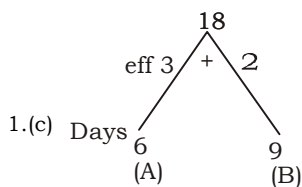


# SOLUTION OF TIME AND WORK



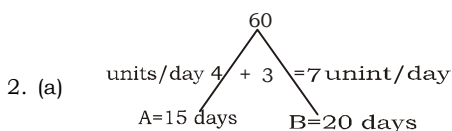
A's one day work (A का एक दिन का कार्य) = 3 units

B's one day work (B का एक दिन का कार्य) = 2 units

(A + B) Complete the whole work in (A + B पूरे काम को खत्म करते हैं) :

T.W

$$\frac{\text{T.W}}{\text{eff of A, B}} = \frac{18}{3, 2} = 3.6 \text{ days}$$



4 days work of A and B is  $7 \times 4 = 28$  units

work left  $60 - 28 = 32$  units

$$\frac{\text{Rest work}}{\text{Total work}} = \frac{32}{60}$$

$$\text{fraction} = \frac{8}{15}$$

3.(c) Cultivate in 1 day

A can cultivate  $\frac{2}{5}$  th of land in 6 days

A भूमि का  $\frac{2}{5}$  वाँ भाग 6 दिन में जोतता है।

A can cultivate 1 part of land in

$$6 \times \frac{5}{2} = 15 \text{ days}$$

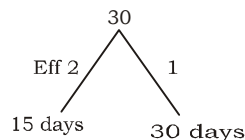
(तब A द्वारा कुल भूमि को जोतने में लिया गया समय)

B can cultivate  $\frac{1}{3}$  rd of land in 10 days

(B द्वारा भूमि के  $\frac{1}{3}$  भाग को जोतने में लिया गया समय)

B can cultivate 1 part of land in 30 days

(B द्वारा कुल भूमि को जोतने में लिया गया समय)



T.W = 30 units

$$\frac{4}{5} \text{ th of work} = \frac{4}{5} \times 30 = 24 \text{ units}$$

$\frac{4}{5}$  th work done by A + B in

$$= \frac{24}{3} \text{ days} = 8 \text{ days}$$

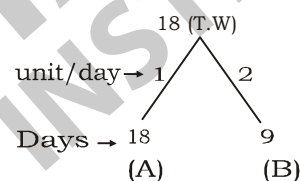
4.(a) If A does a work in 18 days.

(यदि A एक काम को 18 दिन में करता है)

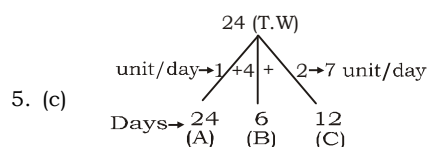
ATQ, (प्रश्नानुसार)

B does same work in 9 day.

(B द्वारा उसी काम को करने में लिया गया समय)



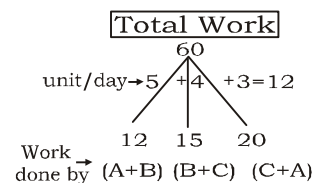
$$= \frac{3}{18} > \frac{1}{6} \text{ part}$$



$$A + B + C = \frac{24}{7}$$

$$= 3\frac{3}{7} \text{ days}$$

6. (c) Concept



**Description:**

\* In these kind of Questions, always take total work [T.W.] as L.C.M of

no of days. Here T.W. is 60. (इस तरह के प्रश्न में, हमेशा दिनों की संख्या का लघुतमस मापवर्तक कुल काम के लिए लिया जाता है। यहाँ कुल काम है।)

\* If A + B complete the whole work in 12 days, so their one day work will be 5 unit. Similarly we will calculate the one day work for other two pair. ( यदि A + B पूरे काम को 12 दिन में करते हैं, इस प्रकार उनका एक दिन का काम 5 unit है इसी तरह से दो अतिरिक्त जोड़ों का एक दिन का काम लेना होगा।)

