Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2018/2019

COURSE NAME	:	COMPUTER PROGRAMMING
COURSE CODE	:	BDA 24202
PROGRAMME CODE	:	BDD
EXAMINATION DATE	:	JUNE/JULY 2019
DURATION	:	2 HOURS
INSTRUCTION	:	ANSWERS **FOUR (4)** QUESTIONS ONLY

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THIS QUESTION PAPER CONSISTS OF **SEVEN (7)** PAGES

Q1 a) Evaluate and determine the outputs for following statements:

```
#include<stdio.h>
#include<math.h>
#define A 3+2
#define B(c) c*A+c
int main()
{
float a=1.2,b=2.4,c=3.3,g,h,i,j,k;
int d=5,e=4,f=3.8,m;

g=pow(sqrt(c-a/sqrt(b)*a)*a,b);
h=a=b+=A*b;
h=B(A)/A%d;
i=f%d+(int) (d/(b+a))%d+sizeof (d+e);
j-= (float)(a/f/A)+ A%(f%2) - (float)f/e-2/A;
k=(g>i)?(a<b):(a>b);
k+=a+(a+=b,b/a+c,k-b/a);

printf("%0.2f\n%0.2f\n%0.2f\n%0.2f\n%0.2f\n",g,h,i,j,k);}
```

(10 marks)

b) Write a C program to display ALL prime numbers that existed from 100 to 200. Next, obtain the sum of all prime numbers.

(10 marks)

Q2 a) Write a program that read the values of x and print the value of y. y is defined by:

$$y = \begin{cases} \sqrt{|\sin x|} + 5x, \ if \ x < 0 \\ 2\log 2x - e^x, \ if \ 0 \leq x < 2 \\ 2^x - 1, \ if \ x \geq 2 \end{cases}$$

(10 marks)

b) Write a program that able to calculate sum of n terms in the following series:

$$1 - \frac{1}{2^2} + \frac{1}{3^2} - \frac{1}{4^2} + \frac{1}{5^2} - \frac{1}{6^2} + \frac{1}{7^2} - \cdots + \frac{1}{n^2}$$

(10 marks)

Q3 a) Write a program to calculate f(x) value. Given, x+=x-10 and y=y++. Display the output in three decimals.

$$f(x) = \frac{x^3 - 2(xy)^2 + x - 6.9}{\sqrt[3]{x} + 0.2y - 5.21 + e^x} + |x|$$

(10 marks)

b) Write the output after execution of the C codes below:

```
#include<stdio.h>
#include<math.h>
int main()
{
    int t=6, u=7, v=8, w=9, x=5, a=3,b=5, c=6, d=7;
    int i, h, j, k,f;
    float m=5.0,n=2.0;

    t=v=w=x;
    t+=x*w;
    v+=x/u;
    w%=u+3;
    t=(w>v)? x+=3:x-=4;
    printf("t=%d u=%d v=%d w=%d x=%d", t, u, v, w, x);
    f=m/n+t/(u-t)-(u%t);
    h=sizeof m+sizeof a+t;
    printf("\nf=%d h=%d", f, h);
    printf("\nj=%d",(a>b)&&(c<a));
    printf("\nk=%d",(d%b<c)||(c*a<=d));
    printf("\nl=%d",!((b-c)==(d-c)));

return 0;
}
```

(10 marks)

Outputs:

t =	f=
u =	h=
v=	j=
w=	k=
x =	l =

Q4 a) Write a C program to enter the electricity unit charges and calculate the total electricity bill according to the given condition:

For first 50 units RM 0.20/unit For next 100 units RM 0.25/unit For next 100 units RM 0.35/unit For unit above 250 RM 0.50/unit An additional surcharge of 10% is added to the bill.

