Course Title	Engineering Physics (I)	Final Exam	Course Code	BAS041
Date	9-1-2019	No. of Pages (3)	Allowed time	3 Hours

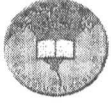| **Question Number (1)**		10 Marks
A	In **Fig. 1**, Q=10 nC, Find the electric field at point a.	2 Marks
B	A sphere of radius **10 cm** is immersed in an electric field of **200 N/C** as shown in **figure 2**. Find the electric flux penetrates the surface of this sphere.	2 Marks
C	A charge Q= **5.8 µC** is located at the center of a regular tetrahedron (a **four sided triangular surface**) as in **Figure 3**, **Find (a)** the total electric flux through the tetrahedron and **(b)** the electric flux through one face of the tetrahedron.	2 Marks
D	A sphere made of copper of radius **R = 10** cm has a total positive charge **Q = 10 nC** distributed uniformly over its surface. Find the electric field at point fare **5 and 15 cm** from the center of the sphere.	2 Marks
E	In **Fig.4**, Q_1= **5 nC** and Q_2= **-2 nC**. Calculate the electric potential at point a. Calculate also the work done to bring a charge of **3 nC** from infinity to point a.	2 Marks

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.
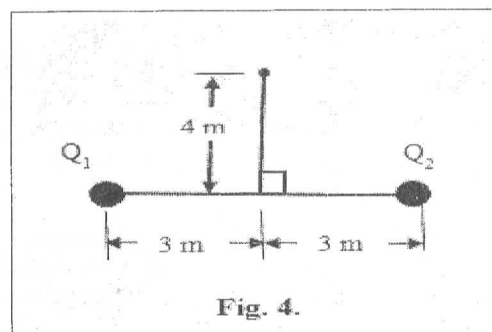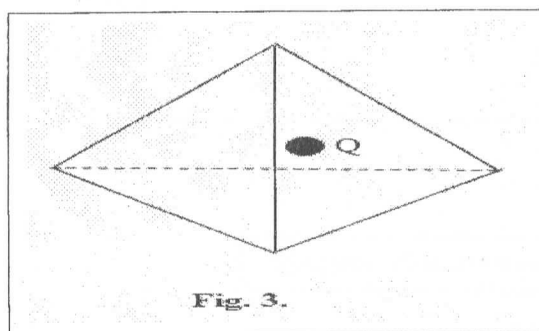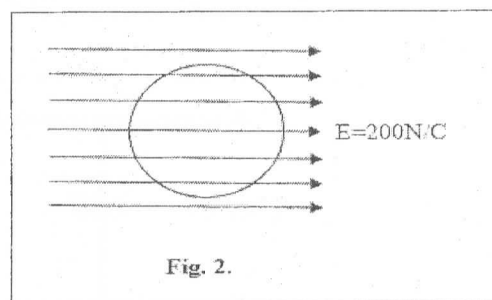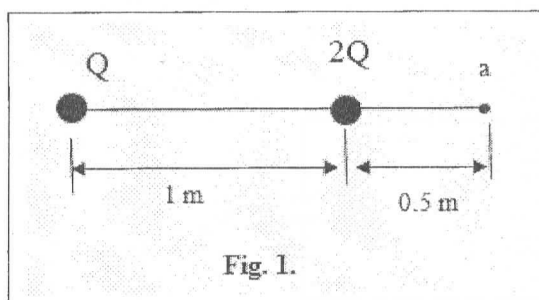
Please see Question 2 in the next page
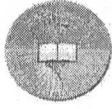
| Question Number (2)		10 Marks
A	The electric potential in a certain region is given by: $V = 4x^2 yz - 8xy^2 + 6xyz^2$ (volt), find the electric potential and electric field at $(1, 1, 1)$, where all distances are in meters.	2 Marks
B	If you were asked to design a capacitor in which small size and large capacitance were required, what would be the two most important factors in your design? (your answer should not exceed fifty words)	2 Marks
C	A parallel-plate capacitor has an area $A = 2 \times 10^{-4}$ m^2 and a plate separation $d = 10^{-3}$ m. (a) Find its capacitance. (b) How much charge is on the positive plate if the capacitor is connected to a **3 V** battery?	2 Marks
D	In **Fig. 5**, $C_1 = 16$, $C_2 = 60$, $C_3 = 40$ and $C_4 = 10$ μF, **a)** Find the equivalent capacitance of this configuration. **b)** Calculate the potential difference across each capacitor and the charge on each capacitor. Calculate also the energy stored in each capacitor.	4 Marks

$$F = \frac{kq_1 q_2}{r^2}, E = \frac{kq}{r^2}, \varphi = \oint \vec{E}.\overrightarrow{dA} = \frac{\sum q_{in}}{\epsilon_0}, V = \frac{kq}{r}, E_s = -\frac{\delta V}{\delta s}, C = \frac{Q}{V},$$

$$C = \epsilon_o \frac{A}{d}, \quad C = k\epsilon_o \frac{A}{d}, \quad \epsilon_o = 8.85 \times 10^{-12} \ C^2/N \ m^2$$

Fig. 5

200 V

C_1

C_2

C_3

C_4

| Question Number (3)		20 Marks
A	Using the dimensional analysis, find the correlation between the periodic time (T) of the fork and the length of the fork (l), the density of the fork substance(ρ) and the coefficient of elasticity of its substance (Y).Note that **coefficient of elasticity has the same dimension of pressure.**	4 Marks
B	An object has mass **m=10 g,** connected to spring has K=10³ N.m⁻¹, Oscillates with simple harmonic motion along the x axis. Its position varies with time according to the equation $$x(t) = 5\cos\left(2\pi t + \frac{\pi}{2}\right)\ cm$$ Where t is in seconds and the angles in the parentheses are in radians. **Determine: (1)** Frequency **(2)** Position of object at t= 0.5 sec **(3)** Velocity of the object at position x= 2 cm **(4)** Kinetic energy and Potential energy when the velocity of the object equal to its half maximum.	4 Marks
C	The gravitational force exerted on a solid object is **10 N**. When the object is suspended from a spring scale and submerged in water, the scale reads **5 N**. Find the density of the object. $\rho_{water} = 10^3$ kg.m⁻³.	4 Marks
D	Using aid of drawing and equations drive **Bernoulli's Equation** for an ideal fluid.	4 Marks
E	In the Venturi meter of Figure, air of density $\rho_{air} =1.3$ kg/m³ flows from left to right through a horizontal pipe of radius $r_1 =1.5$ cm that necks down to $r_2 =0.5$ cm. The U-shaped tube of the meter contains mercury of density $\rho_{mer} =13.6\times10^3$ kg/m³. If the mercury-level difference h between the two arms h=2 cm. Find the speed of the air entering the meter.	4 Marks
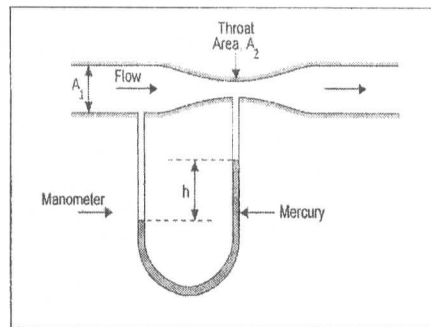
End of questions .... Best Wishes

