College of Agricultural Information Technology
Anand Agricultural University, Anand – 388 110

Third Semester B. Tech. (AIT) – Semester End Supp. Examination (Theory)

Subject : (AIT 308) Database Management System(2+1)  
Date : 15.06.2013  
Mark : 50  
Note : Figures to the right indicate full marks.  
Time : 10.00 to 12.00 Hrs.

Q.1  Answer the following
1  Find the error from the given query:
   ALTER TABLE emp CONSTRAINT SALCHECK (SAL !>50000)  
   a) Schedule  b) Transaction  c) Query  d) none of the above  
2  A collection of operations that performs a single logic function is called (Select correct answer)
   a) Schedule  b) Transaction  c) Query  d) none of the above  
3  Write a query to take backup of a table.  
4  An entity set that does not have a primary key is referred to as a weak entity set. (Justify with reasons)
5  List data types used in SQL server.  
6  What do you mean by the given figure? Explain.

Q.2  Answer the following
1  List Aggregate Functions(give only the name).  
2  Consider following figure. List all entities and relationships with their attributes.

   customer-number  customer-city  access-date  balance  account-number  depositor  customer

   social-security  customer-street

3  Write a query to change salary of Emp-Id 3 from 3000 to 7000.

   Emp_Id  Emp_Name  Salary
   1  ABC  1000
   2  PQR  5000
   3  XYZ  3000

4  Give one example of view with query. (Take your own example)
5  Explain each ACID property in detail.
6  Consider following figure and write a note on concept.
Q.3 Answer the following
1. Give a note on weak entity set with figure.
2. Draw only overall system structure of DBMS.
3. How student's attendance table is useful to student's exam mark's table?
4. Perform LEFT JOIN on the given tables and give the output also:

<table>
<thead>
<tr>
<th>P_Id</th>
<th>LastName</th>
<th>FirstName</th>
<th>Address</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hansen</td>
<td>Ola</td>
<td>Timoteivn 10</td>
<td>Sandnes</td>
</tr>
<tr>
<td>2</td>
<td>Svendson</td>
<td>Tove</td>
<td>Borgyn 23</td>
<td>Sandnes</td>
</tr>
<tr>
<td>3</td>
<td>Pettersen</td>
<td>Kari</td>
<td>Storgt 20</td>
<td>Stavanger</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>O_Id</th>
<th>OrderNo</th>
<th>P_Id</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>77895</td>
<td>3</td>
</tr>
<tr>
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<td>3</td>
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<tr>
<td>3</td>
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<td>1</td>
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<tr>
<td>4</td>
<td>24562</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>34764</td>
<td>15</td>
</tr>
</tbody>
</table>

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Q.I (A) Give True or False

1. Evolution is a type of miracle.
2. Water is not a true biomolecules.
3. Protein has lowest molecular weight among biomolecules.
4. 20 amino acids are found repeatedly in structure of protein.
5. Agricultural biotechnology is a combination of Genetic Engineering and Plant tissue culture.
6. Gregor John Mendel (1822-1884) is called as father of genetics.
7. Population of the different species differing markedly from each other is characterized as race.
8. Geographically separated population called allopatric population.
9. Glycogen is a short term energy storage form in animal and fungal cell.
10. Enzyme is made up of protein.

Q.I (B) What is Biomolecules? Give classification of biomolecules and functions of carbohydrate and protein.

Q.II (A) Definition or Explain following (Any Seven)

1. Molecular farming
2. Central dogma
3. PGRs
4. Eukaryotes
5. Apoenzyme
6. Anabolism
7. Genome
8. Mitosis
9. cDNA Library

Q.II (B) What is Biology? Which are 10 levels of organization in the hierarchy of life?

Q.III (A) Give answer for following (Any Four)

1. What do you understand by Lock and Key hypothesis
2. How do biotechnology helpful to reduce cost of cultivation?
3. What is evolution? List out different theories related to it
4. List out plant growth regulators required in tissue culture laboratory.
5. What is plant perception? List out senses in plants and describe about any one.

Q.III (B) What is microbe? Give its types and properties. OR
What is tissue culture? Give steps involves in tissue culture and its applications.

Q.IV What is Agricultural Biotechnology? Give application of its in agriculture.

Best of Luck
Q-1 Attempt any Five

1. Explain front end phases of compiler.
2. Explain Kleen Star Closure and Plus Operation with example.
3. Explain NFA and DFA with example.
6. Explain memory management and target program.

