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**I.P.C.C.                      AVERAGE DUE DATE (SOLUTION)                      ACCOUNTS**

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**Sol.1. Considering 3<sup>rd</sup> July as the starting day the following table is prepared :**

Due Dates	Amount	No. of Days from 3 <sup>rd</sup> July	Products
3 <sup>rd</sup> July	500	0	0
2 <sup>nd</sup> August	800	30	24,000
11 <sup>th</sup> September	1,000	70	70,000
	<b>2,300</b>		<b>94,000</b>

$$\text{Average Due Date} = 3^{\text{rd}} \text{ July} + \frac{94,000}{2,300}$$

$$= 3^{\text{rd}} \text{ July} + 41 \text{ days} = 13^{\text{th}} \text{ August}$$

Assuming 5% is interest rate, the debtor loses interest due to early payment of Rs.1,000 for 29 days (from 13<sup>th</sup> August to 11<sup>th</sup> September) i.e. Rs.4. He however, gains interest, due to late payment on Rs.500 for 41 days from 3<sup>rd</sup> July to 13<sup>th</sup> August and on Rs.800 for 11 days i.e. Rs.2.80 + Rs.1.20, i.e., Rs.4. Thus the debtor neither loses nor gains by payment of all the amounts on 13<sup>th</sup> August.

It should be noted that in calculating the number of days only one of the dates, either the starting date or the due date is to be counted. In the same fashion bill due to one party may be cancelled as against bills of same amount due from the same party after adjustment of interest for the period elapsing between the two average due dates. Instead of payment of several bills on the same date as above, other bill starting from the average due date for agreed period together with interest for the period may be accepted.

**Sol.2. (1) Ordinary System :**

A :	500 for 9 months	=	4,500 for 1 month
	800 for 6 months	=	4,800 for 1 month
	1,000 for 5 months	=	5,000 for 1 month
	400 for 1 month	=	400 for 1 month
		=	<u>14,700 for 1 month</u>
	14,700 @ 6% for 1 month	=	1/2 % of 14,700
		=	Rs.73.50
B :	1,000 for 292 days	=	2,92,000
	500 for 232 days	=	1,16,000
	400 for 50 days	=	20,000
	900 for 24 days	=	<u>21,600</u>
		=	<u>4,49,600</u>

$$4,49,600 \times \frac{6}{100} \times \frac{1}{365} = \text{Rs.73.91}$$

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**IDEAL/e-LIVE/I.P.C.C./ACCOUNTS/AVERAGE DUE DATE(Sol.)**

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(2) Average Due Date System :

(a) Taking 1.7 as O-day :

	<b>Dates</b>	<b>Rs.</b>	<b>Months from 0-day</b>	<b>Products</b>
	1.7	500	0	0
	30.9	800	3	2,400
<b>A</b>	1.11	1,000	4	4,000
	28.2	400	8	3,200
		<u>2,700</u>		<u>9,600</u>

$$\text{A.D.D.} = \frac{9,600}{2,700} \text{ months from 1.7 ..... i.e., 3.556 months i.e. October 17}^{\text{th}}.$$

Interest is chargeable from October, 17 to March 31 i.e. 5,444 months.

$$2,700 \times \frac{6}{100} \times \frac{5.444}{12} = \text{Rs.73.49}$$

Or,

Taking 1<sup>st</sup> April as O-day :

<b>A :</b>	<b>Dates</b>	<b>Rs.</b>	<b>Months from 0-day</b>	<b>Products</b>
	1.7	500	3	1,500
	30.9	800	6	4,800
	1.11	1,000	7	7,000
	28.2	400	11	4,400
		<u>2,700</u>		<u>17,700</u>

$$\text{A.D. D.} = \frac{17,700}{2,700} \text{ months from 1.4 .... i.e. 6.556 months i.e. 17}^{\text{th}} \text{ October.}$$

Interest is chargeable from October 17 to March 31 i.e. 5,444 months.

$$2,700 \times \frac{6}{100} \times \frac{5.444}{12} = \text{Rs.73.49}$$

(b) Taking 12<sup>th</sup> June as O-day :

	<b>Dates</b>	<b>Rs.</b>	<b>Months from 0-day</b>	<b>Products</b>
	12.6	1,000	0	0
	11.8	500	60	30,000
<b>B</b>	9.2	400	242	96,800
	7.3	900	268	2,41,200
		<u>2,800</u>		<u>3,68,000</u>

$$\text{A.D.D.} = \frac{3,68,000}{2,800} \text{ days from 12.6 ..... i.e., 131 days.}$$

<b>A :</b>	<b>Dates</b>	<b>Rs.</b>	<b>Months from 0-day</b>	<b>Products</b>
				June 18
				July 31
				Aug. 31
				Sept. 31
				<u>110</u>

131 days – 110 days i.e. 21<sup>st</sup> October

So, interest is chargeable from 21.10 ..... to 31.3..... i.e. for 161 days.

$$2,800 \times \frac{6}{100} \times \frac{161}{365} = \text{Rs.74.10}$$

The Differences in amounts in the two systems (1) and (2) are due to approximation.