Dr.Saleh Shalaby   *Dr.Ayman Rabie*
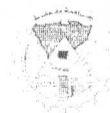
Course Title	Calculus (1)	Final Exam	Course Code	BAS021
Date	5/1/2019	No. of Pages 2	Allowed time	3 hrs

Question Number (1)   (12 Points)

a) Find domain, rang and discuss the properties of the function $y = \sqrt{|x|-1}$.   **(3 point)**

b) Draw a graph for the function $y = \tan x$, and determine its domain and range. Then discuss some of its properties.   **(4 point)**

c) Evaluate the following limits   **(5 Point)**

- $\lim\limits_{x \to \infty}(\dfrac{x}{1+x})^{3x}$.

- $\lim\limits_{n \to \infty}(1 + \dfrac{2}{n})^{n}$

Question Number (2)   (12 Points)

a) Find the nth derivative for the function $y = x^3 e^{ax}$. Then at a=1 find $y^{(30)}$.   **(3 Point)**

b) Prove that $\tanh^{-1}(x) = \dfrac{1}{2}\ln\dfrac{(1+x)}{(1-x)}$ **(3 Point)**

c) Find Maclurine expansion for the function $f(x) = \ln(1+x)$. Then find $\ln(1.5)$ and the error.   **(3 Point)**

d) Find Maclurine expansion for the function $f(x) = (1+x)^n$. Then find $\sqrt[3]{127}$ and the error.   **(3 Point)**

Question Number (3)   (16 Points)

a) By using L'Hospital's rule find   **(5 Point)**

- $\lim\limits_{x \to \frac{\pi}{2}}(\tan x)^{\cos x}$.

- $\lim\limits_{x \to \frac{\pi}{2}}(\sec x - \tan x)$.

b) Find the first derivative $\dfrac{dy}{dx}$ of the following function

1) $\dfrac{\tanh(x)}{\sqrt{x^2 + e^x}} + \ln(x^{2y}) + \sec^{-1}(\sec(\sinh^{-1} 5x)) = 0$ **(3 point)**
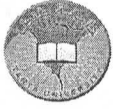
2) $x^{\sin y} + y^{\cos x} = 5$ (3 Point)

c) Find the nth derivative for the function $y = \sin(ax + b)$. Then at a=1, and b=0 find $y^{(25)}$. (4 Point)

End of questions .... Best Wishes

Dr. Ashraf Al-Mahallay

| Course Title	تاريخ الهندسة والتكنولوجيا	Final Exam	Allowed time	2 hours
Date	12/1/2019		No. of Pages	2

السؤال الأول: (١٠درجه)

أ‌- **(يسعى الانسان منذ عصور ما قبل التاريخ لكي يحقق حاجته الى السكن والمأوى)** اذكر اسباب الحاجه الى المأوي مع استعراض مالمقصود بهرم الأحتياجات الإنسانية لابراهام ماسلو مستعينا بالرسومات إن أمكن.

ب‌- اذكر كيف استطاع المصمم تحقيق التحكم فى الاضاءه فى العماره المصريه القديمه مع توضيح الاجابه بالرسومات.

السؤال الثانى: اكمل ما يلى (١٠درجه)

١- الأبراج المرتفعة ....

٢- العماره هى ....

٣- اهم ما تتسم به العمارة الاغريقية طابعها المميز بطرزها الثلاثه ....،............

٤- الطرز المستخدمه فى الاعمده للعمارة الاغريقيه هى ....و..................و............

٥- شيدت المعابد فى عماره ....عادة على قاعدة تتكون من ثلاث درجات .

٦- يعتبر الساحه من المكونات الهامه للمعبد المصرى وهو ....

٧- انواع المبانى فى العماره المصريه القديمه يمكن تقسيمها الى ....،...............،............

٨- ساعد العامل .... فى العماره الاغريقيه على ممارسة أوجه النشاط المختلفة فى الهواء الطلق مثل مبانى إدارات الأعمال ، القضاء ومن هنا نشأ الاهتمام بالمباني العامة وليس بالمعابد .

٩- الزيجورات ينتمى لحضاره ....وهو مبنى ....

١٠- المصاطب هى ....

١١- تنقسم انواع المعابد فى الحضاره المصريه القديمه الى معابد ....،...........

١٢- الاسوار كانت تستخدم فى ....

١٣- انواع المبانى المختلفه داخل المدينه ....،..............،............

١٤- من المكونات الاساسيه للمعبد المصرى القديم ....،.............،...........

١٥- تم استخدام الاسقف المائله مغطاه بالقرميد أو البلاط وذلك لتغطيه الاسقف فى المعابد و المبانى فى ....

١٦- كانت الحوائط مستقيمه سميكه من اسفل واقل سمك كلما ارتفعت لاعلى ويوجد بها فتحات صغيره فى المبانى ....

١٧- من انواع المبانى الرياضيه والتى اشتهرت بها العماره الاغريقيه ....

١٨- من الشروط الواجب توافرها فى المعابد العماره المصريه القديمه طبقا للعقيده الدينيه............

١٩- تتكون الاسقف من بلاطات ضخمه من الحجر محمله على اعتاب ترتكز على الاعمده من سمات الاسقف فى العماره ....

٢٠- عرف الصرح بانه ....
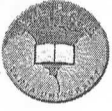
السؤال الثالث: (٨ درجات)

أ- أنتشر أستخدام المسامير القلاووظ في الوصلات المعدنية بديلاً عن مسامير البرشام، ناقش هذه العبارة.

ب- أشرح بإختصار تأثير الثورة الصناعية علي الهندسة المدنية وكذلك دور الهندسة المدنية في الثورة الصناعية.

ج- اذكر اول من أستخدم الأسمنت وأذكر الأسم الأول للأسمنت فـ العصر القديم

د- أختلفت أنواع الطوب في العصر الحديث لتناسب الأحتياجات المختلفة للأنسان، وضح ما المقصود بهذه العبارة.

السؤال الرابع: (٨ درجات)

أ- ظهر في الوقت الحالي أنواع مختلفة من الخرسانة مختلفة الخواص ..أذكر بعض هذه الأنواع موضحاً هذا التطور.

ب- تطورت النظم الانشائية من نظام الحوائط الحاملة إلى النظام الهيكلي... وضح أسباب هذا التطور موضحاً عيوب ومزايا كل نظام.

ج- أشرح تطور وسائل أنتاج الطاقة الكهربائية وصولاً للطرق المستخدمة حالياً.

د- اشرح بإختصار تطور المواد المستخدمة في الهندسة الميكانيكية عبر التاريخ.

