MATHEMATICS GRADE 12

WORKSHEET 9 G.S & L.S

I. Choose the correct answer with justification:

№	Question	Answers		
		a	b	C
1)	Given: $P(A \cap B) = 0.1$, $P(A \cap \bar{B}) = 0.5$ $P(B) = 0.3$. Then $P(A \cup B) =$	0.9	0.8	0.4
2)	Using the elements of set E={1, 2, 3, 4, a , b, c , S , @ , !} the number of passwords formed of 2 letters,2 distinct digits and 1 symbol is: Note: symbols are S , @ , !	324	6!	9720
3)	A class contains 10 boys and 15 girls. A group of 5 students is chosen to participate in an English competition. The probability that the selected group is made up of 3 girls and 2 boys is :	$\frac{15 \times 14 \times 13 \times 12 \times 11}{25 \times 24 \times 23 \times 22 \times 21}$	5!	$\frac{195}{506}$
4)	Two dice are rolled at random. The probability that the sum appeared on the 2 dice is less than or equal 10 is:	$\frac{5}{6}$	$\frac{3}{36}$	$\frac{33}{36}$
5)	The number of ways so that 4 math books ,3 english books and 2 arabic books can be arranged on a shelf where the math books will be together is :	9!	6!	17280

An Urn contains 9 balls:

- **2 red balls numbered 0 , 1 ,**
- **4 blue balls numbered 0 , 1 , 2 , 3.**
- **3 green ball numbered 2,2,3 .**

Part A:

A ball is selected at random from the urn.

Calculate the probability of the following event:

A: " The selected ball is green".

B:" The selected ball holds an odd number".

Part B:

3 balls are selected successively and without replacement from this urn.

Calculate the probability of the following events:

C:"The 3 selected balls are blue".

D:"The 3 selected balls are of 3 different colors ".

E:".At least 2 of the chosen balls are green".

F: " The product of the numbers on the selected balls is zero" ..

Part C:

3 balls are drawn randomly and simultaneously from this urn.

Calculate the probability of the following events:

G: " The selected balls are of same color"

H: " The total sum of the numbers on the selected balls is 6" .

I: " The total sum of numbers on the selected balls is 6 and their product is equal zero.

III. Consider a fair spinner of 6 sections numbered as follows 1, 1, 2, 2, 2, 2 and a bag B containing cards as follows: two cards numbered -50, three cards numbered +50 and two cards numbered +100.

PART A

The spinner is spun two times. If the obtained numbers are equal, then three cards are drawn randomly and simultaneously from bag B. Otherwise, two cards are drawn successively and without replacement from B.

Consider the following events: E: the two numbers obtained by spinning the spinner two times are equal.

H: the sum of the numbers of the cards drawn from bag B is equal to 150.

1) Show that $P(E) = \frac{5}{9}$

2) a. calculate $P(H/E)$, *verify that* $P(E \cap H) = \frac{1}{21}$.

   b. Show that $P(H/\bar{E}) = \frac{2}{7}$, then calculate $P(\bar{E} \cap H)$.

   c. Deduce that $P(\bar{H}) = \frac{52}{63}$.

3) The sum of numbers of the cards drawn from B is not equal to 150.

Calculate the probability that the two numbers obtained by the spinner are equal.

PART B

A game consists of drawing cards, successively and with replacement, from bag B.

The game ends if the sum of numbers of the cards drawn is zero or if all the cards are drawn.

Calculate the probability of the following event:

Z:''the sum of numbers of cards drawn is zero and no cards numbered +100 is obtained''.