(Here, 12 unit represents twice of the work done by A, B and C. So we will divide it by 2) ( यहाँ, 12 unit काम A, B तथा C का दुगुना काम दर्शाता है।) work done by (A + B + C)/day ,

$$(A + B + C) \text{ का प्रतिदिन का काम} = \frac{12}{2}$$

$$= 6 \text{ units/day}$$

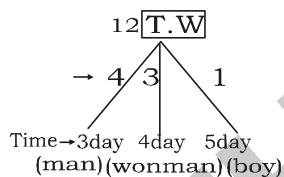
] Total time taken by (A + B + C)

{(A + B + C) द्वारा लिया गया कुल समय }

$$\frac{\text{Total work}}{\text{T.W done by (A, B, C)/day,}}$$

$$\frac{360}{6} = 60 \text{ days}$$

8.(d)



If they have to complete the 12 units

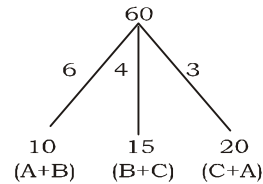
work in  $\frac{1}{4}$  of day . (यदि वे 12 units

काम को  $\frac{1}{4}$  दिन में करते हैं।)

So it mean their combined efficiency should be 48 units/day. (इस प्रकार उनकी मिलाकर कार्यक्षमता 48 units/प्रतिदिन है।) (1man + 1woman)'s efficiency = 4 + 3 = 7 units unit left = 48 - 7 = 41 units Now No of boys required (अब, लड़कों की कुल आवश्यकता है।)

$$= \frac{\text{T.W}}{\text{eff of a boy}} > \frac{41}{1} > 41 \text{ boy}$$

9. (b)



A + B + C work  $13\frac{1}{2}$  units/day

A + B work 6 unit/day

C work/day = [(A + B + C) - (A + B)]

$$\frac{13}{2} \cdot \frac{1}{6} > 120 \text{ unit/day}$$

$$\text{C will finish in } \frac{60}{\frac{1}{2}} = 120 \text{ days}$$

10. (b)

If (A + C)'s one day work = 6 units and A's one day work = 3 units then C's one day work = 6 - 3 = 3 units. (B + C)'s one day work = 4 units then B's one day work = 1 unit (यदि (A + C) का एक दिन का काम 6 units है और A का एक दिन का काम 3 units है, तो C का एक दिन का काम 6 - 3 = 3 है, B और C का एक दिन का काम 4 units है, तो B का एक दिन काम 1 unit है।)

B can complete the whole work in (B सारे काम को कर सकता है।)

$$\frac{\text{T.W}}{\text{eff of B}} > \frac{12}{1} > 12$$

11. (b) ATQ, (प्रश्नानुसार)

work done by A + B per day (A + B का प्रति दिन का कार्य) = 3 units

work done by A/day (A का प्रति दिन का कार्य) = 2

So,

The portion of the work done by A

$$(\text{A द्वारा किये गये कार्य का भाग है}) = \frac{2}{3}$$

13. (d)

If A and B worked till last with same efficiency. Then their profit/ wages will be divided in the ratio of efficiency ( यदि A और B समान कार्य क्षमता से अंतिम तक कार्य करते हैं तो उनका लाभ/मजदूरी उनकी कार्य क्षमता के अनुसार विभाजित होगा)

$$14. (d) A \text{ can do } \frac{1}{2}$$

of a piece of work in

5 days (A  $\frac{1}{2}$

कार्य को 5 दिनों में करता है)

A can do 1 unit of the work in (A 1

इकाई कार्य खत्म करता है)  $\frac{5 \times 2}{1} = 10$  days

Similarly B complete 1 unit of work in (इस प्रकार B 1 इकाई कार्य खत्म करता है)

$$= \frac{9 \times 5}{3} = 15 \text{ days}$$

C complete 1 unit of work in (C 1 इकाई कार्य खत्म करता है) = 12 days

= A + B + C one day work

= 15 units

↓ They will complete the whole work in (वे पूरा कार्य खत्म करेंगे)

$$\frac{60}{15} = 4 \text{ days}$$

15. (a) A man and a boy get '800 for 5 days (एक आदमी और एक लड़का 5 दिनों के लिए रु 800 प्राप्त करते हैं)