Q-2 Attempt any Seven

1. Draw Language Processing System.
2. List out qualities of a compiler.
3. Explain Left most derivation with example.
4. Write a note on Parse tree.
5. Define Lexemes and Pattern with example.
6. Explain Transition Graph.
7. Explain bottom up parsing with example.
8. What is ambiguity? How to remove ambiguity.

Q-3 Draw a DFA and NFA for following regular expression

1. \(a(a+b)^*b\)
2. \((x+y)^*xy\)

Q-4 Do as directed.

1. What is Ambiguous Grammar?
2. What is Compiler?
3. What is interpreter?
4. Write a regular expression of Language that starting and ending letter are same and only allowed ‘a’ and ‘b’ alphabets.
5. ____________ is first generation programming languages.
6. Alphabets denoted by __________
7. ____________ and ____________ are syntax analyzer tools.
8. ____________ is postfix notation of \((a - b)^* c + d\).
9. The terminal symbols can only occur on the right hand side of context free rules.(true/false)
10. Syntax analyzer is also known as scanning.(true/false)
Q. 1  Do as directed

(1) If \( y = \sin(2x - 11) \), then find \( y' \).

(2) If \( y = e^{-3x} \), then find \( y'' \).

(3) If \( z = \cos\left(\frac{2x}{3}\right) \), then find \( z'_x \).

(4) The equation \( u_{xx} + u_{yy} = 0 \) is known as _________ equation.
   (a) Laplace  (b) Wave  (c) Heat  (d) None of these.

(5) Rate of Change in velocity is ________.
   (a) Constant  (b) displacement  (c) acceleration  (d) zero.

(6) If \( z = 2x^2y + x^3e^y \), then find \( z_{x,y} \).

(7) The length of the arc of the curve \( y = f(x) \) from \( x = a \) to \( x = b \) is given by......
   (a) \( \int \sqrt{1 + (\frac{dy}{dx})^2} \, dx \)
   (b) \( \int \sqrt{x^2 + (\frac{dy}{dx})^2} \, dx \)
   (c) \( \int \sqrt{y^2 + (\frac{dy}{dx})^2} \, dx \)
   (d) None of these

(8) The area bounded by a curve \( y = f(x) \), the x-axis and the ordinates \( x = a \) and \( x = b \)
   is given by......
   (a) \( \int f(x) \, dx \)
   (b) \( \int y' \, dx \)
   (c) \( \int \sqrt{1 + y'^2} \, dx \)
   (d) None of these

(9) The volume of a solid generated by the revolution of the area bounded by a curve \( y = f(x) \), the x-axis and the abscissae \( x = c \) and \( x = d \) about x-axis is given by....
   (a) \( \pi \int y^2 \, dx \)
   (b) \( \pi \int x^2 \, dy \)
   (c) \( \pi \int y^2 \, dx \)
   (d) \( 2\pi \int y \, dx \)

(10) Define: (a) Unit vector  (b) Orthogonal vectors.

(11) If \( \vec{a} = 6i - 4j + 6k \), then \( |\vec{a}| = ........... \)
   (a) 24  (b) \( \sqrt{24} \)  (c) \( \sqrt{55} \)  (d) 3

(12) Find \( x, y \) if \( (x - y, 3) = (7, x+y) \).

(13) Find \( (u + v) \cdot w \) for \( u = (-5, 1, -1), v = (0, -9, 11), w = (2, 3, -4) \).

(14) Give geometric interpretation of dot product of two vectors.
Q. 2 Attempt any Two
(a) Verify Lagrange Mean Value theorem for \( f(x) = \sin x \) in the interval \([0, 2\pi] \).
(b) If \( u = \frac{x y^3 + x^3 y^2}{x^2 + 3y} \), then prove that \( x u_x + y u_y = 3u \).
(c) Investigate the maximum and minimum value of \( f(x) = x^3 - 4x^2 + 4x + 5 \).

Q. 3 Attempt any Three
(a) Find length of the arc of parabola \( y^2 = 4ax \) cut off by its latus-rectum.
(b) Find the length of the arc of the curve \( y = \log(\cos x) \) from \( x = 0 \) to \( x = \frac{\pi}{4} \).
(c) Find the length of the arc of cardioid \( r = a(1 - \cos \theta) \) from \( \theta = 0 \) to \( \theta = \pi \).
(d) Find the surface area of the solid formed by revolving the cardioid \( r = a(1 + \cos \theta) \) about the initial line.
(e) Find the volume of solid generated by revolving the cardioid \( r = a(1 + \cos \theta) \) about the x-axis of the loop of the curve \( 2av^2 = x(x-a)^2 \).