السؤال الخامس: ضع علامة (√) او (X) (٤ درجات)

١- يقوم المهندس المعماري بالتصميم فقط بينما يقتصر دور المهندس المدني بالاشراف علي التنفيذ ( )

٢- من احد عيوب الطوب الاسمنتي المفرغ وزنه الكبير ( )

٣- تتكون الخرسانة العادية من اسمنت وماء فقط ( )

٤- من مزايا الخرسانة العادية المقاومة العالية للشد ( )

٥- من النظم الحديثة المستخدمة حديثا في البناء هي الحوائط الحاما ( )

٦- يرجع اسم الاسمنت البورتلاندي الى اسم مكتشفه ( )

٧- يعتبر الحديد المقاوم للصدأ (stainless steel) من اقدم المواد المستخدمة في الهندسة الانشائية ( )

٨- يعتبر اول من اكتشف الطوب هم الرومان ( )

نهاية الاسئلة ....

د/ بني عبد الله   د/أحمد محمود الحديدي
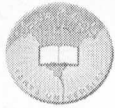
Course Title	Mechanics (1)	Final Exam	Course Code	BAS031
Date	16 Jan. 2019	No. of Pages 2	Allowed time	3 Hrs.

Question Number (1)   (16Points)

a) The frame shown in Fig. (1) supports part
   of the roof of a small building. Knowing
   that the tension in the cable DF is 150 kN,
   determine the reaction at the fixed end E.

   (6Point)

Fig.(1)
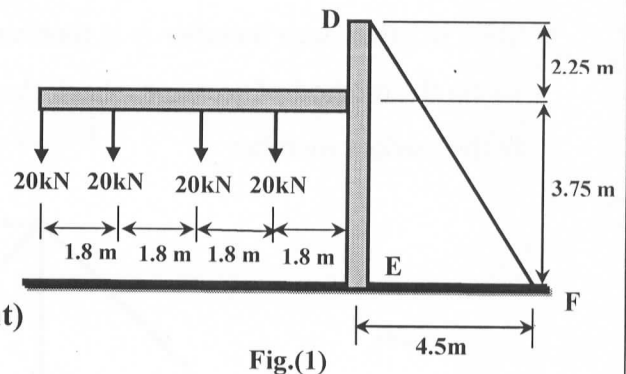
b) The simple beam shown in Fig.(2) is in equilibrium.
   Find the reactions at supports A and B.   **(4Point)**

Fig.(2)
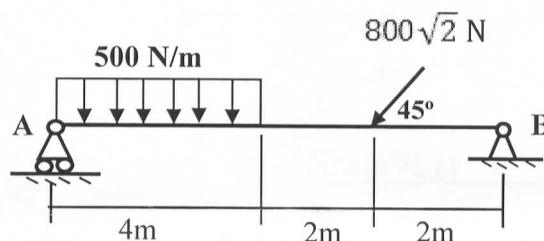
c) Reduce the system of forces shown in Fig. (3)
    to a wrench and calculate its Pitch. Knowing
    that OA=4m, OB=5m, OC=3m, F_1=500 N,
    $F_2 = 800$ N, $F_3 = 800\sqrt{2}$ N .   **(6Point)**

Fig.(3)
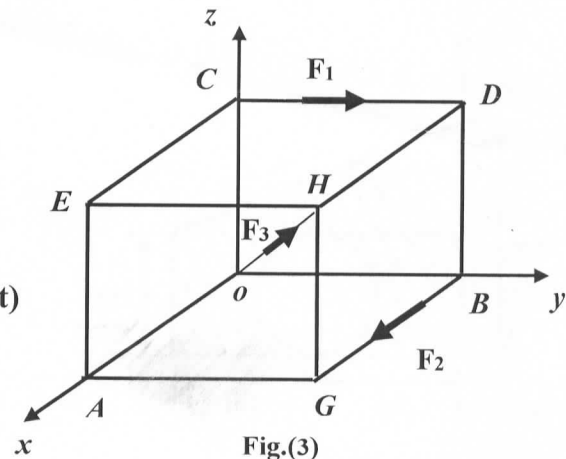
Question Number (2)   (12Points)

For the equilibrium truss shown in Fig.(4);

- Check the rigidity of the truss.

- Determine the force in each member of the truss.

- State whether each member is in tension or compression.

- Using the method of sections, check the force

  in the marked member ✓

Fig.(4)

Question Number (3)   (12Points)

Locate the centre of area of the plane-shaded area shown in Figs. (5-a) and (5-b).

Fig.(5-a)

Fig.(5-b)

End of questions .... Best Wishes

Dr. Yasser Gamiel
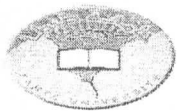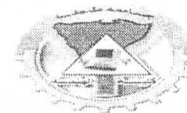
Course Title	English	Final Exam	Course Code	
Date	/1/2019	No. of Pages:	Allowed time	2hrs

I- Read the following passage and answer the questions: (15 marks)

A) ....

Tsunamis are caused by earthquakes under the ocean, or they can also be caused by a landslide or a volcano erupting. A large quantity of water is pushed to the surface of the ocean, creating waves. In the deep ocean theses waves are small, but they get bigger and more dangerous as they get closer to the coast because the ocean is less deep there. The tsunami in South Asia in 2004 destroyed a large number of coastal towns and villages and about a quarter of a million people were killed.

B)...

A drought is caused by not enough rainfall, and of course we can't control the weather- not yet, anyway. Droughts often happen because all the trees have been cut down in a particular area. This means the rainwater evaporates because it isn't held in the ground by the trees. So part of the solution is to plant more trees. In North Africa, tens of millions of trees are going to be planted in the next decade, which may help to reduce the number of droughts in the region.

C) ....

If this happens, the sea level will rise around the world and a lot of towns and cities on the coast will be flooded. This is a frightening thought because over half the world's population live near the coast and many of these places will be destroyed.

D)...

It is still not possible to make an accurate prediction of the place, time and strength of an earthquake. However, it is possible to predict which places are going to be hit by an earthquake sometime in the future. A recent report identified the five most likely places for future earthquakes as the Caribbean, Chile, Indonesia, Japan and North America.

E)...

Yes, it is. The world's temperature has been measured accurately for about 150 years and it shows that on average it has increased by about 1.5 C. Also, eight of the ten hottest years have been recorded in the last two decades, which is very good evidence that this increase in temperature is being caused by man-made climate change.

A) Match the following questions (1-5) to paragraphs (A-E):
1- Can people predict where and when earthquakes will happen?
2- What can we do to help prevent droughts?
3- What causes a tsunami?
4- Is the earth really getting warmer?
5- What will happen if the North and South Poles melt?

B) 1-Why do tsunamis get stronger near the coast?

2-Why does cutting down trees cause draughts?

3-What percentage of the world's population live on or near the coast?

4-Which parts of the world are more likely to be hit by earthquakes?

5-What evidence is there for global warming?

