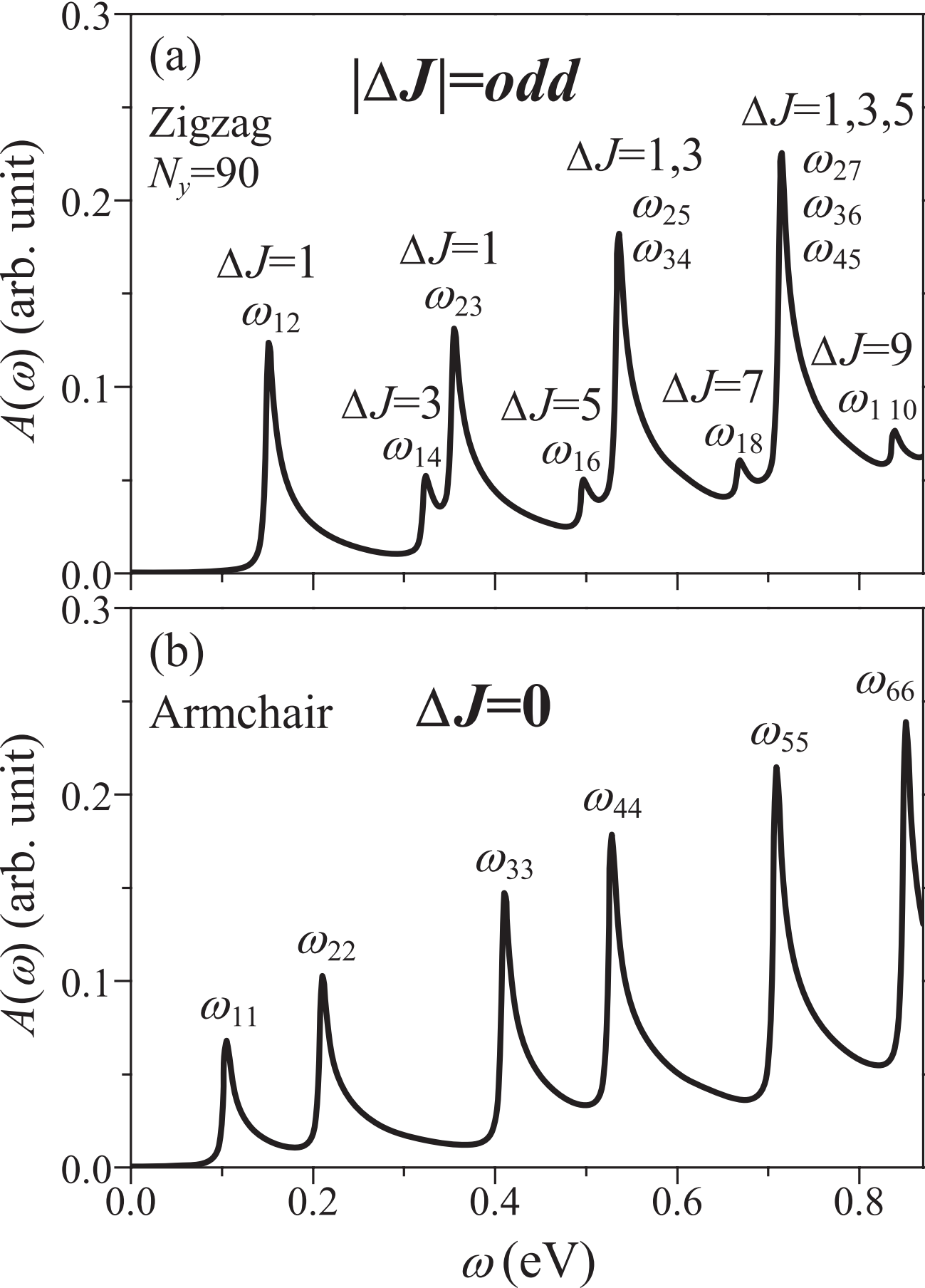
(a)
|ΔJ|=odd
Zigzag
Ny=90
ΔJ=1
ω12
ΔJ=1
ω23
ΔJ=3
ω14
ΔJ=5
ω16
ΔJ=1,3
ω25
ω34
ΔJ=7
ω18
ΔJ=1,3,5
ω27
ω36
ω45
ΔJ=9
ω1 10
(b)
Armchair
ΔJ=0
ω11
ω22
ω33
ω44
ω55
ω66
A(ω) (arb. unit)
ω (eV)
0.0
0.1
0.2
0.3
0.4
0.6
0.8