(10 marks)

b) Determine the output of the following statement:

```
#include<stdio.h>
int main()
{
float a=1, c=3,*q;
int i, b=0;
float x[3][3]={1,2,3,4,5,6,7,8,9};
float y[3]={2,4,6};
q=y+2;
for(i=0;i<3;i++)
   {a=a+x[i][b];
   y[i]=y[i]+b;
   b++;
   }
for(i=0; i<3;i++)
   {c=c+y[i];
   }

printf("x[1][2]=%0.2f\n", x[1][2]);
printf("a=%0.2f\n", a/3/a);
printf("c=%0.2f\n", x[1][1]/c+(-a));
printf("b=%d\n", b);
printf("*q=%0.2f\n", *q/a/c);

return 0;
}
```

Outputs:

x[1][2]=	a=
c=	b=
*q=	

(10 marks)

Q5 a) Explain why below statements are invalid:

```
i)    scanf("%d%d",&i,j);
ii)   scan("%d%d",&I,&j);
iii)  scanf("%d%d",&i,&j)
iv)   int 1_formula;
v)    printf("%d d",i,j);
vi)   print("y=%d z=%d",i,j);
vii)  #include <studio.h>
viii) for(x=0;y<5,y++)
ix)   #define A=10
x)    #define N 5.3;
```

(5 marks)

b) Given **Figure 5(a),** draw the corresponding flow chart to classify the weather when a temperature is inserted. (e.g. when 4°C is inserted, the output will show 20% low & 80% medium temperature- refer to Figure 5(a)). Next, based on the developed flow chart, develop a programming codes to classify the temperature.

(15 marks)

-END OF QUESTIONS-

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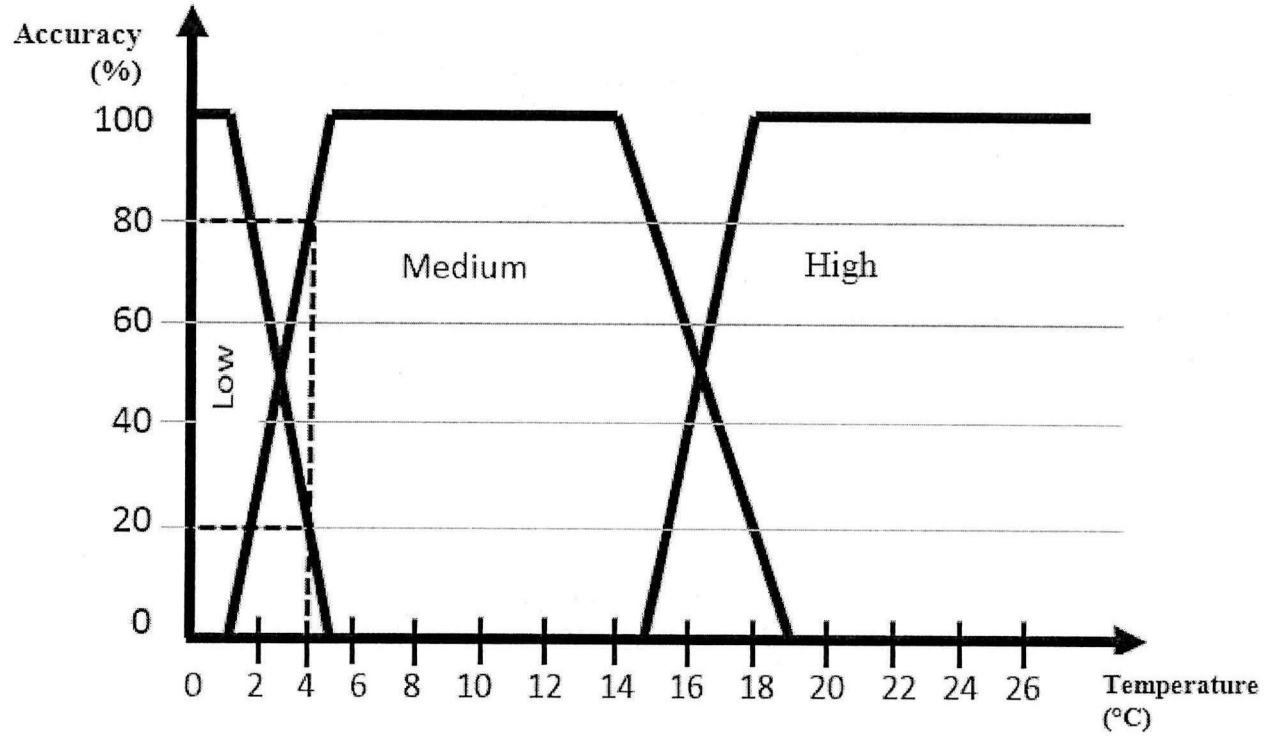

Figure 5(a)