1. (a)
A+=AE , A is not a superkey for the relation, so, A->E violates BCNF
M+=MEZA, M is not a superkey for the relation, so, M->EZA violates BCNF
S+=FZBSMEA, S is a superkey, pass
SZ+=FZBSMEA, SZ is a superkey, pass
BF+= BFMEZA, BF is not a superkey for the relation, so, BF->M violates BCNF

(b)
R1=MEZA, R2=MFBS
R1:

Attribute	Closure	FD
A	AE	A->E VIOLATE BCNF

R3=AE, R4=AMZ, R2=MFBS

R3:

Attribute	Closure	FD
A	AE	A->E
E	E	/

R4:

Attribute	Closure	FD
A	AE	/
M	MEZA	M->ZA
Z	Z	/
AZ	AZE	/
AM	MEZA	WEAKER
MZ	MEZA	WEAKER

R2:

Attribute	Closure	FD
BF	BFMEZA	BF->M VIOLATE BCNF

R3=AE, R4=AMZ, R5=BFM, R6=BFS

R5

Attribute	Closure	FD
M	MEZA	/
F	F	/
B	B	/
BF	BFMEZA	BF->M
BM	BMEZA	/
MF	FMEZA	/

R6

Attribute	Closure	FD
S	FZBSMEA	S->BF
F	F	/
B	B	/
BF	BFMEZA	/
BS	FZBSMEA	WEAKER
FS	FZBSMEA	WEAKER

Final decomposition:
R3=AE S3={ A->E } ,
R4=AMZ S4={M->ZA },
R5=BFM S5={BF->M },
R6=BFS S6={S->BF }

2.
(a)

Attribute	LHS	RHS	Conclusion
/	NO	NO	MUST BE IN KEY
A	YES	NO	
/	NO	YES	
BCDEF	YES	YES	

A+=ADFB, NOT A KEY
AB+= ABDF ,NOT A KEY
AC+= ACDFEB, AC IS A KEY !
AD+= ADFB, NOT A KEY
AE+= AEDFBC, AE IS A KEY !
AF+= ADF, NOT A KEY

ABD+= ABDF, NOT A KEY
ABF+=ABDF, NOT A KEY
ADF+=ADF, NOT A KEY
ABDF+=ABDF, NOT A KEY

conclusion 2 keys : AC , AE

(b)
STEP1 SIMPLFY RHS
S1:
1 A->D
2 A->F
3 ABE->C
4 ABE->D
5 ABE->F
6 ACDF->E
7 AD->B
8 C->D

STEP2 SIMPLIFY LHS
3 ABE->C
A+= ADFB , SINCE B IS DETERMINED BY A
E+= E
AE+=ABCDEF
WE CAN REDUCE THE LHS TO AE

4 ABE->D
A+= ADFB ,
WE CAN REDUCE THE LHS TO A

5 ABE->F
A+= ADFB ,
WE CAN REDUCE THE LHS TO A

6 ACDF->E
A+= ADFB, REDUCE D,F
C+=CD
AC+=ABCDEF
WE CAN REDUCE THE LHS TO AC

7 AD->B
A+=ADFB
WE CAN REDUCE THE LHS TO A

S2:
1 A->D
2 A->F
3 AE->C
4 A->D
5 A->F
6 AC->E
7 A->B
8 C->D

STEP 3 REDUCE FD

FD	EXCLUDE	CLOSURE	DECISION
1	1	A+=ABDF	DISCARD
2	1,2	A+=ABDF	DISCARD
3	1,2,3	AE+=ABDEF, NO C	KEEP
4	1,2,4	A+=ABF, NO D	KEEP
5	1,2,5	A+= ABD, NO F	KEEP
6	1,2,6	AC+=ABCDF, NO E	KEEP
7	1,2,7	A+=ADF, NO B	KEEP
8	1,2,8	C+=C, NO D	KEEP

S3:
3 AE->C
4 A->D
5 A->F
6 AC->E
7 A->B
8 C->D

CONCLUSION:
S4={A->B, A->D, A->F, AC->E, AE->C, C->D}

(c)
m={A->BDF,AC->E, AE->C, C->D}
R1(A,B,D,F)
R2(A,C,E)
R3(A,C,E) occurs in R2, DISCARD
R4(C,D)

since R2 already contain a super key of the FDS
The final set of relation is:
R1(A,B,D,F)   R2(A,C,E)   R4(C,D)

(d)
R1

Attribute	closure	FD
A	ABDF	A->BDF
B	B	/
F	F	/
D	D	/
BF	BF	/
BD	BD	/
FD	FD	/
OTHERS	WEAKER	WEAKER

R2

Attribute	closure	FD
A	ABDF	/
C	C	/
E	E	/
AC	ABDFCE	AC->E
AE	ABCDEF	AE->C
CE	CE	/

R3

Attribute	closure	FD
C	CD	C->D
D	D	/

Projection on R1 is S1={A->BDF}
Projection on R2 is S2={AC->E, AE->C}
Projection on R3 is S3={C->D}

conclusion:
No any of the projection breaks the BCNF rules, so there is no redundancy.