FREEMIND

Date

Page

Assignment - 3

Q1 What is the compound interest accured on an amount of ₹15000 at the rate of 20% p.a. in two years, if it is compounded half-yearly
d> 6961.5

Q2 At what rate % p.a. will 2304 amount to 2500 in 2 years at compound interest?
c> $4\frac{1}{6}$ %.

Q3 If a sum of money amounts to ₹192900 and ₹14250 at the end of 4th year and 5th year respectively at a certain rate of simple interest, then the rate of interest is:
c> 18%.

Q4 A sum of money at simple interest triples itself in 15 years. It will become 15 times of itself in
c> 30 years

Q5 A student gets 33.33% marks in an examination if the total mark is 999, then find his marks
a> 333

Q6 In how many ~~years~~ way can 6 pope be arranged in a row?
c> 720

Q7 In how many ways can the letters of the word 'PARAGLIDING' be arranged such that all the vowels occur together?
b> 120960 ways

Q8 8 members are to be selected from a group of 9 males and 7 females. In how many ways will the members with at most 3 females and at least 4 males be selected?

c) 6435 ways

Q9 In how many ways can the letters of the word 'VENTURE' be arranged?

d) 2520 ways

Q10 Out of 7 consonants and 4 vowels, how many words of 3 consonants and two vowels can be formed?

c) 25200 ~~ways~~

Section-B

Q1 A certain sum, invested at 4% p.a. compound interest, compounded half yearly amounts to 7,803 at the end of one year. The sum is

$$\text{amount} = P\left(1 + \frac{R}{200}\right)^{2t}$$

$$7803 = P\left(1 + \frac{4}{200}\right)^{2}$$

$$7803 = P\left(\frac{51}{50}\right)^{2}$$

$$\frac{7803 \times 2500}{51 \times 51} = P$$

$$P = 7500$$

c) 7500

FREEMIND

Date

Page

Q2 The income of a person has gone decrease from 1000 to 950. The percent value of income that has gone decreased is %.

amount decreased = 1000 − 950 = 50

$$\%\text{ decrease} = \frac{50}{1000} \times 100 = 5\%$$

b) 5%

Q3 In how many ways a committee consisting of 3 men and 2 women can be chosen from 7 men and 5 women

$$^{7}C_{3} \times {}^{5}C_{2}$$

$$\frac{7!}{3!(7-3)!} \times \frac{5!}{2!(5-2)!}$$

$$\frac{7 \times 6 \times 5 \times 4!}{6 \times 4!} \times \frac{5 \times 4 \times 3!}{2 \times 3!}$$

$$35 \times 10$$

$$350$$

b) 350

Q4 Ten different letters of alphabet are given. Words with five letters are formed from these given letters. Then the number of words which have at least one letter repeated is

Number of 5 letter words (with the condition that a letter can be repeated) $= 10^5$

Again number of words using 5 different letters is $^{10}P_5$

Date

Page

Therefore, required number of letters

= Total number of words - Total number of words in which no letter is repeated

= 100000 - 30240

= 69760

Section-C

Q1 If the compound interest on a sum of money for 3 years at the rate of 5% p.a. is 252.20, the simple interest on the same sum at the same rate and for the same time is

Amount = P + C.I.

$$P + 252.20 = P\left(1 + \frac{5}{100}\right)^3$$

$$P + 252.20 = P\left(\frac{21}{20}\right)^3$$

$$252.20 = \frac{9261P}{8000} - P = \frac{9261P - 8000P}{8000}$$

$$= \frac{1261P}{8000}$$

$$\frac{252.20 \times 8000}{1261 \times 100} = P$$

$$P = 1600$$

$$S.I. = \frac{1600 \times 5 \times 3}{100} = 240$$

b.) 240

Date

Page

Q2 A student has to answer 10 questions, choosing atleast 4 from each ~~pair~~ parts A and B. If there are 6 questions in Part A and 7 in part B, in how many ways can the student choose 10 questions?

Total A - 6, B - 7

case-1 A - 4, B - 6

case-2 A - 5, B - 5

case-3 A - 6, B - 4

$$^6C_4 \times {}^7C_6 + {}^6C_5 \times {}^7C_5 + {}^6C_6 \times {}^7C_4$$

$$\frac{6!}{4!2!} \times \frac{7!}{6!1!} + \frac{6!}{5!1!} \times \frac{7!}{5!2!} + 1 \times \frac{7!}{4!3!}$$

$$15 \times 7 + 6 \times 21 + 1 \times 35$$

$$105 + 126 + 35$$

$$= 266$$

a.) 266

Section-D

Q1 If the difference between the compound interest and simple interest on a sum at 5% rate of interest p.a. for three years is 36.60, then the sum is

Let S.I. = x

then C.I. = 36.60 + x

$$S.I. = x = \frac{P \times 5 \times 3}{100} = 0.15P$$

$C.I. = 36.60 + 0.15P$

$Amt = C.I. + P = P\left(1 + \frac{R}{100}\right)^T$

$36.60 + 0.15P + P = P\left(1 + \frac{5}{100}\right)^3$

$36.60 + 1.15P = P\left(\frac{21}{20}\right)^3$

$36.60 = \frac{9261P}{8000} - 1.15P$

$= \frac{9261P - 9200P}{8000}$

$36.60 \times 8000 = 61P$

$292800 = 61P$

$P = \frac{292800}{61} = 4800$

d.) 4800

Q2 In how many ways 3 mathematics books, 4 history books, 3 chemistry books and 2 biology books can be arranged on a shelf so that all books of the same subjects are together?

3 mathematics books can be arranged in $3! = 6$ ways
4 history books can be arranged in $4! = 24$ ways
3 chemistry books can be arranged in $3! = 6$ ways
2 biology books can be arranged in $2! = 2$ ways

Now these four sets can be arranged in $4! = 24$ ways
There total ways $= 6 \times 24 \times 6 \times 2 \times 24 = 41472$

a) 41472