



كلية الرشيد الجامعة قسم هندسة تقنيات الحاسوب

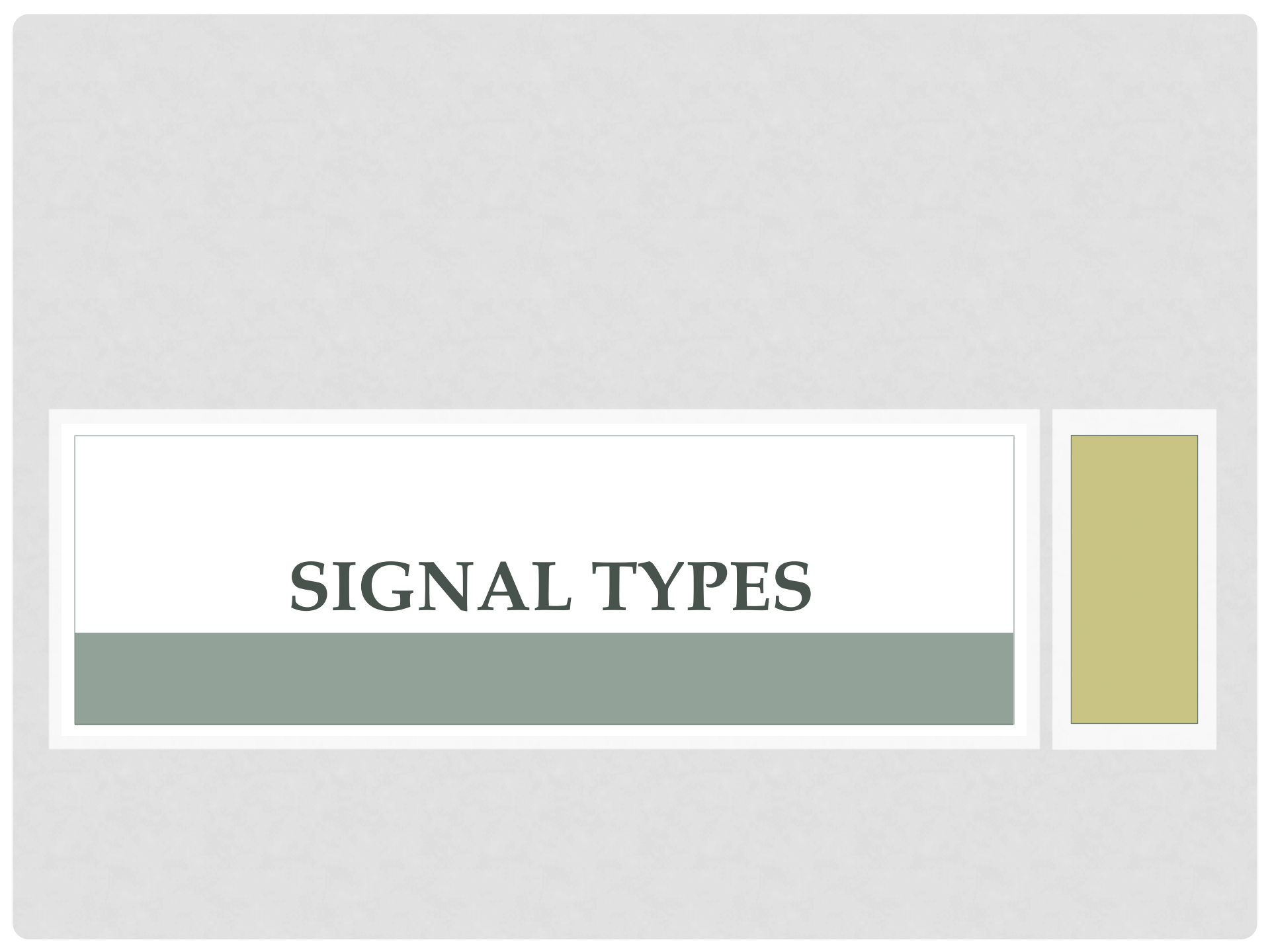
المرحلة الثانية

اسس الاتصالات

المحاضرة رقم (٣)