A man and a boy get Rs.  $\frac{800}{5}$

= 160 for

1 day. (एक आदमी और एक लड़का एक दिन

के लिए रु  $\frac{800}{5} = 160$  प्राप्त करते हैं)

If man is twice efficient than boy.

So their efficiency will be in ratio

of (यदि आदमी, लड़के से दुगुना कुशल है तो उनकी कार्य क्षमता का अनुपात है) 2 : 1. (M : B)

Daily wages of the boy is (लड़के का

$$\text{प्रति दिन की मजदूरी है}) \frac{1}{3} \times 160 > \text{Rs. } 53\frac{1}{3}$$

16. (b) Try to solve these kind of question by option

Because of his being absent he was paid Rs. 750 less Now check with option. Since max. possible daily wages is asked so it will be 250

(इस तरह के प्रश्न विकल्पों द्वारा हल करें। काम से उसे अनुपस्थित होने के कारण रु 750 कम मिलते हैं) .

or

It is required to find the highest common factor (HCF) of 5750 and 5000 (इसको हल करने के लिए 5750 और 5000 का HCF लें)

17. (d)

$$2(A + B + C) = 9 \text{ units/day}$$

$$A + B + C = \frac{9}{2} \text{ units/day}$$

$$(C + A) = 4 \text{ unit/day}$$

$$B's \text{ one day work} = \frac{9}{2} - \frac{4}{1}$$

$$= \frac{1}{2} \text{ unit/day}$$

$$\frac{T.W}{\text{eff. of B}} > \frac{24 \times 2}{1} = 48 \text{ days}$$

18. (a) Let total work be 50 units  
(माना कुल काम 50 इकाई है)

$$\frac{4}{5} \times \text{any multiple of 5 (5 का कोई भी गुणक)}$$

$$A \text{ does } \frac{4}{5} \text{ th of work } \downarrow \frac{4}{5} \times 50$$

$$= 40 \text{ units in 20 days}$$

So,

A does 2 units/day (A की क्षमता बराबर 2 इकाई/दिन)

work left (शेष कार्य): 50 - 40 = 10 units

A's 3 days work (A का तीन दिन का काम)

$$= 2 \text{ units/day} \times 3 \text{ days}$$

$$= 6 \text{ units}$$

$$] \text{ Left work (शेष कार्य)} = 10 - 6 = 4 \text{ units}$$

So,

B's work per day (B द्वारा प्रति दिन किया

$$\text{गया काम}) = \frac{4}{3}$$

$$B's \text{ will do whole work} = \frac{50}{\frac{4}{3}} = 37\frac{1}{2} \text{ days}$$

(कुल काम करने में B द्वारा लिया गया समय)

19. (c) Let total work be 1 unit  
(माना कुल कार्य 1 इकाई)

$$A \text{ and B completes } 1 - \frac{7}{10} > \frac{3}{10} \text{ of}$$

work in 4 days.

$$(A \text{ और B मिलकर कार्य के } \frac{3}{10} \text{ भाग को चार दिन}$$

में करता है)

They will complete the whole work in  
(वे कुल काम को पूरा करेंगे)

$$\frac{3}{10} \text{ work in 4 days}$$

$$1 \text{ work in } 13\frac{1}{3} \text{ days}$$

20. (c)

$$= 2(A + B + C) = 15$$

$$(A + B + C) = \frac{15}{2} \text{ units/day}$$

$$(A + B + C)'s \text{ 10 day work} = \frac{15}{2} \times 10$$

$$= 75 \text{ units}$$

$$\text{work left } 120 - 75 = 45 \text{ units}$$

Now A will do remaining work in

(अब A बचे हुये काम को खत्म करेगा)

