MODULE N DATABASES AND SQL · N3

Primary keys

Original practice questions · 20 marks · ~25 minutes · Cambridge 0478 syllabus 9.3 (with 9.1)

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**.

1

Total: 4 marks

(a) Tick (✓) **one** box in each row to show whether each statement about primary keys is true or false. **[4]**

Statement	True (✓)	False (✓)
A primary key uniquely identifies each record in a database table.		
Two records can have the same primary key value if all their other fields are different.		
A primary key field can only store whole numbers.		
If no existing field in a table has unique values, a new field can be added to be the primary key.		

2

Total: 4 marks

An art gallery stores details of its paintings in a database table called `PAINTING`. Part of the table is shown.

PAINTING				
Title	**Artist**	**YearPainted**	**Medium**	**Room**
Harbour at Dawn	E. Marsh	1921	Oil	3
Untitled	R. Tanaka	1968	Acrylic	5
Winter Orchard	E. Marsh	1925	Watercolour	3
Untitled	J. Adeyemi	1974	Oil	5
The Blue Door	R. Tanaka	1968	Acrylic	2

(a) Explain why **none** of the fields in the table `PAINTING` is suitable to be the primary key. **[2]**

(b) The gallery adds a new field to be the primary key. Suggest a suitable name for the new field, and give an example of a value it could store for the painting *Harbour at Dawn*. **[2]**

Field name .....

Example value .....

3 **Total: 9 marks**

The organiser of a city marathon stores details of the adult runners in a database table called `RUNNER`. Part of the table is shown.

RUNNER					
RunnerNumber	**FirstName**	**Surname**	**AgeGroup**	**Club**	**FinishTime**
1032	Amara	Okafor	40-49	Hillside Runners	03:41:22
1047	Daniel	Hughes	18-39	Canal Path AC	04:05:10
1058	Priya	Shah	50-59	Hillside Runners	03:58:47
1103	Tom	Hughes	40-49	Northgate Joggers	04:22:05
1119	Lena	Novak	18-39	Canal Path AC	03:29:56
1126	Daniel	Mensah	60-69	Northgate Joggers	04:47:31

(a) Identify the field that is most suitable to be the primary key for the table `RUNNER`. **[1]**

.....

(b) Describe the purpose of the primary key in the table `RUNNER`. **[2]**

.....

.....

.....

(c) A volunteer suggests using `Surname` as the primary key. Explain why `Surname` is **not** suitable. Use data from the table in your answer. **[2]**

.....

.....

.....

(d) Every value in the `FinishTime` field in this part of the table is different. Explain why `FinishTime` is still **not** a suitable primary key. **[2]**

.....

.....

.....

(e) The volunteer tries to add a record for a new runner, with the `RunnerNumber` 1058. Explain why the new runner's record must **not** be stored with this `RunnerNumber`. **[2]**

4

Total: 3 marks

A city council keeps a database table called `PERMIT`. Each record stores the details of one parking permit. A permit lasts one year. When a permit ends, the driver can buy a new permit for the same vehicle, and the record of the old permit is kept in the table.

Fields in the table `PERMIT`

- `PermitNumber`: the code printed on the permit, for example RP04815; each permit has a different code
- `VehicleReg`: the registration of the vehicle the permit is for
- `HolderSurname`: the surname of the permit holder
- `StreetName`: the street where the vehicle can be parked
- `StartDate`: the date the permit starts
- `Paid`: whether the permit has been paid for, Yes or No

(a) Identify the field that is most suitable to be the primary key for the table `PERMIT`. **[1]**

(b) No two vehicles have the same registration. Explain why `VehicleReg` is still **not** suitable to be the primary key for the table `PERMIT`. **[2]**

Total for this worksheet: 20 marks