مدرس المادة : م.م. تميم محمد

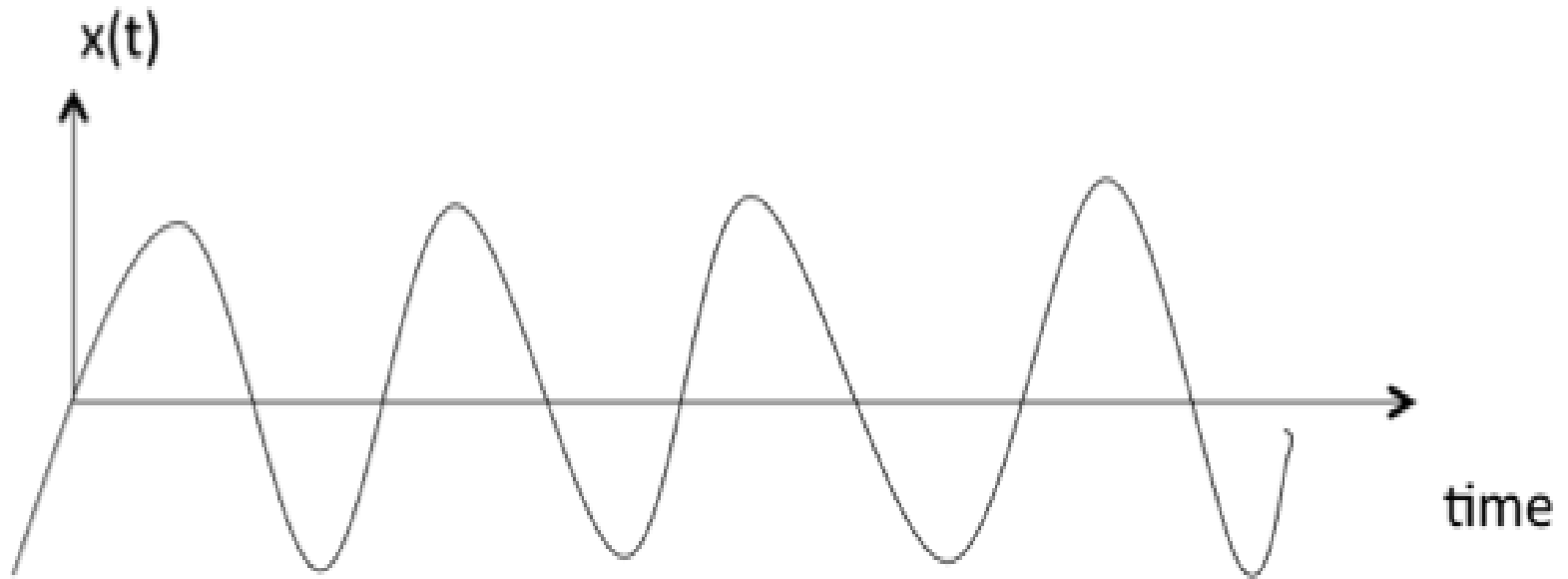
SIGNAL TYPES



4. DETERMINISTIC AND RANDOM SIGNALS

Deterministic signal:

