



This exam measures the following ILOs: [a1,a2,a3,a4,b1,b7,c1,c4]

Question [1] (35 marks)

[a] Determine the errors of the following program (make a table for errors and correct it as shown):

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| # | Code | ✓ or X | Error | Correction |
|----|--|--------|-------|------------|
| 1 | #include <graphic.h> | | | |
| 2 | #include <dos> | | | |
| 3 | #include <stdio.h> | | | |
| 4 | #include <conio.h> | | | |
| 5 | #inclide <math.h> | | | |
| 6 | void computer(int,int,int); | | | |
| 7 | int x,y,c | | | |
| 8 | void mian() | | | |
| 9 | { | | | |
| 10 | int c; | | | |
| 11 | flout x,y; | | | |
| 12 | int driver = DETECT, mode; | | | |
| 13 | initgraph(&driver,&mod,"\\borlandc\\bgi"); | | | |
| 14 | four(x=50;x<560;x+=2) | | | |
| 15 | { | | | |
| 16 | y=30*sin(x*10*7/22); | | | |
| 17 | computer(x,y+200,15) | | | |
| 18 | circl(x,y+200,0.5); | | | |
| 19 | delay(25; | | | |
| 20 | computer(x,y+200,0); | | | |
| 21 | } | | | |
| 22 | computer(x,y+200,15); | | | |
| 23 | getch; | | | |
| 24 | closegraph(); | | | |
| 25 | } | | | |
| 26 | void computer(int x,int y,int c); | | | |
| 27 | { | | | |
| 28 | setcolour(c); | | | |
| 29 | rectangle(x,y,x+40,y+30); | | | |
| 30 | rectangle(x+5,y+5,x+35,y+25); | | | |
| 31 | rectangle(x,y+35,x+40,y+45); | | | |
| 32 | rectangle(x+25,y+38,x+35,y+40); | | | |
| 33 | rectangl(x+15,y+31,x+25,y+34); | | | |
| 34 | } | | | |

T. Melhat



[b] Write a C program that design Analog and digital clock at the computer screen.

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[c] What is the output of the following program?

