GATE 2025 EC Feb 15 Memory Based Questions S

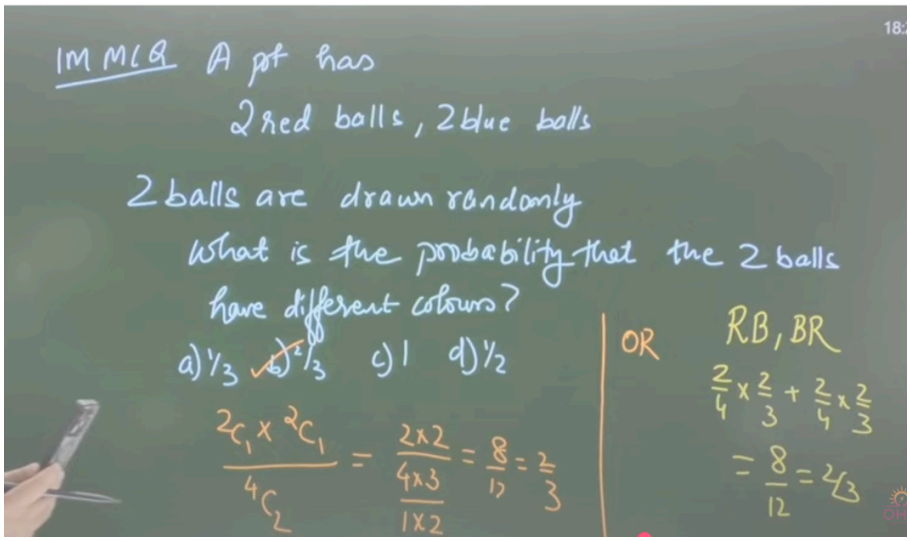
GATE EC Memory Based Questions

Q1- 3, 9, 19, 33 __?

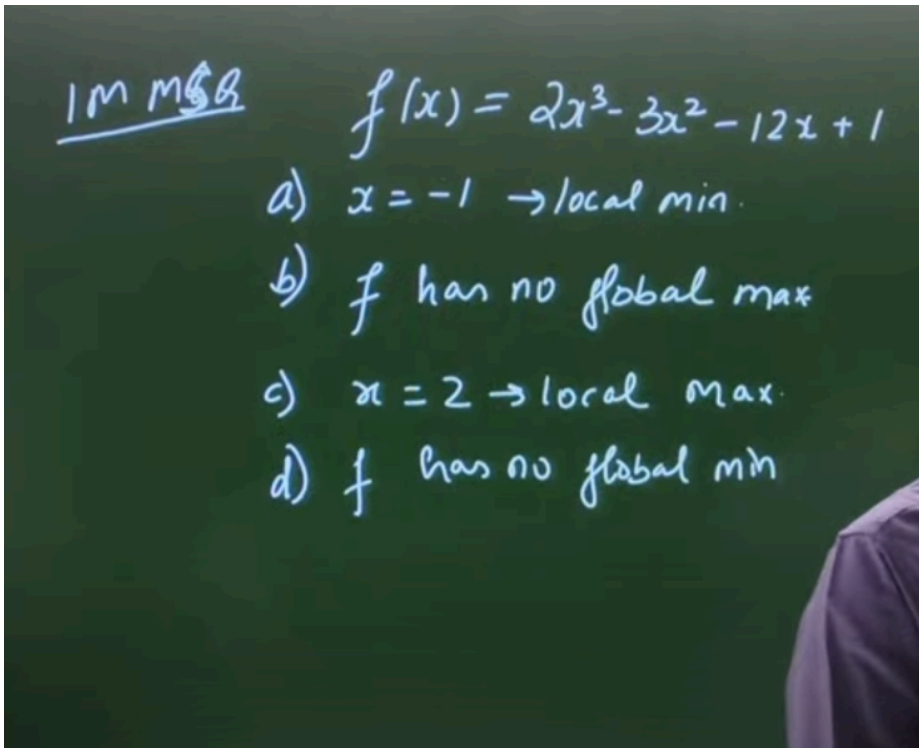
Q2- A pot contains 2 red bulls and 2 blue bulls. Two balls were drawn from the top randomly without replacement, what is the probability (P) of two balls drawn having different colors?

