1.10

a. STUDENT $\xrightarrow{\text{Students\_Grade}}$ GRADE_REPORT

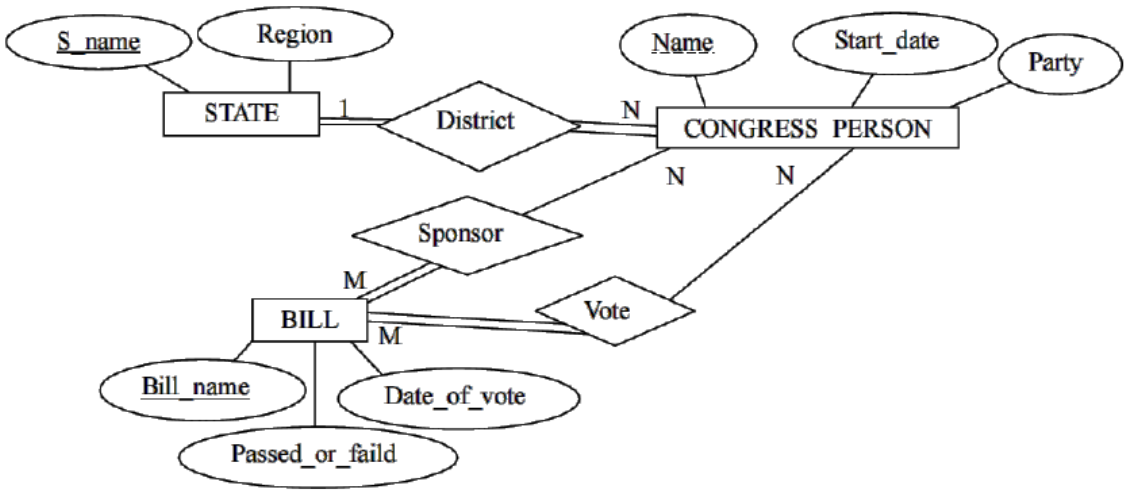
b. COURSE $\xrightarrow{\text{HAS\_A}}$ PREREQUISITE

c. PREREQUISITE $\xrightarrow{\text{IS\_A}}$ COURSE

d. COURSE $\xrightarrow{\text{INFORMATION}}$ SECTION

e. GRADE_REPORT $\xrightarrow{\text{OF\_WHICH}}$ SECTION

3.21



3.23

a. BANK, ACCOUNT, CUSTOMER, LOAN

b. Yes, there is: BANK_BRANCH.
   Partial Key: Branch_no
   Identifying Relationship: Branches

c. Cardinality: One-to-many
   Participation Constraint: Total participation

d. BRANCHES: (1, N) to BANK; (1, 1) to BANK_BRANCH
   ACCTS: (0, N) to BANK_BRANCH; (1, 1) to ACCOUNT
   LOANS: (0, N) to BANK_BRANCH; (1, 1) to LOAN
   A_C: (1, N) to ACCOUNT; (0, N) to COSTOMER
   L_C: (1, N) to LOAN; (0, N) to COSTOMER

e. (a) Each BANK has a Name, Address and Code (unique). BANKs have multiple branches.
   (b) Each BANK BRANCHES has an Address and Branch Number. Branch numbers have a unique value for each branch. Each branch can have multiple accounts and loans.
   (c) The database needs to keep tracks of each ACCOUNT's number (unique),

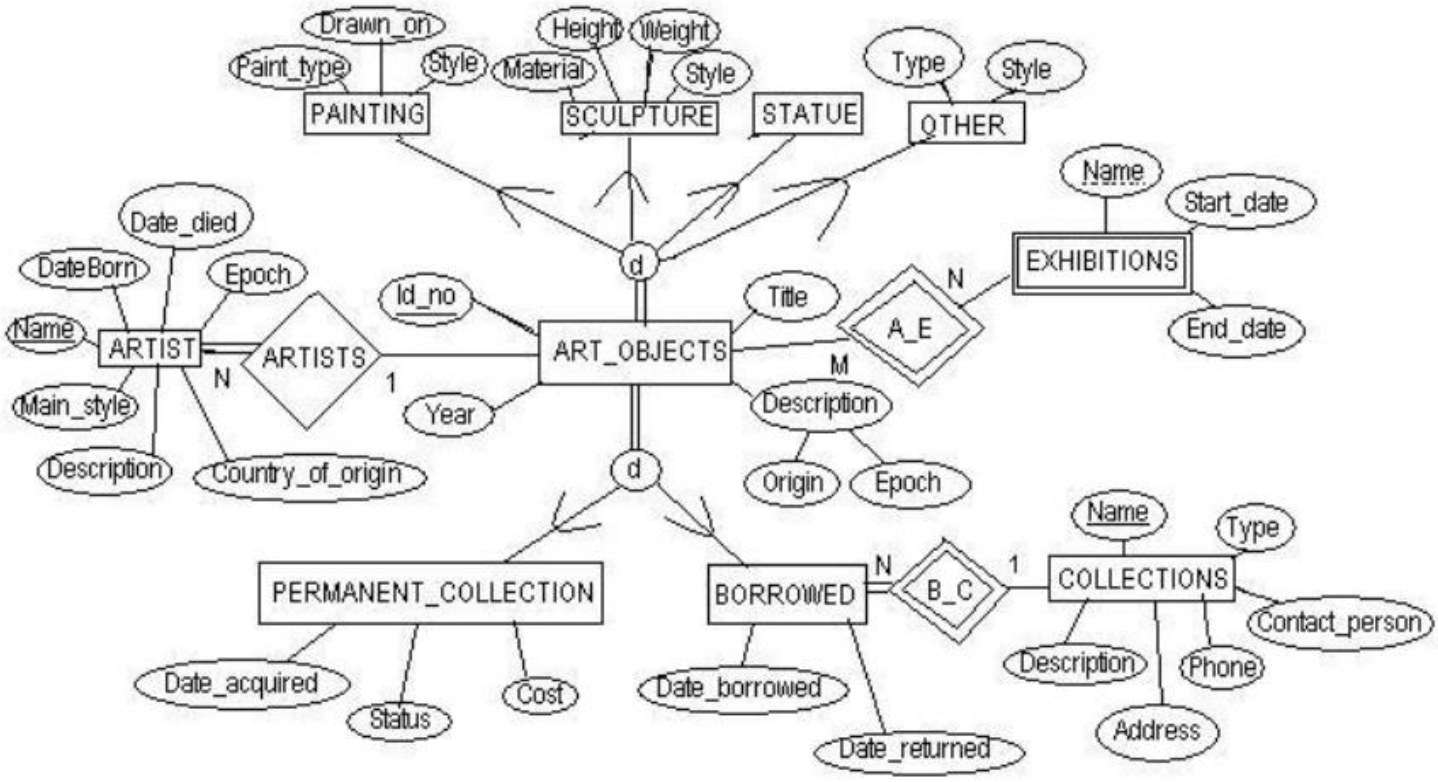
A_C: (1,N) → CUSTOMER

L_C: (0,2) →CUSTOMER er(unique), amount and type.

   (e) Each CUSTOMER has a name, address, SSN (unique) and phone.

f. LOANS: (0,1000) → BANK_BRANCH

4.20



4.26

C is incorrect, because there is no entity to integrate E1 and E3.