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```
#include<stdio.h>
#include<graphics.h>
#include<dos.h>
#include<conio.h>
#include<stdlib.h>
void main()
{
int i , gd = DETECT , gm;
initgraph(&gd , &gm , "");
filfillipse(320,240,40,30);
ellipse(320,240,0,360,60,40);
ellipse(320,240,0,360,90,50);
ellipse(320,240,0,360,110,60);
ellipse(320,240,0,360,130,70);
ellipse(320,240,0,360,150,80);
ellipse(320,240,0,360,170,90);
ellipse(320,240,0,360,190,100);
ellipse(320,240,0,360,210,110);
ellipse(320,240,0,360,230,120);
filfillipse(380,240,3,3);
filfillipse(320,330,5,5);
filfillipse(320,290,5,5);
filfillipse(430,240,5,5);
filfillipse(470,240,10,10);
filfillipse(510,240,3,3);
filfillipse(190,240,5,5);
filfillipse(320,150,5,5);
filfillipse(90,240,3,3);
getch();
closegraph();
}
```

Question [2] (40 marks)

أجب عن هذا السؤال بالورقة المخصصة لذلك والموجودة في نهاية ورقة الإجابة

• **Write True (T) or False (F) for the following sentences:**

- 1) The following code: `hidmouse()`; has no error.
- 2) In Arduino Uno, The number of analog input is 12.
- 3) In Arduino Uno, The number of digital I/O is 10.
- 4) Arduino Uno can measure the distance by using Ultrasonic sensor.
- 5) Dc motor drive used for control of the speed of DC Motors.



- 6) The origin point is placed at the left corner at the down of the Computer screen.
- 7) Computer screen is divided vertically into 460 pixels.
- 8) Computer screen is divided horizontally into 640 pixels.
- 9) You can read the value of the constant variable and you can change it.
- 10) Arduino provides IDE Environment.
- 11) The function: **Serial.Begin(115200);** has no errors.
- 12) The following function: **printf("%d",&x);** prints the address of x.
- 13) **sprintf(m,"%d",y);** prints the value of y into array m.
- 14) **drawpoly(n,p);** p is the array of the coordinates of vertices.
- 15) The following code: **SetTextStyle(1,2,2);** has one error.
- 16) The following code: **setfillstyle(1;GREEN);** has 2 errors.
- 17) The following code: **FloodFill(320,240,WHITE);** has no error.
- 18) The following code: **setcolour(BLUE);** has no error.
- 19) The following code: **outtext("C++");** has no error.
- 20) The following code: **Closegraph();** has 2 errors.
- 21) The following code: **ellips(0, 200, 0, 360, 100, 50);** has one error.
- 22) The following code: **digitalWrit(IN4, LOW); dely(500);** has 3 errors.
- 23) Arduino Uno can be used for Traffic Light by using 3 DC Motors.
- 24) The screen is cleared by using the following function: **cleardevice();**
- 25) Constants can not be changed by the program.
- 26) A pointer is a variables that holds a memory location.
- 27) Computer memory (RAM) is usually organized in group of bytes called words.
- 28) With NodeMcu or ESP8266, you can design a project of smart home.
- 29) **gets_arabic(350,20,p,4,15,10,0,"e:\\font_2\\15");** has one error.
- 30) In the function: **settextstyle(a,b,c);** b means text color.
- 31) **setstyle(w,s);** w refers to the style color.
- 32) **fillpoly(n,p);** is used to draw a filled polygon figure.
- 33) **fillellipse(a,b,c,d);** b refers to y-radius.
- 34) **drawpoly(n,p);** n is the number of vertices.



- 35) From Arduino Uno, You can get to 15v as a power supply.
- 36) The following code: `initgraph(&gd, gm, "C:\\TC\\BGI");` has no errors.
- 37) The following code: `rectangle(5, 5, 460, 600);` has no errors.
- 38) The following code: `outtextxy(25;240;"KFS");` has one error.
- 39) The following code: `Setcolor(BLUE);` has no error.
- 40) The following code: `getmouse(b,x,y);` has 3 errors.

• **Select the suitable answer of the following:**

- 41) The output of the following code: `circle(640,0,240);` is
a) ellipse b) half of circle c) quarter of circle d) circle
- 42) The number of errors in the following Code: `PinMode(IN3,OUTPUT);`
a) 1 b) 2 c) 3 d) 5
- 43) The number of errors in the following Code: `digitalWrite(IN2, LOW);`
a) 2 b) Zero c) 5 d) 7
- 44) Number of error in the following code is: `print("How are you?\n")`
a) 2 b) Zero c) 1 d) Otherwise
- 45) In the function: `lcd.begin(16, 2);` 2 is the number of