II-Rewrite the following sentences correcting all errors: (15 marks)

1-You suppose call the office before 2 pm.

2-John doesn't take critical of his work very well.

3-I have only a little Christmas cards left to write.

4-Mary requests that someone to write the data by Fax.

5-Renaldo sends e-mail messages to other often.

6-We gave our waterbed to friends we didn't want anymore.

7-"Unobey" is the negative of "obey".

8- I can't work in so much stressful conditions.

9-Have you made any exercises this week?

10- Unless Tony doesn't get here in the next ten minutes, we will go without him.

11-How long has he been having that car?

12-She is working for the company since July.

13-I need finding somewhere to live.

14-The guide led Sara and Carmen to the campsite themselves.

15-What he put on You-Tube last month?

III-Rewrite the following paragraph correcting all errors: (10 marks)

The average American diet are loaded with fat and cholesterol, but there is many ways to reduce fat and caloric intake and get shaped up. First, those who are watching their diet has to eat foods that is low in fat and cholesterol. Eating at fast-food places or ordering a pizza raise one's cholesterol count. On the other hand, eating oatmeal, green leafy vegetables, and potatoes are healthy. There is many companies that labels their products "light" or "free." By substituting high-cholesterol foods with these low-cholesterol ones, people can reduce their cholesterol intake. Another way to get shaped up is to develop an exercise plan. People should start off slowly and gradually increase the amount of time that they exercised. Anyone who has took the time to pay attention to his body's needs will be rewarded with a longer life. These basic steps will quickly get anyone shaped up and feeling great!

Best Wishes,

Dr. Waleed Samir

Tanta University
Faculty of Engineering
Construction Engineering Program

Course Title: Environment and Engineering		Course Code: HUM011
Date: 1 January, 2019	Final Term Exam (4BPDT8)	Time allowed: 3 Hours

INSTRUCTIONS:

- The exam consists of 4 questions in 4 pages, answer all questions.
- This is a closed book exam; no external material is permitted.
- Systematic arrangement of calculations and clear neat drawings are essential.
- Any data not given is to be reasonably assumed.
- The total value of the exam is 40 marks + 3 bonus mark; the value of each question is indicated.

Question 1: Choose the correct answer. (0.5 mark each for a total of 19 marks)

1. For demand management, water saving incentives is categorized as
   a. Technical
   b. Structural
   c. Institutional
   d. Economic
   e. Legal

2. .... process by which liquid water passes directly to the vapor phase.
   a. Transpiration
   b. Condensation
   c. Infiltration
   d. Seepage
   e. Evaporation

3. The share of water per capita for all uses in Egypt
   a. above water poverty index
   b. below water scarcity index
   c. below water poverty index
   d. b & c
   e. a & b & c

4. The concept "not enough water of all uses" is
   a. Water challenge
   b. Water scarcity
   c. Water stress
   d. a & b
   e. b & c

5. Confining layer is ....
   a. a high-permeability unit
   b. imaginary surface
   c. a low-permeability unit
   d. artesian aquifer
   e. free aquifer

6. 99% of fresh, unfrozen water on the planet is
   a. surface water
   b. soil moisture
   c. groundwater
   d. streams
   e. liquid water

7. Most plants have openings (.......) on their leaves to allow them to take up carbon dioxide from the atmosphere.
   a. stocata
   b. stomata
   c. storata
   d. stopata
   e. stofata

8. Who is the person that has scientific training and designs and builds complicated products, machines, systems, or structures?
   a. Civil Engineer
   b. Mechanical Engineer
   c. Electrical Engineer
   d. Architecture Engineer
   e. Engineer

9. ...... is not environment
   a. The whole planet
   b. Cheating in a mid-term exam
   c. The forest surrounding the lake
   d. The volcano
   e. The landscape of mountains covered by snow

10. Satellite is an instrument to measure rainfall as ...
    a. spatial measurement
    b. direct measurement
    c. point measurement
    d. a & b
    e. a & c

11. A flowing well when its water rises above the land surface.
    a. Groundwater well
    b. Water well
    c. Pumping well
    d. Artesian well
    e. Non-artesian well

12. The water is embedded both in agricultural and manufactured products
    a. Water for product
    b. Virtual water
    c. Reuse water
    d. a & c
    e. a & b

13. For supply management, land leveling is categorized as
    a. Exploiting New Resources
    b. Enhanced Irrigation Technologies
    c. Water Saving Incentives
    d. Recycling for Efficiency
    e. Reducing Losses

14. The fair allocation and wise use of freshwater resources are significant challenges facing
    a. Arid countries
    b. Low-income countries
    c. Congo
    d. Developing countries
    e. Indonesia

15. The cooperation problem between Egypt and Ethiopia is on the right to use
    a. White Nile
    b. Atbara River
    c. River Nile
    d. Alsobat River
    e. Blue Nile

16. Who said, "Anyone who solves the problem of water deserves two Nobel Prize"?
    a. John Kennedy
    b. Martin Luther King
    c. Mohamed Anwar Alsadat
    d. Gamal Abd-Elnaser
    e. Tamer Gado

17. Integrated water resources management in Egypt has the following principles except:
    a. Supply and Demand Management
    b. Consideration of Social & Environmental Impacts
    c. Private Sector Participation
    d. Population control
    e. Cooperation instead of Competition

18. .... is a non-conventional water resources
    a. Shallow groundwater in the Nile Valley and Delta
    b. Deep groundwater
    c. Rain Harvesting
    d. Desalination
    e. Nile water

19. The water moves from groundwater to river by the physical process of ....
    a. subsurface flow
    b. evaporation
    c. precipitation
    d. runoff
    e. infiltration

20. One of the major challenges facing the national water resources plan is
    a. water saving incentives
    b. enhanced irrigation technologies
    c. crop substitution
    d. low level of awareness
    e. exploiting new resources

21. Unconfined Aquifer has the following characteristics except ....
    a. defined by a water table
    b. very slow movement
    c. partly filled with water
    d. non-artesian aquifer
    e. recharge easily

22. The flow through a porous media when some of the voids are occupied by air.
    a. Saturated flow
    b. Groundwater flow
    c. Overland flow
    d. Surface flow
    e. Subsurface flow

23. Industrial water use includes:
    a. Water as a medium for waste disposal
    b. Cooling water
    c. Water for energy
    d. b & c
    e. a & b & c

24. For high-income countries, water is used by:
    a. Industrial > Agricultural > Domestic
    b. Agricultural > Domestic > Industrial
    c. Agricultural > Industrial > Domestic
    d. Industrial > Domestic > Agriculture
    e. Domestic > Agricultural > Industrial

٢٦. متوسط الإيراد السنوي للنيل عند أسوان خلال القرن العشرين حوالي ..... مليار متر مكعب
a. ٥٤
b. ٦٤
c. ٧٤
d. ٨٤
e. ٩٤