A's work (A का काम) ↓

$$(A + B + C) - (B + C) \Downarrow \frac{15}{2}$$

$$\Downarrow \frac{5}{2} \text{ units/day}$$

A will complete (A काम पूरा करेगा)

$$\frac{T.W}{\text{unit/day}} > \frac{45}{5} \approx 2 > 18 \text{ day} = 18 \text{ days}$$

21. (c)

efficiency (कार्य क्षमता) of C

$$= A + B + C - A - B$$

$$= 6 - 3 - 2 = 1 \text{ unit/day}$$

efficiency (कार्य क्षमता) of B = 2 units

efficiency (कार्य क्षमता) of A = 3 units

Share/profit of C (C का हिस्सा/लाभ) =

$$\frac{\text{eff. of C}}{\text{Totaleff.}} \propto \text{Total amount}$$

$$> \frac{1}{6} \approx 4500 = \text{Rs. } 750$$

25. (b) A completes  $\frac{1}{3}$  unit of work in 5 days

(A  $\frac{1}{3}$  कार्य की इकाई को पाँच दिनों में करता है)

A completes 1 unit of work in (A एक

इकाई कार्य खत्म करता है)  $\frac{5}{1} \approx 3 > 15 \text{ days}$

B completes  $\frac{2}{5}$  unit of work in 10 days

(B  $\frac{2}{5}$  कार्य की इकाई को पाँच दिनों में करता है)

B completes 1 unit of work in (B एक

इकाई कार्य खत्म करता है)  $\frac{10}{2} \approx 5 = 25 \text{ days}$

(A + B) one day work = 5 + 3 = 8 units

(A + B) complete whole work in

$$= \frac{75}{8} > 9 \frac{3}{8} \text{ days}$$

26. (b)

C's efficiency is (A + B + C)'s efficiency  
(A + B)'s efficiency 8 - 7 = 1 unit/day  
So, C's share will be in ratio

27. (c)

Son's efficiency = 5 - 3 = 2 units/days

Son will do in  $\frac{15}{2} = 7.5 \text{ days}$

29. (c)

B's one day work (B का एक दिन का

कार्य) = 2 units/days

A's one day work (A का एक दिन का

कार्य) = 3 - 2 = 1 unit/day

4 days work of 'B' = 4 × 2 units/

days = 8 units

work left = 24 - 8 = 16 units

A will complete the remaining work

in (A बचे हुये कार्य को खत्म करेगा)

$$\frac{16 \text{ units}}{1 \text{ unit/day}} = 16 \text{ days}$$

30. (a)

A's one day work (A का एक दिन का कार्य)

= 4 - 2 = 2 units.

B's one day work (B का एक दिन का

कार्य) = 3 - 2 = 1 unit

C's one day work (C का एक दिन का

कार्य) = 2 - 1 = 1 unit

A and C complete the whole work

in (A और C पूरा कार्य खत्म करेंगे)

$$= \frac{T.W}{\text{eff. of A, B}} > \frac{24}{2, 1} > 8 \text{ days}$$

33. (c) P completes  $\frac{1}{4}$

of work in 10 days

P completes full of work in

$$\frac{10}{1} \approx 4 = 40 \text{ days}$$

Q completes 40% of work in 145 days

Q completes full 100% of work in

$$= \frac{145}{40} \approx 100 = 362.5 \text{ days}$$

R completes  $\frac{1}{3}$  of work in - 13 days

R completes full of work in  $\frac{13}{1} \approx 3$

= 39 days

S completes  $\frac{1}{6}$  of work in 7 days

S completes full the whole work in

$$= \frac{60}{3} = 20 \text{ days}$$

38. (a)

A + B one hour work = 7 unit  
 $\Downarrow$  (A+B)'s 8 hours work =  $8 \times 7$   
 = 56 units/day  
 (A+B) complete the whole work in

$$(A+B \text{ पूरा कार्य खत्म करते हैं}) = \frac{168}{56}$$

= 3 days

39. (a)