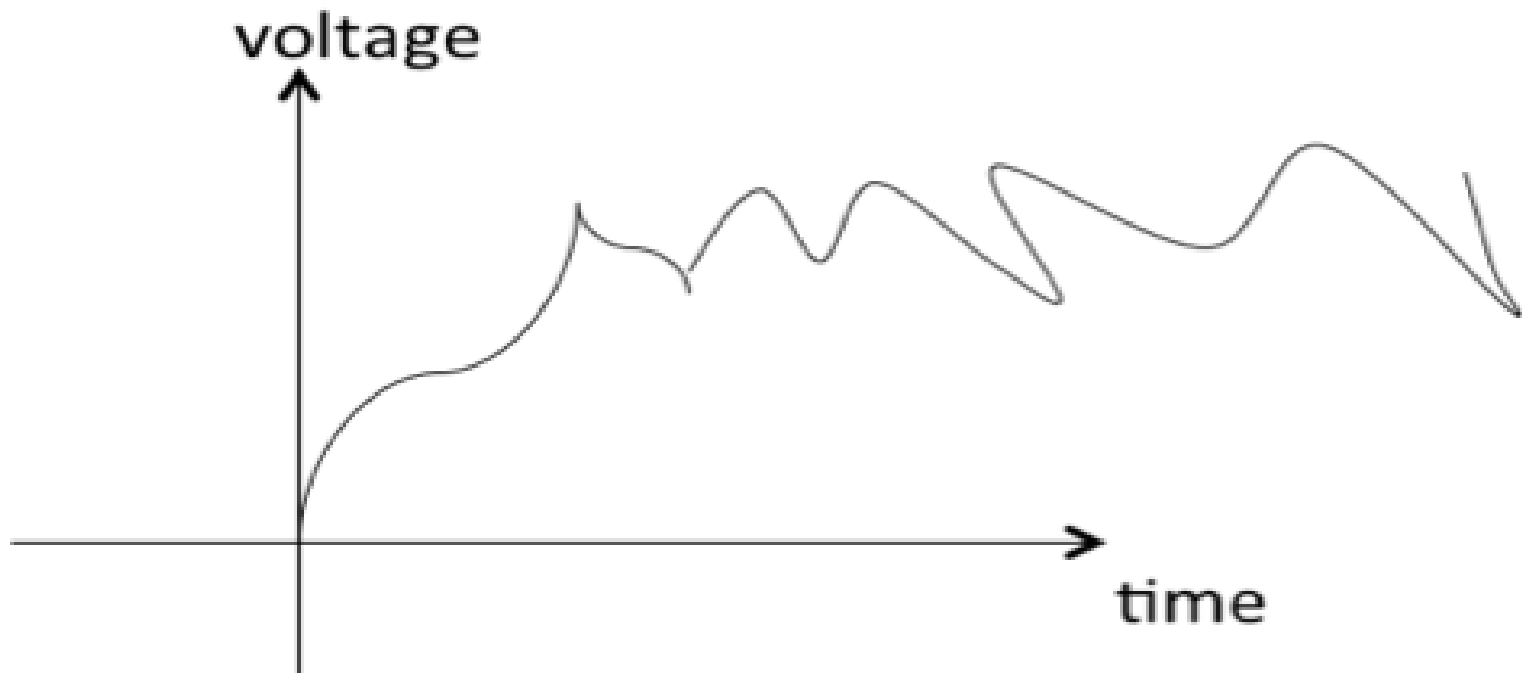
The signals which can be defined exactly by a mathematical formula



4. DETERMINISTIC AND RANDOM SIGNALS

Random signal:

The signal which cannot be described by a mathematical equation.

