SLIATE

SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION

(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

Higher National Diploma in Information Technology

First Year, First Semester Examination – 2020

HNDIT 1105- Database Management System

Instructions:
All Questions carry equal Marks
Answer any four Questions only

No. of questions : 05
No. of pages : 04
Time : Two hours

Question 1 **[Total 25 marks]**

i. Explain the relationship among Data, Information and data processing. (06 Marks)

ii. Define the term "Database Management System". (02 Marks)

iii. Give five (05) drawbacks of file-based processing (05 Marks)

iv. Briefly explain three (03) roles of the Database Administrators. (06 Marks)

v. Briefly describe stored data and meta data with example. (06 Marks)

Question 2 **[Total 25 Marks]**

i. Give three (03) examples for DBMS software except MS Access (03 Marks)

ii. Explain the following terms in MS Access

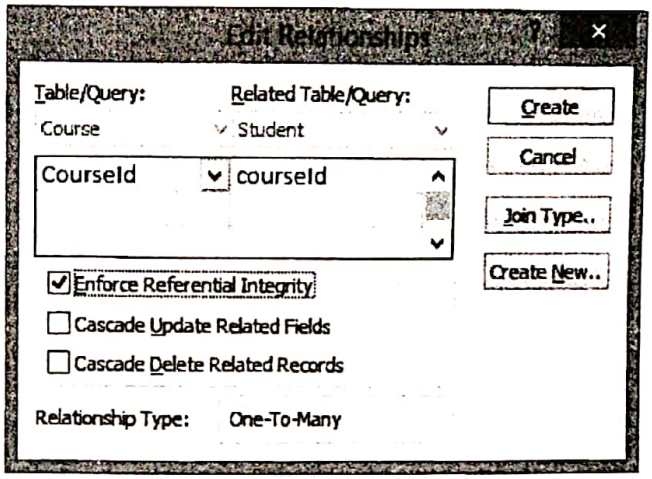
a Table
b Query
c Form
d Report

(08 Marks)

iii. Consider the following employee relation and identify the suitable data types (in the MS Access) for each attribute. (08 Marks)

empID	empName	dateOfBirth	gender	points	pass	age	documents
E 2345	K Kavi	12/06/1990	Female	12	yes	31	
E-3456	L D Shantha	02/07/1992	male	14	No	29	
F-4567	M N Nisham	03/07/1995	male	17	No	26	

iv. Consider following dialog box in the MS access and Briefly describe the followings



a. Enforce Referential Integrity
b. Cascade delete related Fields
c. Cascade update related Fields (06 Marks)

Question 3 **[Total 25 Marks]**

i. Describe the following database concepts.
   a. Domain of an attribute
   b. Composite key.
   c. Foreign key. (06 Marks)

ii. Consider the following Project table.

ProjectID	projectName	projectManager	projectType	monthlyCost	yearlyCost
65465	Super Market Building	Sivaraja Dalpadadu	Training ,Construction	100000.0	1200000.0
98798	XYZ Info System	Kamal Senanyake	Software ,Hardware	200000.0	2400000.0
68745	New Secure Processing	Wasana Kumari	Security, Training	300000,0	3600000.0

Refer the above table and give examples for following attribute types.

a. Key attribute
b. Composite attribute
c. Derived attribute
d. Multi valued attributes. (04 Marks)

iii. Compare and contrast total participant and partial participant in a relation with examples (06 Marks)

iv. Draw an ER diagram with cardinality ratio for following scenario.

In a banking organization, it has many branches in a country. Each branch has unique bank Id and branch name. A manager can be managed one or more branches but a branch should have only one manager. Mangers identify by employee Id. Customers should have at least one account in a branch. However, a customer can open the account in any branch. Customers specify by NIC and Name. Each account should have unique account number.

(09 Marks)

Question 4 **[Total 25 Marks]**

i. Explain the following DBMS language types with examples.

a. Data Manipulation language
b. Data Definition language
c. Data control language (06 Marks)

ii. Consider following schemas and write the SQL statements for given scenario.

Student (StuNo, stuName, city, sex, dob, courseId, marks)

Course(courseId, coursename, duration, coordinator)

a. List all details of students (02 Marks)
b. List name of students in alphabetical order (03 Marks)
c. List name and marks of students based on descending order of marks. (03 Marks)
d. Show the number of students whose marks greater than 50 marks. (03 Marks)
e. List the student's name, course Name, and marks, where marks is greater than 40. (04 Marks)
f. Show the courseName and number of students in each course. (04 Marks)

Question 5 **[Total 25 Marks]**

i. What does Normalization mean? (04 Marks)

ii. List two (02) advantage of Normalization. (04 Marks)

iii. Describe the following Normal Form

a. 1st Normal Form

b. 2nd Normal Form

c. 3rd Normal Form

(06 Marks)

iv. Consider the following table.

sId	stuName	dateOfBirth	subNo	subName	Result	evaluatorId	evaluatorName
S01	T Raja	12/12/1999	sub01	MS word	A	E01	John
			sub02	MS Excel	B	E02	Dilo
S02	N M Fernado	1/2/2000	sub01	MS word	C	E01	John
			sub02	MS Excel	A	E03	Rose
			sub03	Ms Access	A	E04	Mery
S03	M M Abhdul	1/9/2002	sub02	MS Excel	B	E05	Merin
			sub03	Ms Access	C	E06	Jothy
S04	J K Banda	26/11/2006	Sub04	MS Project	F	E07	Veera
			sub02	MS Excel	C	E02	Dillo
			sub03	Ms Access	B	E03	Rose

a. Convert the above table to first normal form.

b. Convert the 1st normal form to 2nd normal form tables.

c. Convert the 2nd normal form to 3rd normal form tables.

(11 Marks)