٢٥. مهندس ذو خبرة علمية وعملية تمكنه من القيام بالتصميمات والإشراف على التنفيذ للعمليات الكبيرة والتي تحتاج إلى خبرة وأداء عالي
a. مهندس التصميم
b. مهندس التنفيذ
c. مهندس الإشراف
d. مهندس مدني
e. مهندس استشاري

٢٨. تحتل مساحة بحيرة فيكتوريا مقارنة بمساحات البحيرات العذبة في العالم المركز
a. الأول
b. الثاني
c. الثالث
d. الرابع
e. الخامس

٢٧. من دول حوض نهر النيل
a. نيجيريا
b. زائير
c. مالي
d. تنزانيا
e. غانا

٣٠. أصغر درجات المصارف العامة في مصر
a. الرباحات
b. المصارف الفرعية
c. المصارف الثانوية
d. الزواريق
e. المساقي

٢٩. .... تعتبر مصدر ثانوي للمياه في مصر
a. الأنهار
b. الأمطار
c. المياه الجوفية
d. مياه الصرف
e. ليس ما سبق

٣٢. الهدارات تعتبر من منشآت
a. التحكم
b. التقاطع
c. التخزين
d. الملاحة
e. تصريف الماء الزائد

٣١. من منشآت التقاطع
a. البرخ
b. الأهوسة
c. الهدار
d. القناطر
e. المفيضات

٣٤. المنشآت التي تكون فيها الحوائط هي النظام الإنشائي الذي يقوم بنقل الأحمال هي منشآت
a. الحوائط الحاملة
b. معدنية
c. هيكلية
d. سكنية
e. هيدروليكية

٣٣. تحول نظام الري في مصر بعد انشاء السد العالي إلى نظام الري
a. الحوضي
b. بالغمر
c. المستديم
d. بالرش
e. بالرفع

٣٦. يقوم المهندس المعماري بإعداد الرسومات التالية ما عدا
a. لوحات كهربية
b. لوحات توضح توصيلات المياه والصرف الصحي وتصريف مياه الأمطار بالنسبة للسطح
c. لوحات توضح الواجهات المختلفة للمبنى ومواد وألوان التشطيبات الخارجية
d. لوحة المحاور والأعمدة
e. بيان الفتحات من أبواب وشبابيك ومداخل ومخارج

٣٥. البيئة بمفهومها المعنوي هي ......
a. الكون الذي يحيط بالإنسان ويؤثر فيه ويتأثر به
b. مجموعة من الأنظمة المتشابكة مع بعضها البعض والتي تؤثر في بقاء الكائنات الحية
c. مجموعة العلوم والمعارف التي تتأثر وتؤثر في الكائن الحي
d. مجموعة من الأنظمة المتباعدة عن بعضها والتي لا تؤثر في بقاء الكائنات الحية
e. مجموعة من الأنظمة المتشابكة مع بعضها البعض والتي تؤثر في بقاء الإنسان

٣٨. عربات النقل تعتبر من الأحمال
a. الحية الموزعة
b. الحية المركزية
c. الميتة الموزعة
d. الميتة المركزية
e. ليس ما سبق

٣٧. لا يتضمن تقرير التربة والأساسات
a. نوع وخواص التربة
b. اجهاد الأمان للتربة
c. نوع الأساسات
d. أماكن الأعمدة
e. عمق التأسيس

Question 2: (8 marks)

1. By using neat **sketch only**, define: (4 marks)

   i. The main features of the groundwater system, showing the different types of **aquifers, layers,** and **surfaces**.

   ii. وصف عام لنهر النيل، مبينا رحلة النهر من منابعه إلى مصبه.

2. A lake with a surface area of 525 acres was monitored over a period. During a one-month period the inflow was 30 cfs, the outflow was 27 cfs, and a 1.5 in seepage loss was measured. During the same month, the total precipitation was 4.25 in. Evaporation loss was estimated as 6.0 in. Estimate the storage change for this lake during the month [Note: 1 acre = 43560 ft^2, 1 ft = 12 in, cfs = ft^3/s]. (4 marks)

Question 3: (8 marks)

1. Using a neat sketch, **briefly discuss** the "Oxygen Sag Curve".   (2 Marks)

2. **Compare** between **secondary** and **tertiary** sewage treatment mechanisms.   (1 Marks)

3. **Discuss** an example of a climatic impact and its adaptation work for each of the following Egyptian sectors: **Coastal Areas, Water Resources** and **Irrigation and Agriculture**.   (3 Marks)

4. **List** the different **EIA** preparing methods?   (2 Marks)

Question 4: (8 marks)

The following measurements in Table No. 1, were recorded at some stations in a canal. Calculate the water quality index **(CCME WQI)** for this water body according to the Egyptian water quality standards (objectives) for canals [Law 48/1982 – Article No. 60].

Table No. 1

Station	DO mg/l	TDS mg/l	NH$_4$ mg/l	TP mg/l	pH	Turbidity NTU
1	6.2	290	0.300	0.550	8.254	350
2	NA	400	0.510	0.850	NA	NA
3	3.2	495	0.634	0.900	8.624	490
4	5.4	NA	0.390	0.900	7.906	320
5	6.0	300	0.300	NA	7.850	340
Law 48/82 (Objectives)	> 5	<500	<0.5	< 1.0	7<...<8.5	NA

End of questions, Best Wishes,

Assoc. Prof. Mohamed Elshemy & Ass. Prof. Tamer Gado

Course Title	Information Technology	Final Exam		Course Code	CCE021
Date	21/01/2019	No. of Pages 6		Allowed time	Two hours

الإجابة على جميع الأسئلة فى ورقة التصحيح الالكترونى فقط ولن يلتفت إلى أية إجابات فى كراسة الإجابة

كراسة الإجابة تستخدم فقط كمسودة ولن يتم تصحيحها

Question (1)   (Total 30 Points)

Choose the most appropriate answer:

1. Antivirus software is classified as ....
   a) System software   b) Application software
   c) Programming language   d) None of these

2. Assembly language was started to be used as programming language in ......
   a) fourth generation   b) second generation c) third generation   d) None of these

3. Microprocessor appeared in .... computers.
   a) fourth generation   b) second generation
   c) third generation   d) fifth generation   e) sixth generation

4. .... directs control signals between the CPU and I/O devices.
   a) ALU   b) Operating system
   c) Application software   d) Control unit   e) Memory

5. .... holds data and program instructions temporarily while computer is working.
   a) ROM   b) Hard disk   c) RAM   d) Flash memory   e) All of these

6. R in CD-R refers to ....
   a) Rewritable   b) Reconfigurable   c) Recordable   d) Lazer-Ray   e)All of these

7. All electronic components in the system unit are connected to..........
   a) CPU   b) Memory   c) Motherboard   d) Input Units   e) Output Units

8. A communication device that enables a computer to send and receive data
   a) VGA card.   b) Flash memory   c) Motherboard   d) Modem   e) CPU