a) Rows b) Columns c) Pins d) Lcd
- 46) The following code: `line(0,100,640,100); line(0,200,640,200);` draw two lines
a) intersected b) parallel c) perpendicular d) Otherwise
- 47) The following code: `line(100,100,200,200); line(100,200,200,100);` draw two lines
a) spiral b) parallel c) perpendicular d) Otherwise
- 48) The output of the following code: `rectangle(100,100,200,200);` is a
a) rectangle b) square c) bar d) circle
- 49) The output of the following code: `bar(100,100,300,300);` is a bar with length
a) 300 pixels b)) 150 pixels c) 200 pixels d) 100 pixels
- 50) The output of the following code: `arc(320,240,0,180,50);` is an arc with radius
a) 320 pixels b) 240 pixels c) 180 pixels d) 50 pixels
- 51) The output of: `ellipse(320,240,0,360,120,120);` is a circle with diagonal
a) 120 pixels b) 320 pixels c) 240 pixels d) 60 pixels



- 52) Why is IPv6 preferred over IPv4 for IoT implementations?
- a) Larger addressing range b) More security
c) Both of the above d) Neither a or b
- 53) Internet of Things (IoT) can be integrated with which of these separate domains:
- a) Cloud-based storage and computing. b) Cyber Physical Systems.
c) Big-data networks. d) All of these.
- 54) The following code: `setfillstyle(1;GREEN);` has
- a) zero error b) One error c) 2 errors d) 3 errors
- 55) The following code: `SetTextStyle(1,2,2);` has
- a) One error b) 2 errors c) zero error d) 3 errors
- 56) The number of errors in the following Code: `pinmode(IN3,OUTput);`
- a) Zero b) 2 c) 3 d) 5
- 57) The number of errors in the following Code: `Digitalwrite(IN2, Low);`
- a) 2 b) Zero c) 5 d) 7
- 58) The number of errors in the following Code: `analogWrite(ENB,100)`
- a) 3 b) 1 c) 2 d) Zero
- 59) In Arduino Uno board: Which pin has a built-in LED?
- a) Pin A0 b) Pin 15 c) Pin 7 d) Pin 13
- 60) How many arguments does the function `pinMode` need to have??
- a) 4 b) 2 c) 3 d) 1
- 61) In Arduino: What does IDE stand for?
- a) Integrated Development Environment b) Internet Data Exchange
c) Identifier Extension d) Otherwise
- 62) What voltage does the Arduino operate at?
- a) 50 volts b) 35 volts c) 5 volts d) 75 volts
- 63) Number of error in the following code is: `scanf("%d", n);`
- a) 1 b) Zero c) 2 d) Otherwise
- 64) The number of errors in the following Code: `AnalogWrite(A3,100);`
- a) 3 b) 1 c) 2 d) Zero
- 65) In Arduino Uno board: the output voltage can be:
- a) 15v b) 25v c) 5v or 15v d) 3.3v or 5v
- 66) Number of error in the following code is: `fillpoy(n,p);`
- a) 1 b) Zero c) 2 d) Otherwise



- 67) How many arguments does the function **analogWrite** need to have??
a) 4 b) 2 c) 3 d) 1
- 68) Number of error in the following code is: **sprintf(msg,"%d %d",x,y)**
a) 2 b) Zero c) 1 d) Otherwise
- 69) The following code: **drawpoly(3,p);** has
a) 3 errors b) 2 errors c) 1 error d) No errors
- 70) Number of error in the following code is: **Setmouse(x,y);**
a) 1 b) Zero c) 2 d) Otherwise
- 71) The following code: **limitmous(100, 100,200,200);** has
a) 3 errors b) 2 errors c) 1 error d) No errors
- 72) Number of error in the following code is: **showmouse();**
a) Zero b) 2 c) 1 d) Otherwise
- 73) A program written with the IDE for Arduino is called:
a) IDE source b) Sketch c) Cryptography d) Source code
- 74) Arduino IDE consists of 2 functions. What are they?
a) build() and loop() b) setup() and build()
c) setup() and loop() d) arduino() and graphics()
- 75) The function: **Serial.println(x);** is used to print the value of x into:
a) paper b) Bluetooth c) Ultrasonic d) serial monitor
- 76) In the function: **lcd.begin(16, 2);** 16 is the number of
a) rows b) columns c) pins d) lcd
- 77) In the function: **circle(x,y,z);** z is
a) radius b) diameter c) angle d) length
- 78) The output of: **circle(100,100,50); circle(175,100,50);** is two circle
a) ○ ○ b) ○○ c) ⊖ ⊖ d) ⊙
- 79) The following code: **outtextxy(100,100,"KFS");** has
a) one error b) no errors c) 2 errors d) 4 errors
- 80) The output of the following code: **line(0,0,60,80);** is a line with length
a) 20 pixels b) 50 pixels c) 100 pixels d) 150 pixels

Good luck: Dr. Eng.: Famer Medhat

T. Medhat