A and B do 5 units/hour so they will do  $5 \times 8 = 40$  units in 8 hours or a day. and the whole work will

$$\text{be complete in} = \frac{T.W}{40 \text{ units/day}}$$

$$\Downarrow \frac{120}{40} \Downarrow 3 \text{ days}$$

41. (a)

(2 men and 8 women)'s one day work is  
 =  $[(2 \times 3) + (8 \times 2)]$   
 =  $6 + 16 = 22$  units  
 In 2 days (2 men + 8 women) will do = 44 units Remaining work  
 $60 - 44 = 16$  units will be complete by boys in 2 days. (बचे हुए 16 इकाई कार्य को लड़के द्वारा दो दिन में खत्म होता है)  
 So, 8 units of work will be done by boys in 1 day and one boy does one units/days. So 8 boys are required to do 8 units.  
 = 8 boys

43. (c)

(M + W) one day work = 5 units  
 M's one day work = 4 units  
 So,  
 woman's one day work =  $5 - 4$   
 = 1 unit  
 Woman will complete in =

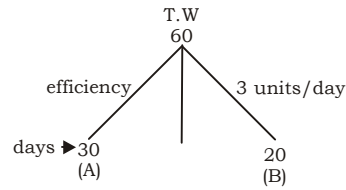
$$\frac{40}{1} = 40 \text{ days}$$

45. (a) A can do  $\frac{1}{6}$  of work in 5 days

A can do 1 of work in  $\frac{5}{1} \propto 6 = 30$  days

B can do  $\frac{2}{5}$  of work in 8 days

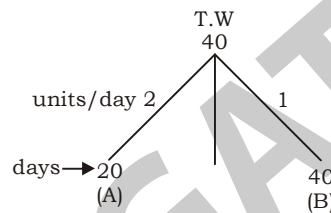
B can do 1 of work in  $8 \propto \frac{5}{2} = 20$  days



A and B will complete the whole

$$\text{work in} = \frac{60}{2, 3} > 12 \text{ days}$$

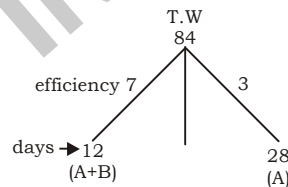
46. (a)



(A + B)'s one day work is  $(2 + 1)$  units  
 (A + B)'s 5 day work is  $3 \times 5 = 15$  units  
 work left =  $40 - 15 = 25$   
 fraction of work left (बचे हुए कार्य का

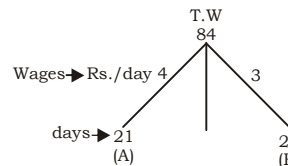
$$\text{भाग}) = \frac{\text{Work left}}{\text{total work}} = \frac{25}{40} > \frac{5}{8}$$

48. (b)



B's efficiency = (A + B) - A  
 =  $7 - 3 = 4$  units/day  
 B can dig it alone in  
 = 21 days

49. (d)



(A + B)'s one day wage =  $4 + 3 = \text{Rs.} 7$   
 Money (Rs. 84) is sufficient to pay wages for (84 रुपये निम्न दिनों के लिए आवश्यक है)

$$\Downarrow \frac{84 \text{ (total money)}}{(4, 3) \text{ one day wages}}$$

$\Downarrow 12$  days

50. (b) (A + B + C)'s one day earning (A + B + C एक दिन की कमाई) = Rs. 150

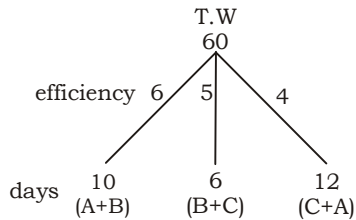
(A + C)'s one day earning (A + C एक दिन की कमाई) = Rs. 94

B's one day earning (B एक दिन की कमाई) = (A + B + C) - (A + C) = 150 - 94 = Rs. 56