9. $(275)_8 = (......)_2 = (........)_{16}$
   a) $(10111110)_2, (BE)_{16}$ b) $(10110101)_2, (B5)_{16}$
   c) $(10111110)_2, (EB)_{16}$ d) $(10111101)_2, (BD)_{16}$ e) None of these

10. $(205)_8 = (......)_{10} = (......)_{16}$
   a) $(205)_{10}, (A2)_{16}$ b) $(133)_{10}, (A2)_{16}$ c) $(128)_{10}, (A2)_{16}$ d) $(133)_{10}, (85)_{16}$

11- One component of the motherboard is ....:
   a) Processor   b) Bios   c) ALU   d) Transistor   e)Expansion card

12- Fixed point arithmetic was used first in .... computers.
   a) fourth generation   b) second generation
   c) first generation   d) third generation   d) None of these

13- What does the abbreviation WWW means?
   a) World Web Wide World Web Wide   b) Wide World Web
   c) Web World Wide   d) World Wide Web

14- Main circuit board in system unit
   a) CPU   b) Memory   c) Motherboard   d) Input Units   e) Output Units

15-The item used for data storage on the internet is called ....
   a) client   b) network   c) server   d) WWW   e)HTTP

16-........is a system of interlinked, hypertext documents accessed via the internet.
   a) FTP   b) network   c) server   d) WWW   e) HTTP

17- IPv6 uses ....
   a) 32-bit address   b) 64-bit address   c) 128-bit address   d) 16-bit address

18-....... asks for transferring web pages contents.
   a) FTP   b) network   c) server   d) WWW   e) HTTP

19- ....maps between the domain name of a host and its IP address.
   a) FTP   b) Web server   c) DNS server   d)Internet browser   c) HTTP

20- Top level domain in http://www.google.com.eg is
   a) www.google   b) com   c) http   d) google   e) com.eg

21-URL stands for ....
   a) Universal region locator   b) Uniform resource locator
   c) Universal resource locator   d) Uniform region locator

22- FTP is ....
   a) Internet browser   b) Internet protocol
   c) Search engine   d) Network   e) Server

23- $(64)_{10} = (...?......)_2$
   a) 110100   b) 1100001   c) 1000000   d) 101010   e) None of these

24- $(110101)_2 = (......?......)_{10}$
   a) 35   b) 62   c) 53   d) None of these

25- The tag used in headers formatting is ....
   a) <P>   b) <H>   c) <OL>   d) <Head>   e) <Header>

26- The tag used for formatting text into bold is ......
   a) <P>   b) <T>   c) <B>   d) <I>   e) <Body>

27- The syntax for creating a normal horizontal line is ....
   a) <hr align="center" size="25" width="80%" color="red" >
   b) <hr align=" center" size="5" width="150" color="red" >
   c) <hr align="left" size="6" width="70" color="red" >
   d) <hr align=" center" size="4" width="100%" color="red" >
   e) <hr align="right" size="20" width="60%" color="red" >

28- ......inline images are allowed to be used in web pages.
   a) PNG   b) GIF   c) PMB   d) TIFF   e)All of these

29- To create this text Computers are *widely* used todays as shown on a web page, write
   a) <P> Computers are *widely* used todays </P>
   b) <P> <I><U> Computers are widely used todays </P> </I></U>
   c) <P> <I>Computers are widely used todays </I> </P>
   d) <P> <U>Computers are <I> widely</I> used todays </P> </U>
   e) <P> <U> <I>Computers are widely used todays </I> </U> </P>

30- ....Stores date, time, and computer's startup information
   a) Operating system   b) Hard disk   c) RAM   d) ROM   e) All of these

31- ....is a software package designed to store, manage and provide access to databases.
   a) Operating System   b) Database Management System   c) Network OS
   d) Binary System   e) Security System

45- There is/are ……… basic logic gate/s that perform/s the basic logical operations
- a) Only one
- b) Two
- c) Three
- d) Four
- e) All the previous

Consider the following truth table where (Q1 to Q5) are outputs for different logic gates with the same inputs (A and B):

Inputs		Outputs				
A	B	Q1	Q2	Q3	Q4	Q5
0	0	0	1	0	1	0
0	1	1	0	0	0	1
1	0	1	0	0	0	1
1	1	0	0	1	1	1

46- Q1 is the output of ……….
- a) AND gate
- b) OR gate
- c) NOR gate
- d) XOR gate
- e) XNOR gate

47- Q2 is the output of ……….
- a) AND gate
- b) OR gate
- c) NOR gate
- d) XOR gate
- e) XNOR gate

48- Q3 is the output of ……….
- a) AND gate
- b) OR gate
- c) NOR gate
- d) XOR gate
- e) XNOR gate

49- Q4 is the output of ……….
- a) AND gate
- b) OR gate
- c) NOR gate
- d) XOR gate
- e) XNOR gate

50- Q5 is the output of ……….
- a) AND gate
- b) OR gate
- c) NOR gate
- d) XOR gate
- e) XNOR gate

51- The logical expression $(A+B)'$ is equivalent to the logic expression
- a) $(A' + B')$
- b) $(A' . B')$
- c) $(A . B)'$
- d) $(A' + B)$
- e) $(A + B')$

52- In the he logical expression $Q = A \oplus B \oplus C$, if A=1, and B=0, then correct values of Q and C are…….
- a) C=0 and Q=0
- b) C=0 and Q=1
- c) C=1 and Q=1

53- The complement of the expression $(A' . B . C') + (A + B)$ is
- a) $(A + B' + C) + (A' . B')$
- b) $(A' + B' + C') (A' . B')$
- c) $(A + B' + C) (A' . B')$
- d) $(A . B . C) (A' + B')$
- e) $(A + B' + C) (A' + B')$

54- In Boolean algebra postulates, A + A = ……………..
- a) 1
- b) 0
- c) A
- d) A'

55- In Boolean algebra postulates, A + A' = ……………
- a) 1
- b) 0
- c) A
- d) A'

32- ……… is the data type which can be used to store video files in a database table.
- a) Number
- b) Hyper Link
- c) OLE Object
- d) Date/Time
- e) AutoNumber

33- ……….is a data type used in Microsoft Access tables to generate an automatically incremented numeric counter
- a) Number
- b) Hyper Link
- c) OLE Object
- d) Date/Time
- e) AutoNumber

34- ……… is an object of Microsoft Access which is used for formatting, calculating, printing and summarizing data.
- a) Table
- b) Form
- c) Relationship
- d) Report
- e) Primary Key

35- In SQL statements, the names of the tables you want to show their data come after ………. keyword.
- a) Select
- b) From
- c) Where
- d) Order by
- e) Group by

36- In SQL statements, the symbol which means that you want to select all columns of the mentioned tables is……….
- a) $
- b) *
- c) #
- d) &
- e) %

37- ……… is made up of one or more fields where duplicate records are not allowed.
- a) Data Type
- b) SQL Query
- c) Microsoft Access
- d) Primary Key
- e) Foreign Key