Q3- Had been active as a child I ___ a famous actor

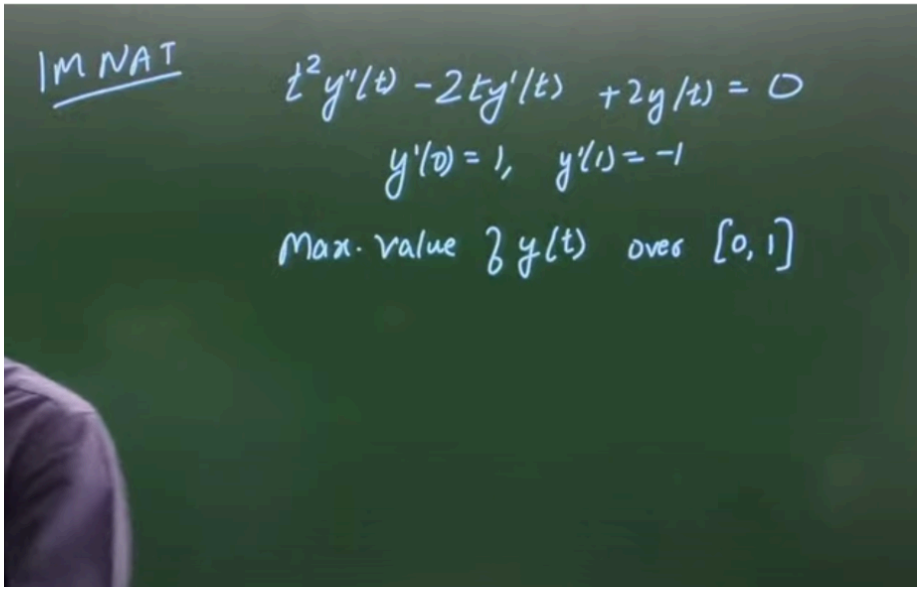
Option 1: can be
Option 2: could have been
Option 3: will be

Q4- 

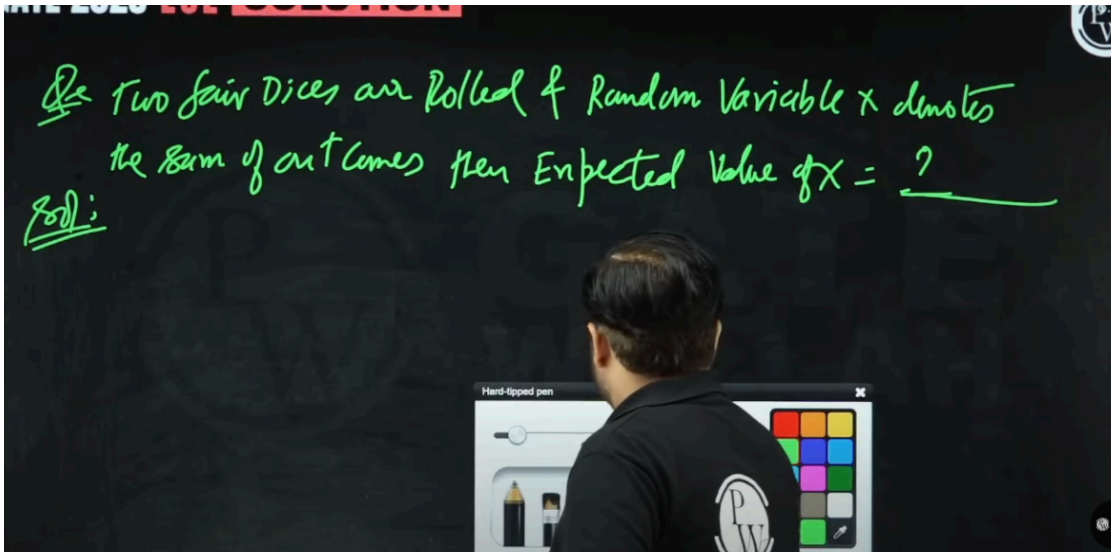
Q5-


1M MSQ
f(x) = 2x³ - 3x² - 12x + 1
a) x = -1 → local min.
b) f has no global max
c) x = 2 → local max.
d) f has no global min