(B + C)'s one day earning (B + C एक दिन की कमाई) = Rs. 76

C's one day earning (C एक दिन की कमाई) = 76 - 56 = ' 20

53. (c)



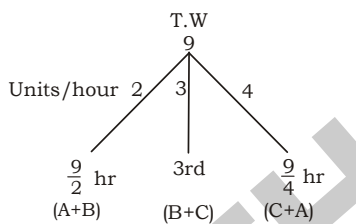
$2(A + B + C) = 21$  units/day

A, B, C >  $\frac{21}{2}$  units/day

(A + B + C) will complete whole work in

$$\frac{60}{\frac{21}{2}} > 5\frac{5}{7} \text{ days}$$

54. (b)



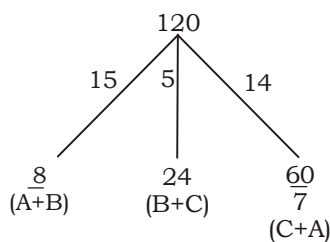
$2(A + B + C) = 9$  units/hours

A, B, C >  $\frac{9}{2}$  units/hours

(A + B + C) will complete whole work in

$$\frac{\text{T.W}}{\text{units/day}} \frac{9}{\frac{9}{2}} > \text{hours}$$

55. (a)



efficiency

$2(A + B + C) = 34$  units/day

(A + B + C) = 17 units/day

A + B = 15 units/day

So,

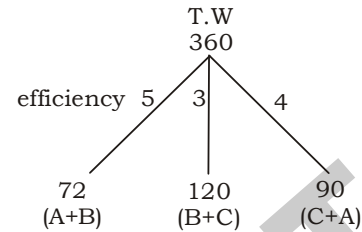
C = 17 - 15 = 2 units/day.

C will complete the whole work in

(C अकेला पूरा कार्य खत्म करेगा)

$$\frac{120}{2} > 60 \text{ days}$$

58. (c)



$2(A + B + C) = 12$  units/day

(A + B + C) = 6 units/day

In 3 days.

A + B + C will do =  $6 \times 3 = 18$  units

In 3 days the part of work will finish in =

$$\frac{3 \text{ days work}}{\text{T.W}} > \frac{18}{360} > \frac{1}{20}$$

59. (d) Skilled half skilled unskilled

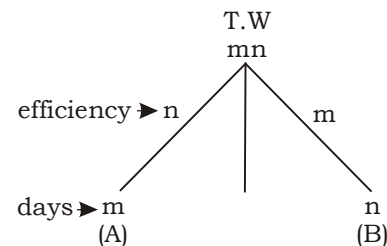
$$\text{efficiency } \frac{1}{3} : \frac{1}{4} : \frac{1}{6}$$

$$\text{efficiency } 4 : 3 : 2$$

Skill halfskill unskilled

No. of days worked =

60. (d)



efficiency of A and B = m + n

(A + B) completes the work in

$$\frac{\text{T.W}}{\text{efficiency(A, B)}} > \frac{mn}{m, n}$$

62. (c) A can do  $\frac{1}{4}$  units work in 10 days

( $\frac{1}{4}$  कार्य को 10 दिनों में कर सकता है)

A can do 1 unit of work in (A 1 कार्य को कर सकता है)

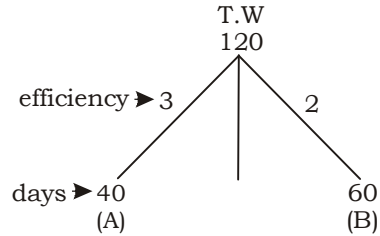
$$\frac{10}{\frac{1}{4}} > 40 \text{ days}$$

B can do  $\frac{1}{3}$  unit of work in 20 days

(B  $\frac{1}{3}$  कार्य को 20 दिनों में कर सकता है)

