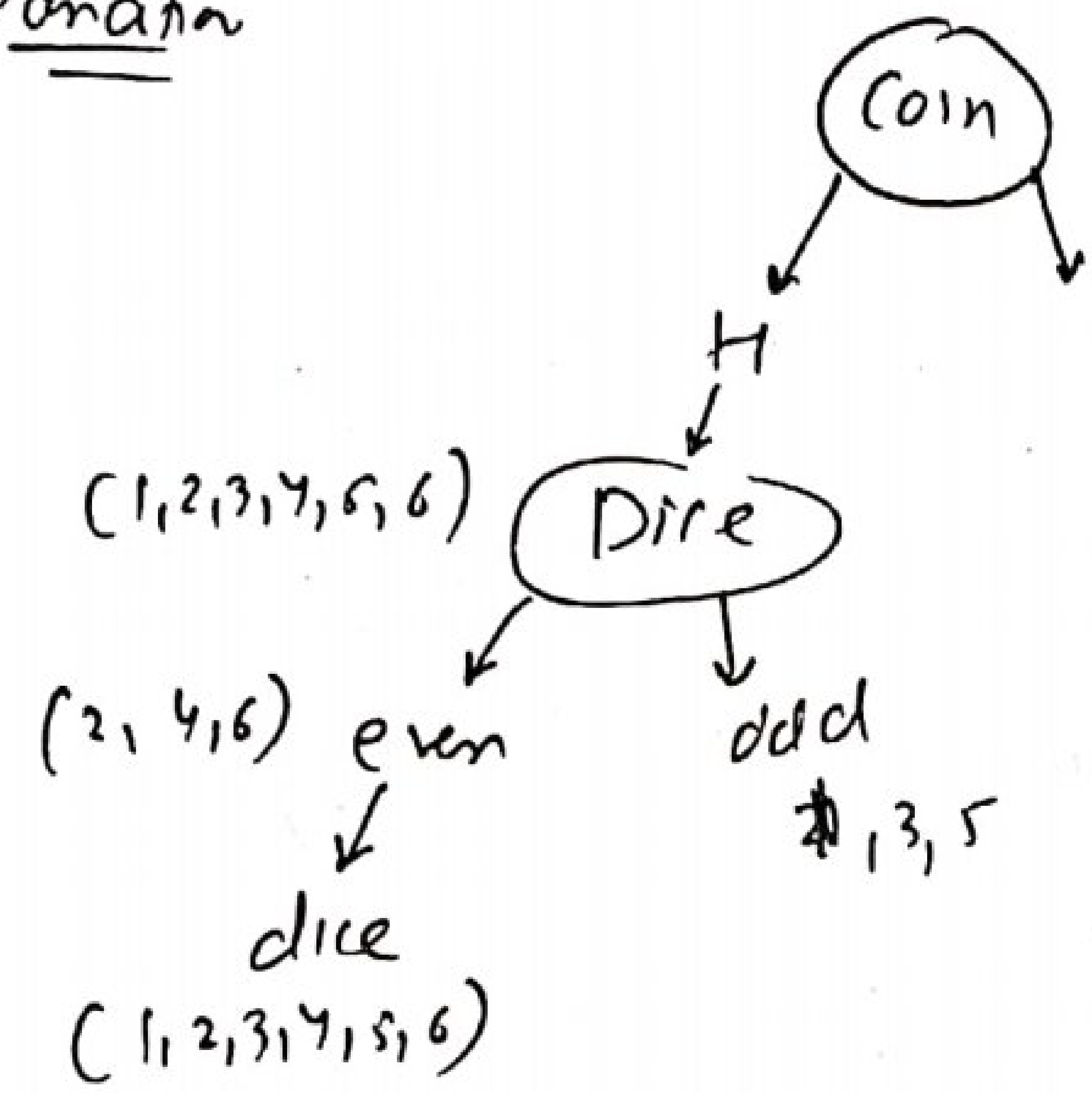
Solutions

WORKSHEET No: 1 (PROBABILITY) (11th class)