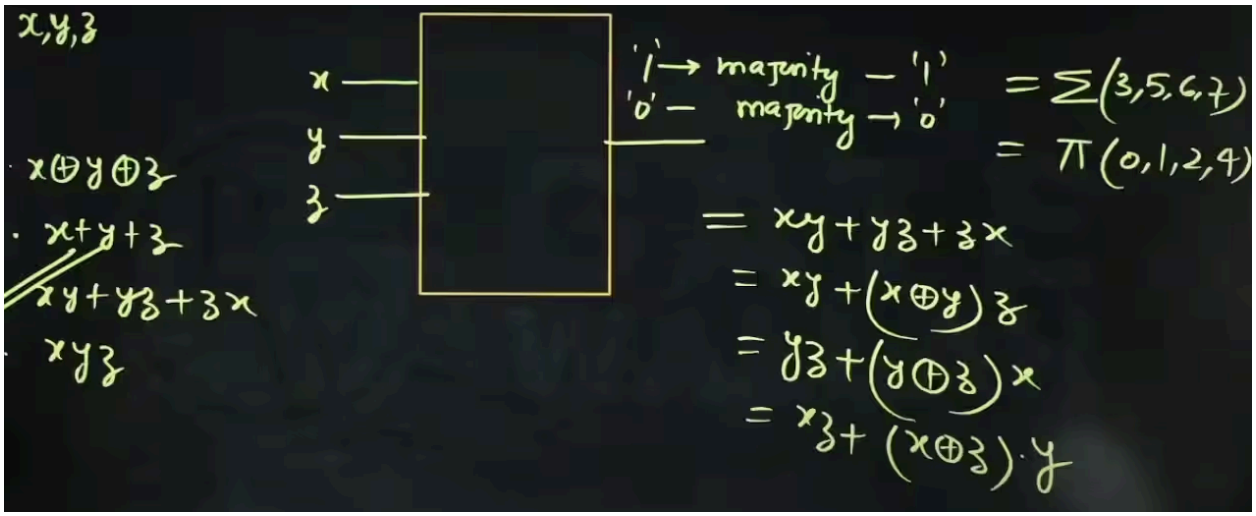
Q6-


IMNAT
$t^2y''(t) - 2ty'(t) + 2y(t) = 0$
$y'(0) = 1, \quad y'(1) = -1$
Max. value of $y(t)$ over $[0, 1]$