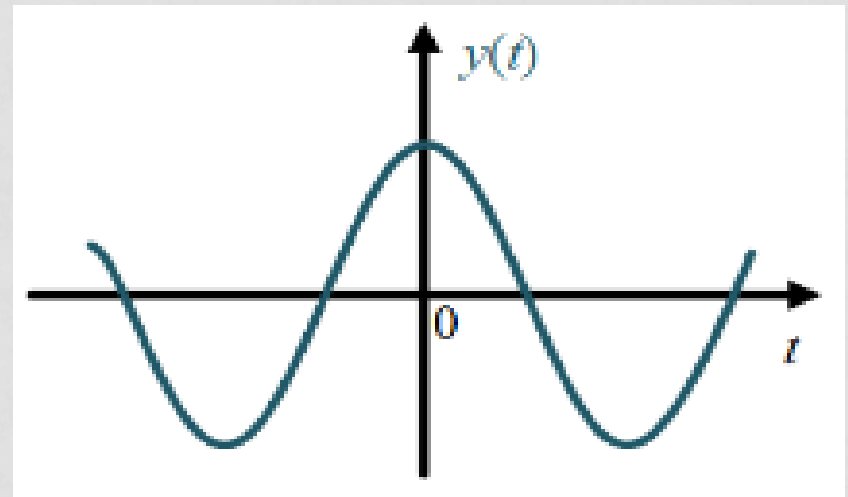
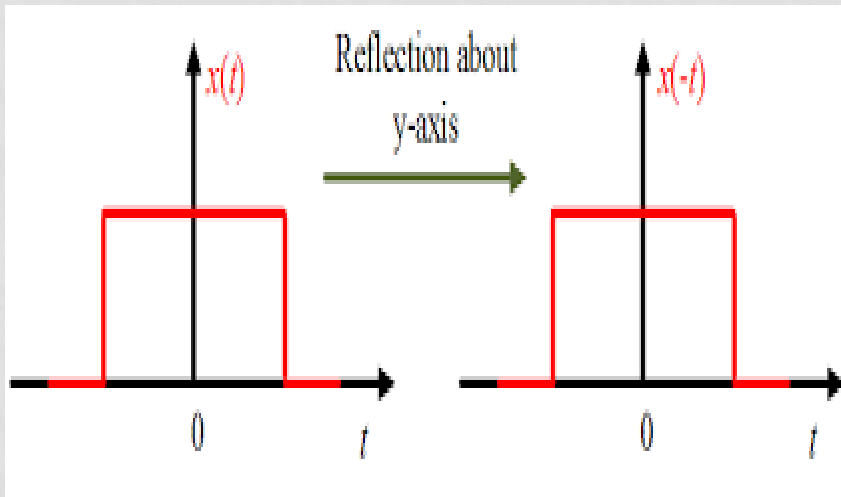


5. EVEN AND ODD SIGNALS

Even signal

Even signals are symmetric around vertical axis, A signal is said to be even when it satisfies the condition

