***\n****\n*****\n*****\n");`
(3 marks)

- (b) `int x = 3, y = 5, z = 2;`
`x *= y + z;`
`y /= 2 * z + 1;`
`z += x;`
`printf ("x = %d, y = %d, z = %d", x, y, z);`
(3 marks)

- (c) `void change(int);`
`int changel(int);`

`void main()`
`{`
`int a=5;`
`int b;`
`printf("Before calling change : a=%d\n",a);`
`change(a);`
`printf("After calling change : a=%d\n",a);`
`b= changel(a);`
`printf("After changel : a=%d b=%d\n",a,b);`
`getch();`
`}`
`void change(int a)`
`{`
`a = 2*a;`
`}`
`int changel(int b)`
`{`
`int a;`
`a= 4;`
`b= a + b;`
`return(b);`
`}`
(4 marks)

(d)

```
int i, j=10;
for (i=1; i<=4; ++i)
{
    printf("%d %d\n",i,j);
    j-=2;
}
```

(4 marks)

Q15 Convert the following for statements into equivalent while statements.

```
for ( count=0; count < 5; count++) {
    if (count % 2)
        printf("%d is odd",count);
}
printf("Count = %d ",count);
```

(5 marks)

Q16 Draw the flowchart for each of the following situation:

(a)

```
if (y < 15.0)
    if (y >= 0.0)
        x = 5 * y;
    else
        x = 2 * y;
else
    x = 3 * y;
```

(4 marks)

(b) Print weekly paychecks for a list of employees. The following data are to be entered interactively for each employee: ID, hours worked, and hourly pay rate. An ID of zero indicates the end of the data.

(4 marks)

SECTION C

Instruction: Answer **ALL** questions.

Q17 Write a program that display the following menu in **Figure Q17**:

```

*****
                        GEOMETRY CALCULATOR
*****
1. Calculate the area of a Circle
2. Calculate the area of a Rectangle
3. Calculate the area of a Triangle
4. Quit

Enter your choice (1-4): 1

Enter the circle's radius: 7

The area is 153.94

```

Figure Q17

If the user enters 1, the program should ask for the radius of the circle and then display its area. Use value 3.14159 for π . If the user enters 2, the program should ask for the length and width of the rectangle, and then display the rectangle's area. If the user enters 3, the program should ask for the length of the triangle's base and its height, and then display its area. If the user enters 4, the program should end. Display an error message if the user enters a number outside the range of 1 through 4 when selecting an item from the menu. The program should only accept positive number otherwise display error message.

(20 marks)

BAHAGIAN A

Arahan: Nyatakan sama ada pernyataan berikut **BENAR** atau **PALSU**.

- S1 Kod segmen berikut akan mencetak nilai 1 hingga 10.
- ```
n=1;
while (n < 10)
 printf("%d", n++);
```
- S2 Pernyataan `char selection = 'yes'` melibatkan pentakrifan jenis data dan pernyataan nilai.
- S3 C menganggap pembolehubah `today` dan `Today` adalah sama.
- S4 Pernyataan `default` adalah perlu di dalam pernyataan pilihan `switch`.
- S5 Pembolehubah yang hanya dikenali di dalam fungsi di mana ia ditakrifkan dikenali sebagai pembolehubah setempat.
- S6 Operator aritmetik `*`, `/`, `%`, `+` dan `-` mempunyai sama tahap keutamaan.
- S7 Prototaip fungsi memberitahu pengkompil bahawa aturcara tersebut mempunyai takrifan fungsi.
- S8 Pernyataan `break` adalah perlu dalam `default` bagi pernyataan pilihan `switch`.
- S9 Fungsi `printf` selalu memulakan cetakan pada permulaan baris baru.

- S10** Ungkapan yang mengandung operator  $\vee$  adalah benar jika salah satu atau kedua-dua operannya adalah benar.

(10 markah)

**BAHAGIAN B**Arahan : Jawab **SEMUA** soalan.**S11** Kenalpasti dan perbetulkan kesalahan bagi setiap keratan program di bawah:

(a) `x = 1;`  
`while (x <= 1);`  
`x++;`  
`}`

(1 markah)

(b) `switch (num) {`  
`case 1 :`  
`printf("\nThe number is 1");`  
`case 2 :`  
`printf("\nThe number is 2");`  
`brake`  
`default :`  
`printf("\nThe number is not 1 or 2");`  
`}`

(3 markah)

(c) `int sum(int x, int y)`  
`{`  
`int result;`  
`result = x + y;`  
`}`

(2 markah)

(d) `scanf ("%1.2f", value);`  
`printf ("%1f," &value);`

(2 markah)

(e) `if ( d < 1);`  
`printf("D is less than 1\n");`

(1 markah)

(f) `if (d => 1)`  
`printf("D is equal to or greater than 1\n");`

(1 markah)

**S12** Nyatakan output untuk setiap pernyataan di bawah:

(a) `int a = 10, b = 12;`  
`a += (b -= 2);`  
`printf("%d %d", a, b);`

(2 markah)

(b) `int counter = 4, a = 5, b = -7, c;`  
`c = a * ++counter - b;`  
`printf("%d %d", counter, c);`

(2 markah)

(c) `int p = 5;`  
`int q = 10;`  
`int r = 10;`  
`while (p > 0)`  
`{`  
`printf("\n%d %d", ++q, r--);`  
`--p;`  
`}`

(5 markah)

(d) Diberi `int i = 4, j = 10, k;` `float p = 0.005, q = 0.01, r;`

Gunakan nilai asal pembolehubah untuk setiap ungkapan.