Ans 1

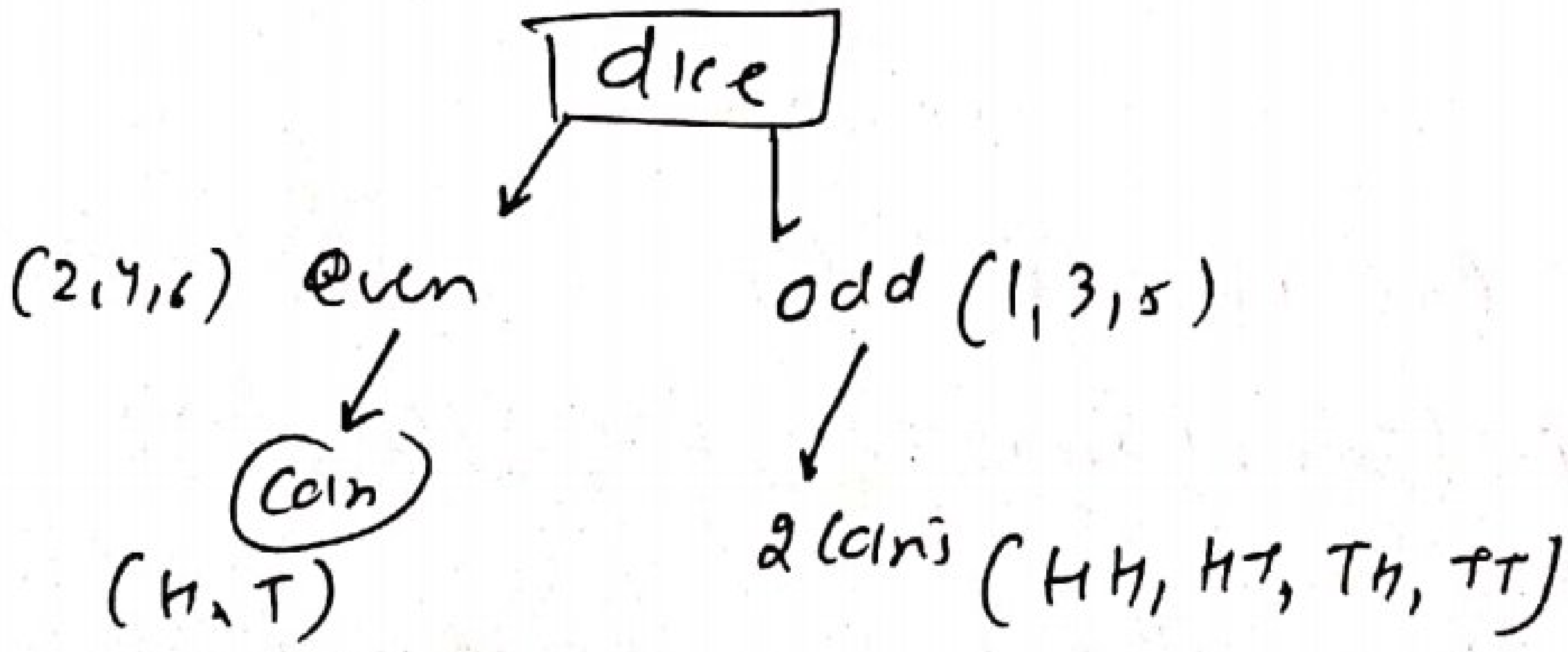
$S = \{T, (H,1), (H,3), (H,5), (H,2,1), (H,2,2), (H,2,3), (H,2,4), (H,2,5), (H,2,6), (H,4,1), (H,4,2), (H,4,3), (H,4,4), (H,4,5), (H,4,6), (H,6,1), (H,6,2), (H,6,3), (H,6,4), (H,6,5), (H,6,6)\}$

exponation



Ans 2

$S = \{(2,H), (2,T), (4,H), (4,T), (6,H), (6,T), (1,HH), (1,HT), (1,TH), (1,TT), (3,HH), (3,HT), (3,TH), (3,TT), (5,HH), (5,HT), (5,TH), (5,TT)\}$