$$x(t) = x(-t)$$

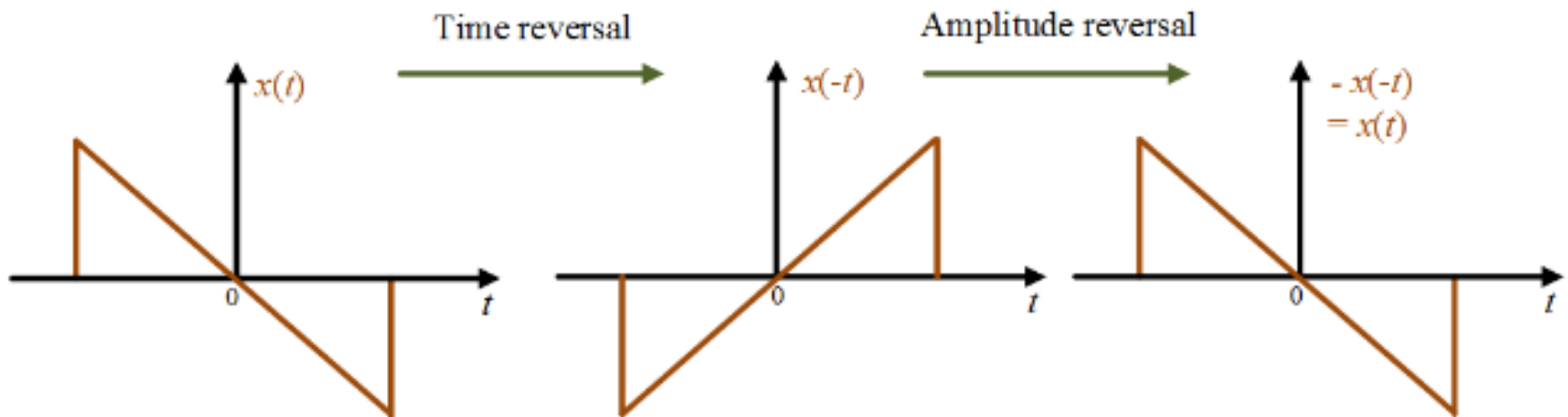


5. EVEN AND ODD SIGNALS

Odd signal

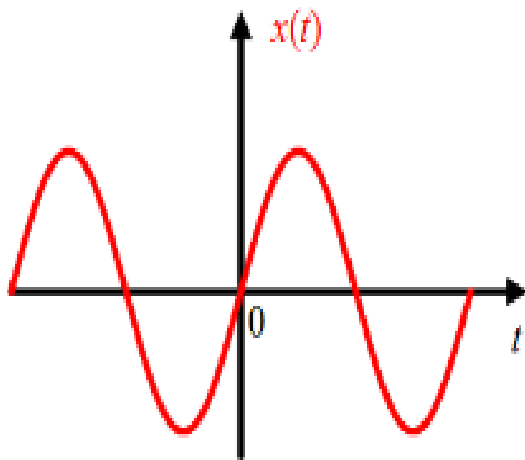
Odd signals are symmetric around origin and pass through original point , A signal is said to be odd when it satisfies the condition

$$x(t) = -x(-t)$$

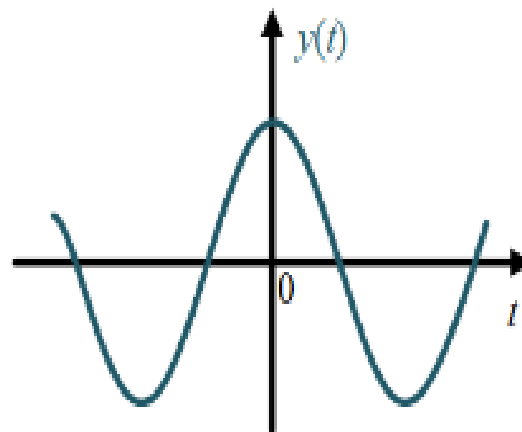


EXAMPLE

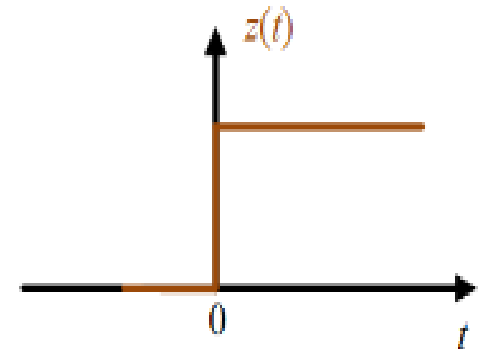
Check whether the following signals are even, odd, or neither even nor odd



a

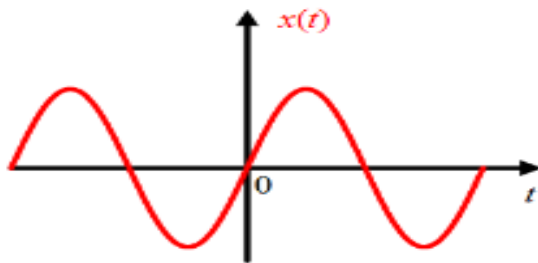


b



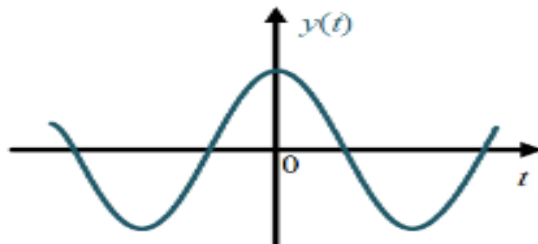
c

ANSWER



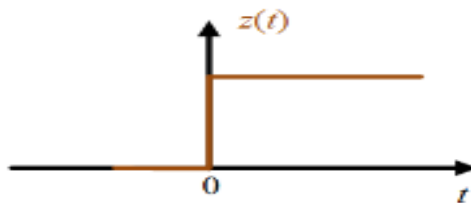
a

1. odd signal
2. because symmetric about origin point
3. pass through original point



b

1. even signal
2. because symmetric about vertical axis



c

1. not even nor odd
2. because not symmetric about vertical axis or about original point

HOME WORK

Which of the following is even , odd, or not both