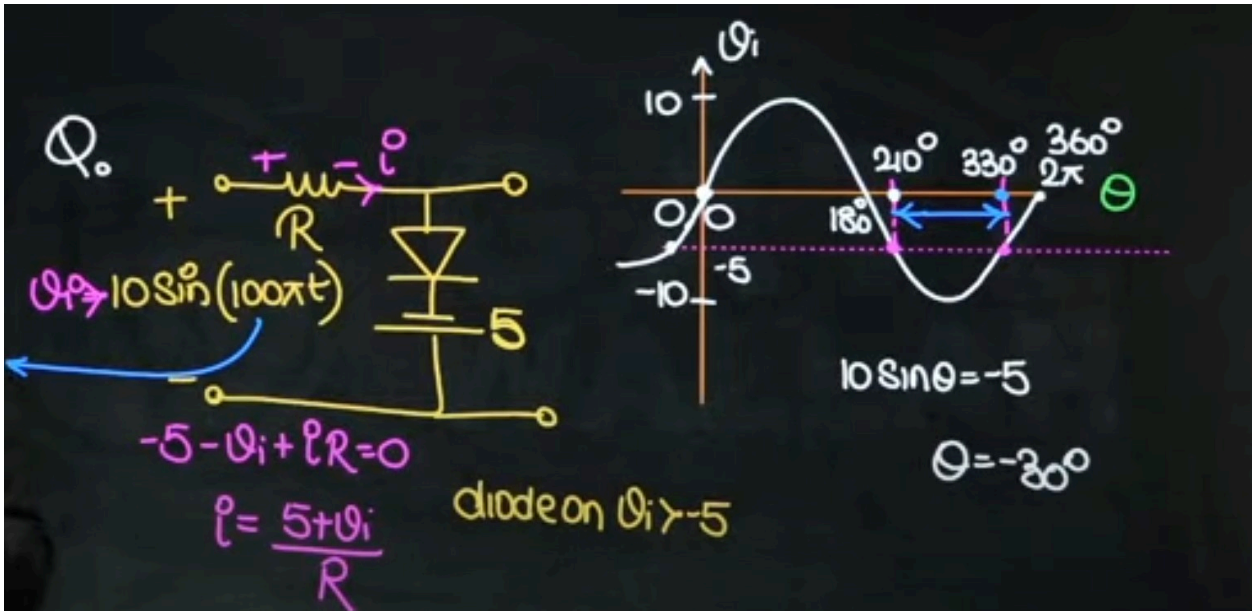
Q7-

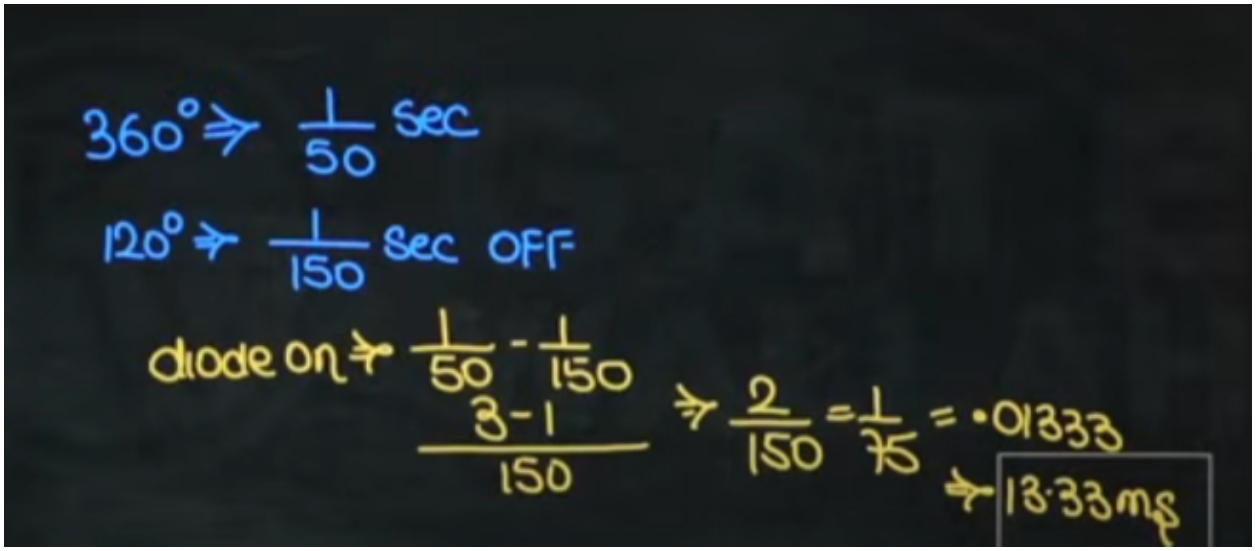

Q: Two fair Dices are Rolled & Random Variable X denotes the Sum of outcomes then Expected Value of X = ?
Sol:
Hard-tipped pen

Q8-

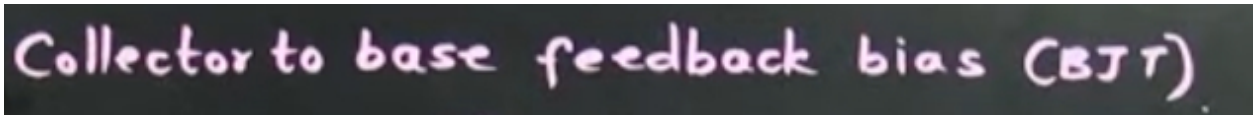

x,y,z
x
y
z
'1' → majority – '1'
'0' – majority → '0'
= Σ(3,5,6,7)
= π(0,1,2,4)
x⊕y⊕z
x+y+z
xy+yz+zx
xyz
= xy + yz + zx
= xy + (x⊕y)z
= yz + (y⊕z)x
= xz + (x⊕z).y

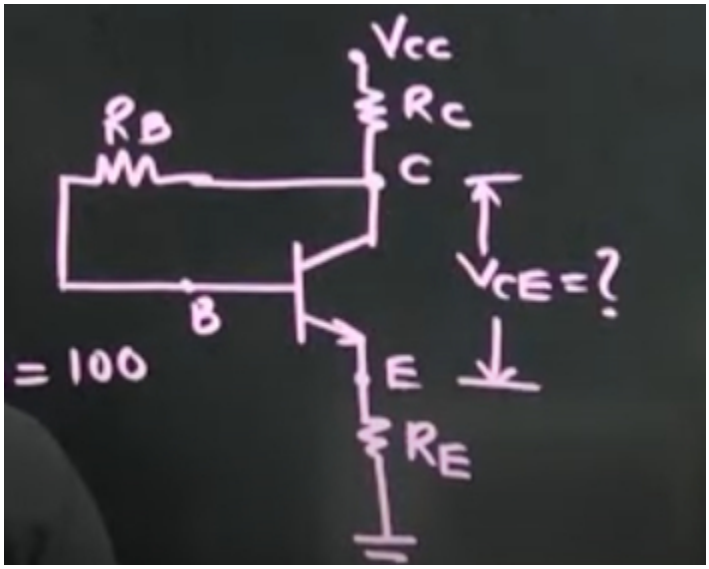
Q9-


Q.
+
R
i
$v_i = 10\sin(100\pi t)$
5
$-5 - v_i + iR = 0$
$i = \frac{5+v_i}{R}$
diode on $v_i > -5$
v_i
10
-10
-5
0
180°
210°
330°
360°
2π
θ
$10\sin\theta = -5$
$\theta = -30°$