Ans 3 →

$S = \{PB_1, PB_2, PG_1, PG_2, QB_3, QG_3, QG_4, QG_5\}$

Room

Room P → B_1, B_2, G_1, G_2

Room Q → B_3, G_3, G_4, G_5

Qn 4 → (i) $S = \{ B, G_1,\ B, B_2,\ G, G_2,\ G, B_2 \}$

OR Simply $S = \{ BG,\ BB,\ GG,\ GB \}$

(2) $S = \{0, 1, 2\}$

∵ we are interested in number of boys

there can be no boy, 1 boy or 2 boys

Qn 5 → let the balls are R, B_1, B_2, B_3

$S = \{ RB_1,\ B_1R,\ RB_2,\ B_2R,\ RB_3,\ B_3R,\ B_1B_2,\ B_2B_1,\ B_2B_3,\ B_3B_2,\ B_1B_3,\ B_3, B_1 \}$

Qn 6 → A = Sum is even i.e 2, 4, 6, 8, 10, 12

$A = \{ (1,1), (1,3)\ (3,1), (2,2), (1,5)\ (5,1)\ (2,4)\ (4,2)\ (3,3), (2,6)\ (6,2)\ (3,5)\ (5,3)\ (4,4), (4,6)\ (6,4)\ (5,5), (6,6) \}$

B = Sum is multiple of 3 i.e 3, 6, 9, 12

$B = \{ (1,2)\ (2,1), (1,5)\ (5,1)\ (2,4)\ (4,2)\ (3,3), (3,6)\ (6,3), (4,5)\ (5,4), (6,6) \}$

C = Sum is ~~less~~ less than 4 i.e 2, 3

$C = \{(1,1), (1,2), (2,1)\}$

D = Sum is more than 11 i.e 12

$D = \{(6,6)\}$

$A \cap B = \{(1,5), (5,1)\ (2,4), (4,2), (3,3), (6,6)\} \neq \phi$

$B \cap C = \{(1,2), (2,1)\} \neq \phi$

$C \cap D = \{\ \} = \phi$

$A \cap C = \{(1,1)\} \neq \phi$

$A \cap D = \{(6,6)\} \neq \phi$

$B \cap D = \{(6,6)\} = \phi$

$\therefore$ C & D are mutually exclusive events

Ans. 7 → $S = \{HHH, HHT, THH, THT, TTH, TTT, HTH, HTT\}$

(1) let A → getting all head

B → getting all tail

$A = \{HHH\}$ & $B = \{TTT\}$

Clearly $A \cap B = \phi$ $\therefore$ Mutually exclusive

(2) let A → getting atmost 1 tail

B → getting 2 tails

C → getting 3 tails

$A = \{THH, HTH, HHT, HHH\}$

$B = \{TTH, THT, HTT\}$

$C = \{TTT\}$

Clearly $A \cap B \cap C = \phi$

and $A \cup B \cup C = S$

$\therefore A, B, C$ are mutually exclusive & exhaustive events. Ans

(3) Same examples as in (i) part

$A \cup B \neq S$

But $A \cap B = \phi$ $\therefore$ A & B are mutually exclusive but not exhaustive. Ans

Ans 8 → A leap year has 366 days

52 weeks and 2 more ~~two~~ day

then 2 days can be

$S = \{$(Sun, Mon), (Mon, Tues), (Tues, Wed), (Wed, Thus), (Thus, Frid), (Frid, Sat) (Sat, Sun)$\}$

(i) let A → getting 53 Sundays

$A = \{$(Sun, Mon), (Sat, Sun)$\}$

$P(A) = 2/7$ Ans

(ii) let A → getting 53 Sunday & 53 mondays

$A = \{$(Sun, Mon)$\}$

$P(A) = 1/7$ Ans

—x—