- (i) `i += 2`
- (ii) `p *= 2`
- (iii) `i % = j`
- (iv) `i += (j-2)`
- (v) `k = p + q`
- (vi) `k = p * r`

(12 markah)

**S13** Tulis pernyataan C yang boleh melaksanakan arahan berikut:

(a) Berikan hasil tambah `x` dan `y` kepada `z` dan tambahkan nilai `x` sebanyak 1 selepas pengiraan.

(2 markah)

(b) Cetak nilai 111.2222 dengan 2 titik perpuluhan.

(2 markah)

(c) Isytiharkan pembolehubah `total` dan `y` dari jenis `int`.

(2 markah)

- (d) Uji sama ada nilai pembolehubah `count` adalah lebih besar dari 5. Jika ya, cetak "Count is greater than 5."  
(3 markah)
- (e) Cetak "The product is" diikuti dengan nilai integer bagi pembolehubah `result`.  
(3 markah)

S14 Nyatakan output bagi setiap keratan program berikut:

- (a) 

```
printf ("*\n**\n***\n****\n*****\n*****\n");
```

  
(3 markah)

- (b) 

```
int x = 3, y = 5, z = 2;
x *= y + z;
y /= 2 * z + 1;
z += x;
printf ("x = %d, y = %d, z = %d", x, y, z);
```

  
(3 markah)

- (c) 

```
void change(int);
int changel(int);

void main();
{
 int a=5;
 int b;
 printf("Before calling change : a=%d\n",a);
 change(a);
 printf("After calling change : a=%d\n",a);
 b= changel(a);
 printf("After changel : a=%d b=%d\n",a,b);
 getch();
}

void change(int a)
{
 a= 2*a;
}

int changel(int b)
{
 int a;
 a= 4;
 b= a + b;
 return(b);
}
```

  
(4 markah)

(d) 

```
int i, j=10;
for (i=1; i<=4; ++i)
{
 printf("%d %d\n",i,j);
 j-=2;
}
```

(4 markah)

S15 Tukarkan pernyataan `for` berikut kepada pernyataan `while` yang berpadanan.

```
for (count=0; count < 5; count++) {
 if (count % 2)
 printf("%d is odd",count);
}
printf("Count = %d ",count);
```

(5 markah)

S16 Lakarkan carta alir bagi setiap situasi berikut:

(a) 

```
if (y < 15.0)
 if (y >= 0.0)
 x = 5 * y;
 else
 x = 2 * y;
else
 x = 3 * y;
```

(4 markah)

(b) Cetak cek gaji mingguan untuk satu senarai pekerja-pekerja. Data berikut boleh dimasukkan secara interaktif untuk setiap seorang pekerja: ID, jam bekerja, dan kadar gaji menurut jam. ID sifar menunjukkan berakhirnya data.

(4 markah)

**BAHAGIAN C**Arahan: Jawab **SEMUA** soalan.

- S17** Tuliskan satu aturcara yang dapat memaparkan menu seperti dalam **Rajah S17** berikut:

```

 GEOMETRY CALCULATOR

1. Calculate the area of a Circle
2. Calculate the area of a Rectangle
3. Calculate the area of a Triangle
4. Quit

Enter your choice (1-4): 1

Enter the circle's radius: 7

The area is 153.94

```

**Rajah S17**

Jika pengguna itu memasuki 1, aturcara sepatutnya bertanya nilai jejari bagi bulatan dan kemudian mempamerkan kawasannya. Nilai  $\pi$  yang digunakan ialah 3.14159. Jika pengguna itu memasuki 2, aturcara sepatutnya bertanya untuk kepanjangan dan kelebaran bagi segiempat tepat, dan kemudian memaparkan kawasan segiempat tepat. Jika pengguna itu memasuki 3, aturcara sepatutnya bertanya untuk kepanjangan tapak segi tiga itu dan ketinggianannya, dan kemudian memaparkan kawasannya. Jika pengguna itu memasuki 4, aturcara harus ditamatkan. Paparkan satu mesej ralat jika pengguna itu memasuki satu jumlah di luar julat 1 hingga 4 semasa pemilihan daripada menu. Aturcara hanya menerima nombor positif, jika tidak mesej ralat akan dipaparkan.

(20 markah)