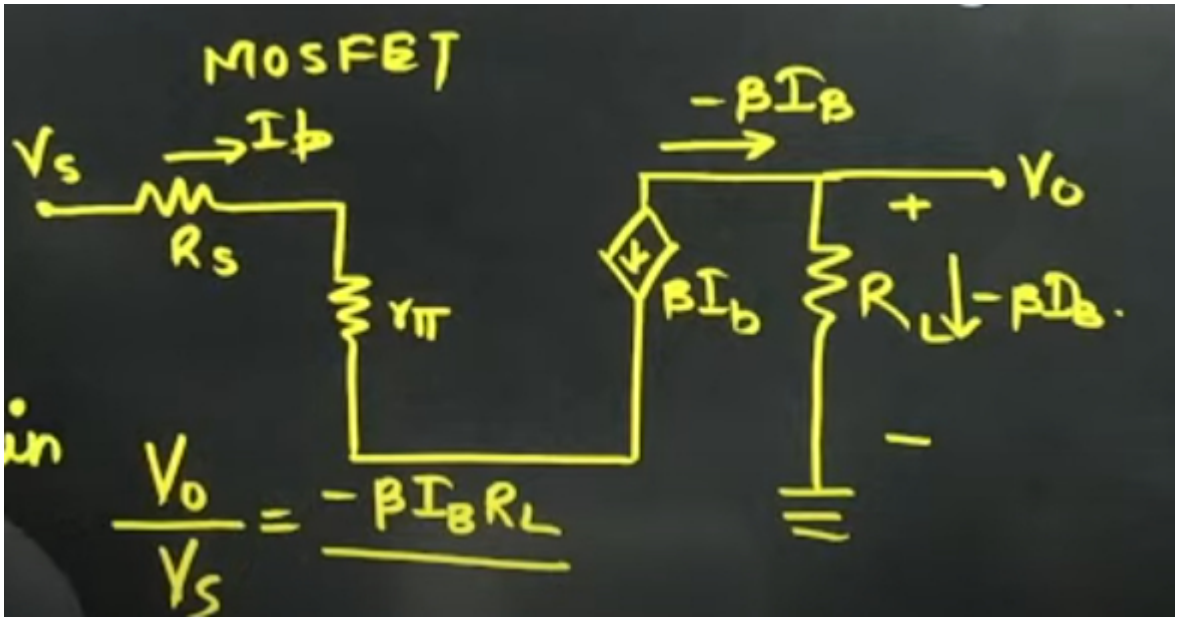

360° ⇒ 1/50 sec
120° → 1/150 sec OFF
diode on → 1/50 - 1/150
3-1/150
⇒ 2/150 = 1/75 = .01333
→ 13.33 ms

Q10-

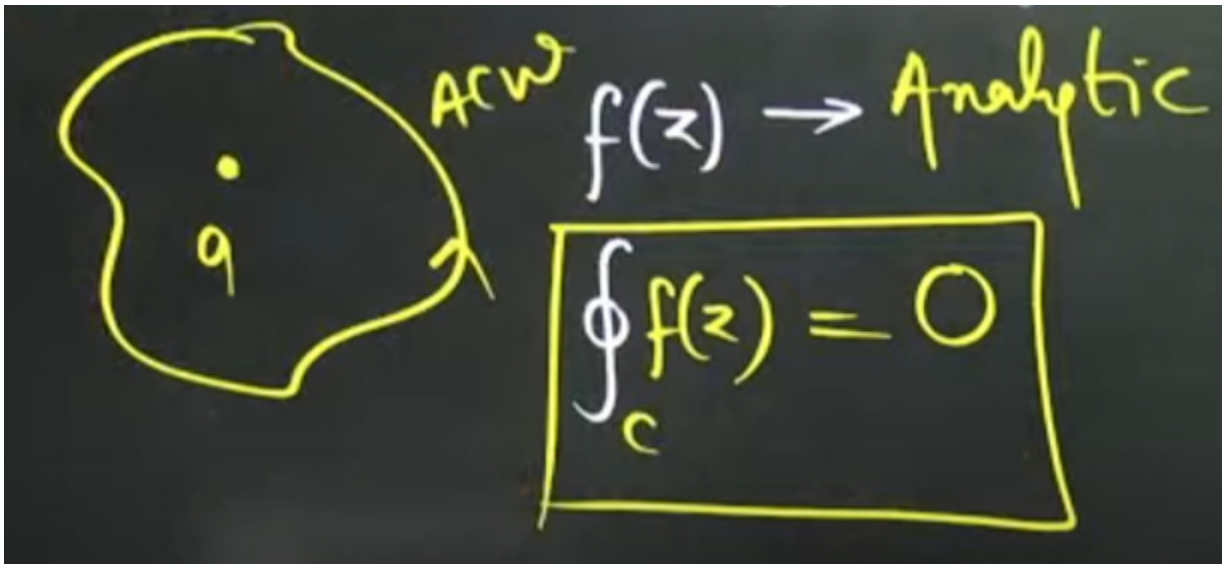

Collector to base feedback bias (BJT)