Q. 4 Attempt any Two
(a) If \( \overrightarrow{a} = 3i + 4j - 5k \), \( \overrightarrow{b} = -i - 7j + 2k \) and \( \overrightarrow{c} = j - 5k \) then find (i) \( \overrightarrow{a} \times \overrightarrow{c} \)
(ii) \( (\overrightarrow{a} + \overrightarrow{b}) \cdot (\overrightarrow{b} + \overrightarrow{c}) \) (iii) angle between \( \overrightarrow{b} \) and \( \overrightarrow{c} \).
(b) Give geometric interpretation of cross product of two vectors and find the area of a parallelogram whose adjacent sides are \( 2i-j+k \) and \( \overrightarrow{b} = 3i + 4j - k \).
(c) If \( \overrightarrow{a} = i + 4j - k \), \( \overrightarrow{b} = -i - 3j + 5k \) and \( \overrightarrow{c} = -i + 3j + k \) then find (i) \( \overrightarrow{b} \cdot (\overrightarrow{a} \times \overrightarrow{c}) \)
(ii) \( (\overrightarrow{a} + \overrightarrow{c}) \times (\overrightarrow{b} + \overrightarrow{c}) \) (iii) \( \overrightarrow{a} \times (\overrightarrow{b} \times \overrightarrow{c}) \).
Q. 1(A) Define/ explain

Photosynthesis, Nutrients, Convection, Fertigation, Natural Ventilation, Bending, Netting, Pinching, microcontrollers, greenhouses.

(B) Fill in the blanks:

1. .............................................. refers to the death of the area severely affected by chlorosis.

2. .............................................. is a term used to denote the loss of normal green color from the foliage whether it is on the older, more mature leaves or the younger foliage.

3. The fifth most abundant gas in the atmosphere is ..............................................

4. During the winter months especially, when the weather is cold, there’s even more of a risk of .............................................. occurring in a greenhouse.

5. Japan has more than .............................................. ha under greenhouse cultivation of which nearly 7500 ha is devoted to only fruit orchards.

6. Temperature directly affects, photosynthesis.............................................. and absorption of water and nutrients.

7. .............................................. nm light intensity favors vegetative growth.

8. Water in the roots is pulled through the plant by ..............................................

9. .............................................. may be done by removal of leaves manually or by withholding water.

10. .............................................. refers to removal of side shoots so that the central/terminal bud receives maximum food for the full development.

Q-2(A) Write full forms of following abbreviation

FRP, GIS, NHM, APEDA, ETHE, RH
(B) Write true/false

1. Always plan for off-season crops for less income.
2. Reduce plant and row spacing inside the green house and get more yield.
3. U.V. film does not allow harmful U.V. rays to enter the green house thus protecting the crop.
4. The most convenient size of green house for marginal and small farmers is 50 m² or 100 m² i.e. 10 m x 5 m or 20 m x 5 m.
5. Drip or mini sprinkler method of irrigation is less suited for green house as it gives controlled amount of irrigation.
6. Dropping of flowers after pollination is thought to be associated with ethylene vapors.
7. Damp and Condensation is not favouring good practices in greenhouse.
8. Air temperatures above 35° C are generally not suited to greenhouse crops.
9. Ventilation may be used for cooling during autumn and spring seasons.
10. Many plants are quickly damaged by vapors from metallic mercury.

Q-3(A) Write short notes (Any three)

1. Factors affecting on plant growth.
2. Special horticultural practices in greenhouse production of Carnation.
3. Type of greenhouse.
4. Export quality rose production in greenhouse.

Q.3 (B) Answer the followings (Any Seven)

1. Why need to choose different design in greenhouse?
2. Write common greenhouse growing problems and how to solve them as an expert.
3. Which are Constraints in Cut Flower Production Development.
4. Define Greenhouse. Which are the basic advantages translated in to benefits from greenhouse technology.
5. Which are the post harvest handling care in production of cut flowers.
6. Draw a figure of greenhouse structure and name it.
8. Role of information technology in greenhouse technology.