38- ……… is a network which is designed to operate over a large distance or widely separated locations.
- a) CAN
- b) MAN
- c) WAN
- d) LAN
- e) PAN

39- ………. Is considered as a disadvantage of Peer to Peer networks.
- a) Use less expensive computer hardware
- b) No Network OS required
- c) Easy to administer
- d) Not very secure
- e) More built in redundancy

40- The expensive software and additional computing power can be shared by the computers in a network with the help of ………..
- a) File Server
- b) Database Server
- c) Mail Server
- d) Application Server
- e) Print Server

41- In ………. network topology, cable forms closed loop and data travels from device to device around this loop.
- a) Bus
- b) Ring
- c) Star
- d) Mesh
- e) All the previous

42- …………… network topology is generally used in military areas.
- a) Bus
- b) Ring
- c) Star
- d) Mesh
- e) All the previous

43- In ……… network topology, all devices connect to a central device, called hub
- a) Bus
- b) Ring
- c) Star
- d) Mesh
- e) All the previous

44- Each logic gate has one or more inputs, and ………… output/s
- a) Only one
- b) Only two
- c) One or more
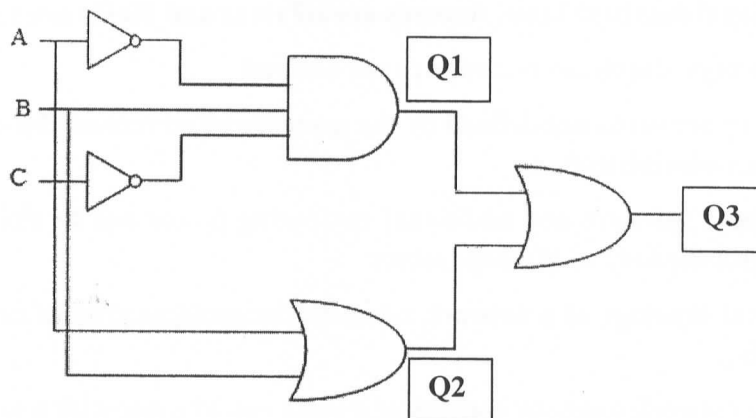- d) Less than three
- e) All the previous

56- In Boolean algebra postulates, A . A = ...
   a) 1   b) 0   c) A   d) A$^\backslash$
57- In Boolean algebra postulates, A . A$^\backslash$ = ...
   a) 1   b) 0   c) A   d) A$^\backslash$

Consider the following logic circuit:

58- The value of Q1 is
   a) A+B$^\backslash$+C   b) A.B$^\backslash$.C   c) A$^\backslash$+B+C$^\backslash$ d) A$^\backslash$.B.C$^\backslash$
59- The value of Q2 is
   a) A+B$^\backslash$ b) A.B$^\backslash$ c) A+B   d) A$^\backslash$+B
60- The value of Q3 is
   a) (A+B).(A$^\backslash$.B.C$^\backslash$)   b) (A+B)+(A$^\backslash$.B.C$^\backslash$)   c) (A.B)+(A$^\backslash$+B+C$^\backslash$)
   d) (A.B).(A$^\backslash$+B+C$^\backslash$)

Question (2)   (Total 10 Points)
State whether each of the following statements are true or false:

1. Deliver time is the amount of time it takes a storage device to locate an item on a storage medium.

2. An optical disk is a high-capacity storage medium and the optical drive uses reflected lazer light to read data.

3. Computer programs and data are often represented (outside the computer) using octal and hexadecimal number systems.

4. EEPROM stands for electronic erasable programmable ROM.

5. Expansion slots enhances system unit and provides connections to computer peripheral devices.

6. External images in web pages are limited to GIF and JPEG formats.

7. HTML is the Standard Generalized Markup Language.

8. Flash memory is a fixed storage disk that you insert and remove from a computer.
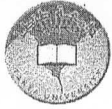
9. Internet was created in 1969.

10. Internet is created to share files/documents and overcome the barrier of different file formats.

11. Data is raw, unorganized facts on the form of text, numbers, …etc.

12. If we were to use files to store data instead of DBMS, it is necessary to write special code for different queries

13. In a relational database table, Records are columns and Fields are rows.

14. In Foreign keys, duplicate records are not allowed

15. Peer to peer networks are defined by the presence of servers on the network that provide security and administration.

16. The expensive software and additional computing power can be shared by the computers in a network with the help of Message server

17. The physical topology of a network refers to the configuration of cables, computers and other peripherals

18. The STAR network topology consists of a main run of cable with a terminator at each end

19. The NOT gate has only one input and one output

20. XOR gate is equivalent to XNOR gate followed by NOT gate

End of questions .... Best Wishes
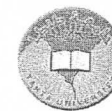
Dr. Mahmoud Alshewimy   Dr. Reda Elbasiony

Course Title	Information Technology	Final Exam	Course Code	CCE021
Date	21/01/2019	No. of Pages 6	Allowed time	Two hours

-الإجابة على جميع الأسئلة فى ورقة التصحيح الالكترونى فقط ولن يلتفت إلى أية إجابات فى كراسة الإجابة
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Question (1)   (Total 30 Points)

Choose the most appropriate answer:

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    a) fourth generation   b) second generation c) third generation   d) None of these

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10. $(205)_8=(......)_{10}=(.......)_{16}$
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    a) client   b) network   c) server   d) WWW   e)HTTP

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    a) 110100   b) 1100001   c) 1000000   d) 101010   e) None of these

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    c) <P> <I>Computers are widely used todays </I> </P>
    d) <P> <U>Computers are <*I*> widely</I> used todays </P> </U>
    e) <P> <U> <I>Computers are widely used todays </I> </U> </P>

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    a) 35   b) 62   c) 53   d) None of these

26- The tag used in headers formatting is ....
    a) <P>   b) <H>   c) <OL>   d) <Head>   e) <Header>

27- The tag used for formatting text into bold is ......
    a) <P>   b) <T>   c) <B>   d) <I>   e) <Body>

28- The syntax for creating a normal horizontal line is ....
    a) <hr align="center" size="25" width="80%" color="red" >
    b) <hr align=" center" size="5" width="150" color="red" >
    c) <hr align="left" size="6" width="70" color="red" >
    d) <hr align=" center" size="4" width="100%" color="red" >
    e) <hr align="right" size="20" width="60%" color="red" >

29- ......inline images are allowed to be used in web pages.
    a) PNG   b) GIF   c) PMB   d) TIFF   e)All of these

30- ....Stores date, time, and computer's startup information
    a) Operating system   b) Hard disk   c) RAM   d) ROM   e) All of these

31-........is a software package designed to store, manage and provide access to databases.
    a) Operating System   b) Database Management System   c) Network OS
    d) Binary System   e) Security System

32- The expensive software and additional computing power can be shared by the computers in a network with the help of ………..
   a) File Server
   b) Database Server
   c) Mail Server
   d) Application Server
   e) Print Server