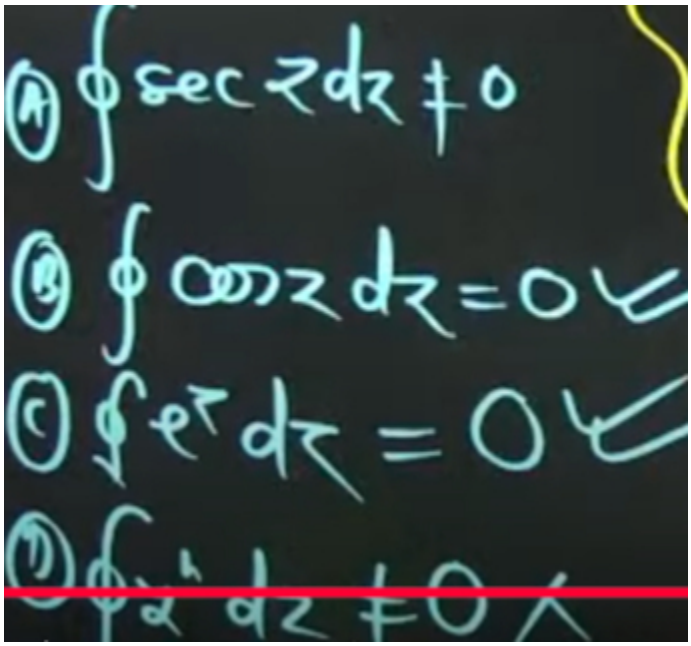

Vcc
RC
RB
C
VCE = ?
B
= 100
E
RE

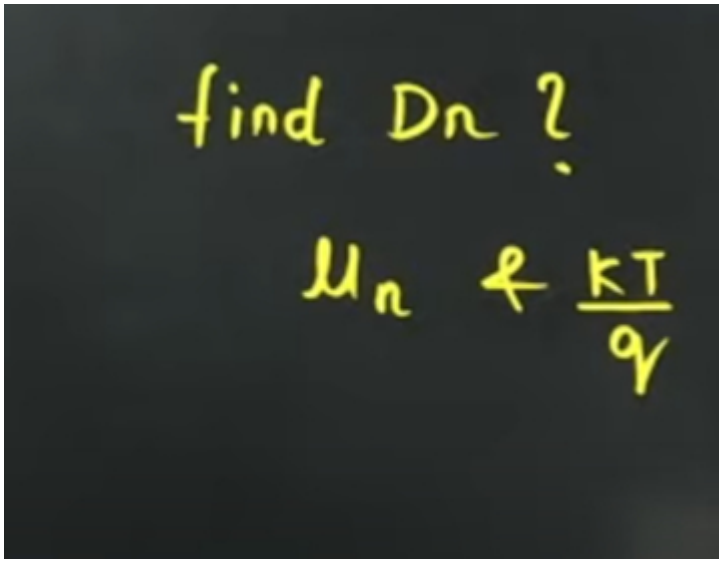
Q11-


MOSFET
Ib
Vs
RS
rπ
-βIB
Vo
+
βIb
RL
-βIB
-
in
Vo/Vs = -βIBRL

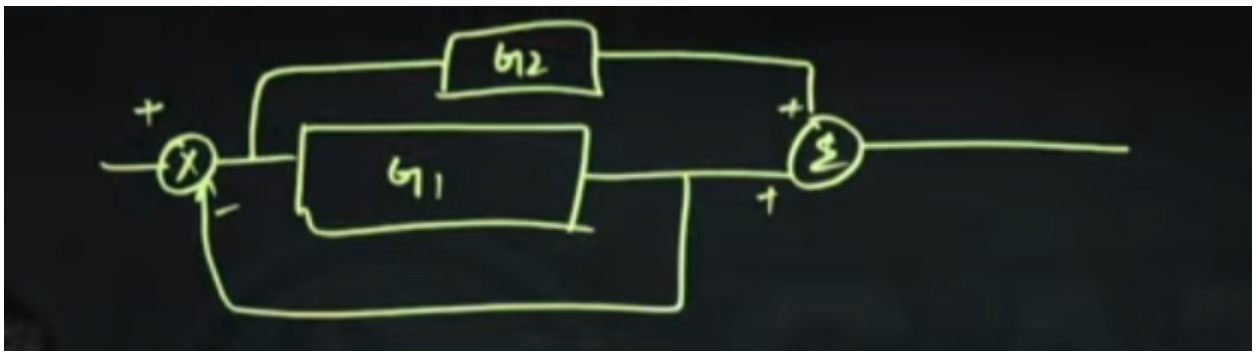
Q12-

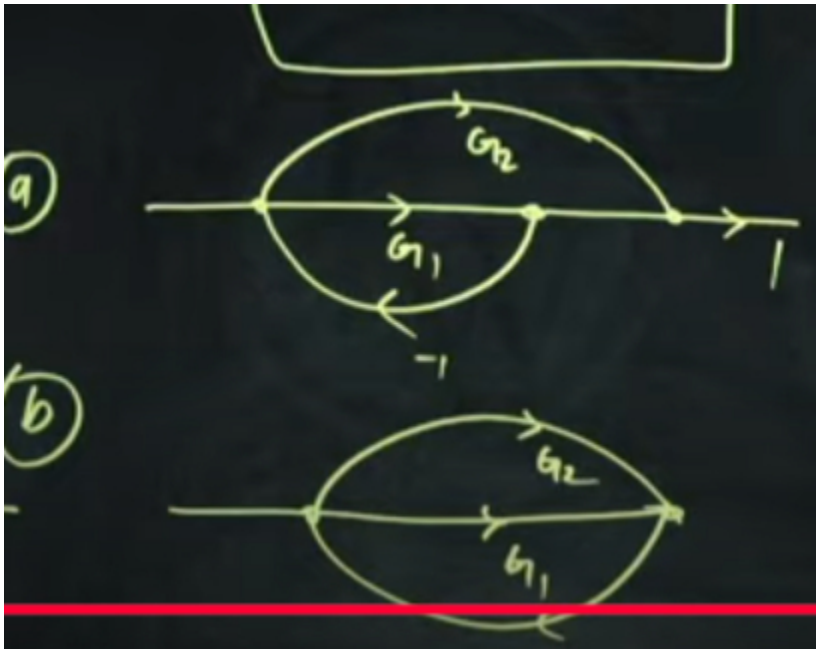


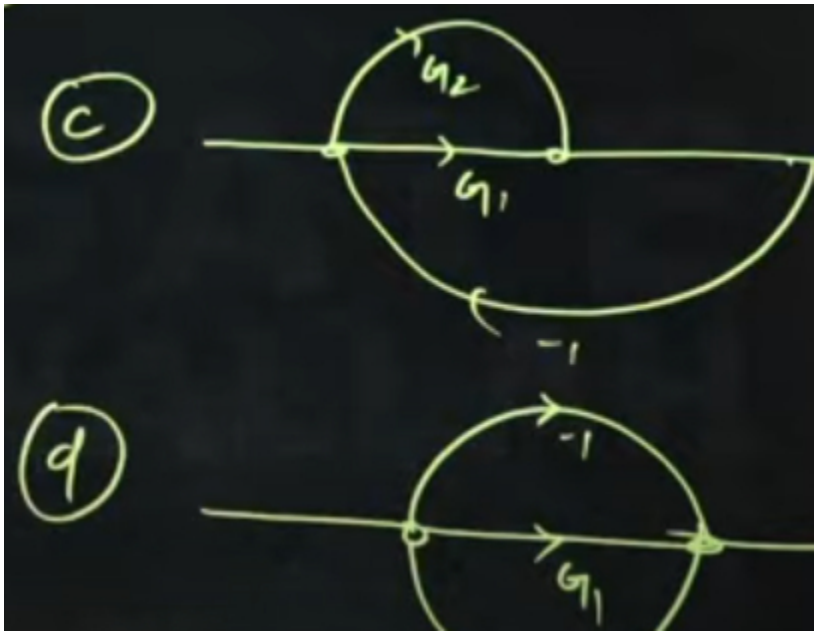


Q13- 

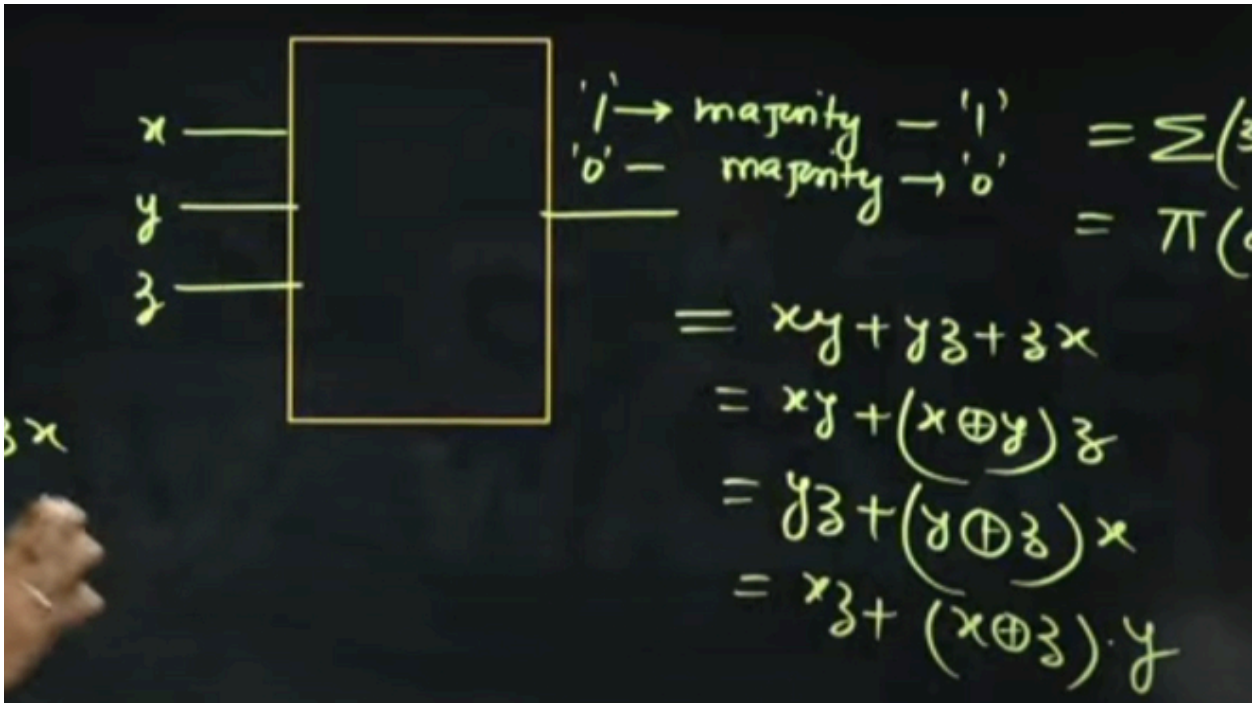
Q14-

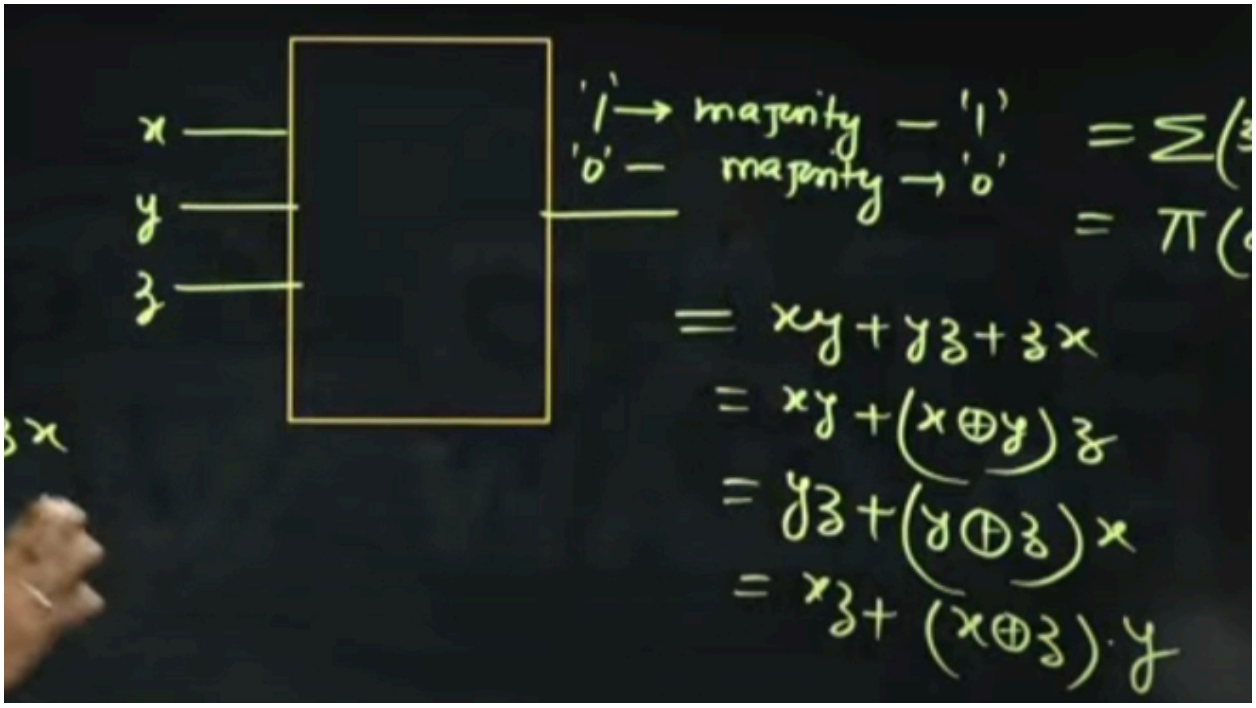



a
G_2
G_1
1
-1
b
G_2
G_1


c
G_2
G_1
-1
d
-1
G_1

Q15




x
y
z
'1' → majority — '1'
'0' — majority → '0'
= Σ(
= π(
= xy + yz + zx
= xy + (x ⊕ y) z
= yz + (y ⊕ z) x
= xz + (x ⊕ z) . y

Q16-