33- ……… is the data type which can be used to store video files in a database table.
   a) Number
   b) Hyper Link
   c) OLE Object
   d) Date/Time
   e) AutoNumber

34- ……….is a data type used in Microsoft Access tables to generate an automatically incremented numeric counter
   a) Number
   b) Hyper Link
   c) OLE Object
   d) Date/Time
   e) AutoNumber

35- ……… is an object of Microsoft Access which is used for formatting, calculating, printing and summarizing data.
   a) Table
   b) Form
   c) Relationship
   d) Report
   e) Primary Key

36- In SQL statements, the names of the tables you want to show their data come after ………. keyword.
   a) Select
   b) From
   c) Where
   d) Order by
   e) Group by

37- In SQL statements, the symbol which means that you want to select all columns of the mentioned tables is……….
   a) $
   b) *
   c) #
   d) &
   e) %

38- ……… is made up of one or more fields where duplicate records are not allowed.
   a) Data Type
   b) SQL Query
   c) Microsoft Access
   d) Primary Key
   e) Foreign Key

39- ……… is a network which is designed to operate over a large distance or widely separated locations.
   a) CAN
   b) MAN
   c) WAN
   d) LAN
   e) PAN

40- ………. Is considered as a disadvantage of Peer to Peer networks.
   a) Use less expensive computer hardware
   b) No Network OS required
   c) Easy to administer
   d) Not very secure
   e) More built in redundancy

41- Each logic gate has one or more inputs, and ……….. output/s
   a) Only one
   b) Only two
   c) One or more
   d) Less than three
   e) All the previous

42- In ……….. network topology, cable forms closed loop and data travels from device to device around this loop.
   a) Bus
   b) Ring
   c) Star
   d) Mesh
   e) All the previous

43- ……………. network topology is generally used in military areas.
   a) Bus
   b) Ring
   c) Star
   d) Mesh
   e) All the previous

44- In ……… network topology, all devices connect to a central device, called hub
   a) Bus
   b) Ring
   c) Star
   d) Mesh
   e) All the previous
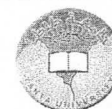
45- There is/are ……… basic logic gate/s that perform/s the basic logical operations
   a) Only one
   b) Two
   c) Three
   d) Four
   e) All the previous

Consider the following truth table where (Q1 to Q5) are outputs for different logic gates with the same inputs (A and B):

Inputs		Outputs				
A	B	Q1	Q2	Q3	Q4	Q5
0	0	1	0	0	1	0
0	1	0	1	1	0	0
1	0	0	1	1	0	0
1	1	0	0	1	1	1

46- Q1 is the output of ……….
   a) AND gate
   b) OR gate
   c) NOR gate
   d) XOR gate
   e) XNOR gate

47- Q2 is the output of ……….
   a) AND gate
   b) OR gate
   c) NOR gate
   d) XOR gate
   e) XNOR gate

48- Q3 is the output of ……….
   a) AND gate
   b) OR gate
   c) NOR gate
   d) XOR gate
   e) XNOR gate

49- Q4 is the output of ……….
   a) AND gate
   b) OR gate
   c) NOR gate
   d) XOR gate
   e) XNOR gate

50- Q5 is the output of ……….
   a) AND gate
   b) OR gate
   c) NOR gate
   d) XOR gate
   e) XNOR gate

51- The complement of the expression $(A' . B . C') + (A + B)$ is
   a) $(A + B' + C) + (A' . B')$
   b) $(A' + B' + C') (A' . B')$
   c) $(A + B' + C) (A' . B')$
   d) $(A . B . C) (A' + B')$
   e) $(A + B' + C) (A' + B')$

52- The logical expression $(A+B)'$ is equivalent to the logic expression
   a) $(A' + B')$
   b) $(A' . B')$
   c) $(A . B)'$
   d) $(A' + B)$
   e) $(A + B')$

53- In the he logical expression $Q = A \oplus B \oplus C$, if A=1, and B=0, then correct values of Q and C are…….
   a) C=0 and Q=0
   b) C=0 and Q=1
   c) C=1 and Q=1

54- In Boolean algebra postulates, A + A = ……………..
   a) 1
   b) 0
   c) A
   d) A'

55- In Boolean algebra postulates, A + A' = ……………..
   a) 1
   b) 0
   c) A
   d) A'

56- In Boolean algebra postulates, A . A = ...

    a) 1   b) 0   c) A   d) $A^{\backslash}$

57- In Boolean algebra postulates, A . $A^{\backslash}$ = ...

    a) 1   b) 0   c) A   d) $A^{\backslash}$

Consider the following logic circuit:

58- The value of Q1 is

    a) $A+B^{\backslash}+C$ b) $A.B^{\backslash}.C$ c) $A^{\backslash}.B.C^{\backslash}$ d) $A^{\backslash}+B+C^{\backslash}$

59- The value of Q2 is

    a) $A+B^{\backslash}$ b) $A+B$ c) $A^{\backslash}+B$ d) $A.B^{\backslash}$

60- The value of Q3 is

    a) $(A+B).(A^{\backslash}.B.C^{\backslash})$ b) $(A+B)+(A^{\backslash}.B.C^{\backslash})$ c) $(A.B)+(A^{\backslash}+B+C^{\backslash})$

    d) $(A.B).(A^{\backslash}+B+C^{\backslash})$

Question (2)   (Total 10 Points)

State whether each of the following statements are true or false:

1. Expansion slots enhances system unit and provides connections to computer peripheral devices.

2. Deliver time is the amount of time it takes a storage device to locate an item on a storage medium.

3. An optical disk is a high-capacity storage medium and the optical drive uses reflected lazer light to read data.

4. Computer programs and data are often represented (outside the computer) using octal and hexadecimal number systems.

5. EEPROM stands for electronic erasable programmable ROM.

6. Internet is created to share files/documents and overcome the barrier of different file formats.

7. External images in web pages are limited to GIF and JPEG formats.

8. HTML is the Standard Generalized Markup Language.

9. Flash memory is a fixed storage disk that you insert and remove from a computer.

10. Internet was created in 1969.

11. Peer to peer networks are defined by the presence of servers on the network that provide security and administration.

12. Data is raw, unorganized facts on the form of text, numbers, …etc.

13. If we were to use files to store data instead of DBMS, it is necessary to write special code for different queries

14. In a relational database table, Records are columns and Fields are rows.

15. In Foreign keys, duplicate records are not allowed

16. The NOT gate has only one input and one output

17. The expensive software and additional computing power can be shared by the computers in a network with the help of Message server

18. The physical topology of a network refers to the configuration of cables, computers and other peripherals

19. The STAR network topology consists of a main run of cable with a terminator at each end

20. XOR gate is equivalent to XNOR gate followed by NOT gate

End of questions .... Best Wishes

Dr. Mahmoud Alshewimy　　　　　　*Dr. Reda Elbasiony*