B can do 1 unit of work in (B 1 कार्य

को कर सकता है)  $\frac{20 \times 3}{1} > 60$  days



A + B can do whole work in (A+B पूरा कार्य कर सकते हैं)

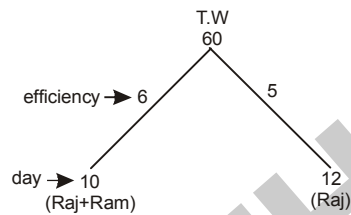
$$\frac{120}{3, 2} > 24 \text{ days}$$

Ram's efficiency (राम की कार्य क्षमता) = 6 - 5 = 1 unit/day

Ram completes whole work in (राम पूरा कार्य कर सकता है)

$$\frac{\text{T.W } 60}{\text{efficiency } 1} > 60 \text{ days}$$

63. (b)



Ram's efficiency (राम की कार्य क्षमता) = 6 - 5 = 1 unit/day

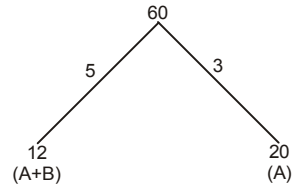
Ram's efficiency whole work in (राम पूरा कार्य कर सकता है)

$$\frac{\text{T.W } 60}{\text{efficiency } 1} > 60 \text{ days}$$

64. (b) According to questions, (प्रश्नानुसार)  
If the total work is 23 units A and C completed 19 units together It means 23 - 19 = 4 units is completed by B (यदि कुल कार्य 23 इकाई है। तो A और C मिलकर 19 इकाई कार्य करते हैं)  
So amount paid to B is (तो B मिलने वाली

$$\text{राशि है) } = \frac{4}{23} \times 575 > \text{Rs.100}$$

66. (d)



(A + B)'s one day work (A+B का एक दिन का कार्य) = 5 units

A's one day work (A का एक दिन का कार्य) = 3 units

B's one day work (B का एक दिन का कार्य) = 2 units

B's half day work (B का आधे दिन का कार्य) = 1 units

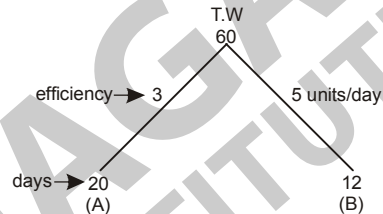
Now,

(A + B)'s work/day = 3 + 1 = 4 units

$$\text{Work done by (A + B) in } = \frac{60}{4}$$

= 15 days

67. (a) According to question,



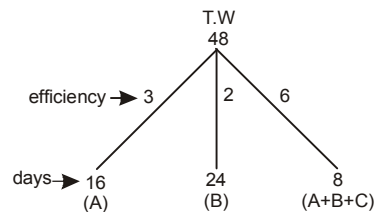
9 days work of B is 9 x 5 units = 45 units

Work left = 60 - 45 = 15 units Now, A will finish

remaining work in (अबचे हुए कार्य को खत्म करेगा)  $\frac{15}{3}$

= 5 days

68. (c)



C's one day work or efficiency is 6 - 3 - 2 = 1 unit

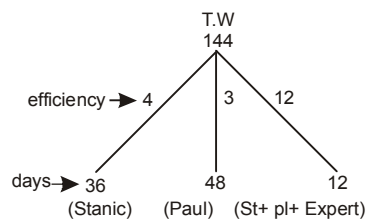
As we know, wages/Ruppes/profit always divided in ratio of efficiency/ ratio of part of work done to total work. (हम जानते हैं कि मजदुरी/रूपये/लाभ हमेशा उनके कार्य क्षमता के अनुपात में विभाजित होता है)

Here,

69. (a) Earlier : Now

No of worker	15	:	11
Wages	22	:	25
Total wages	330	:	275
Total wages	6	:	5

70. (d)



Expert's efficiency

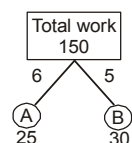
(निपुण व्यक्ति की कार्य क्षमता) :  $12 - 4 - 3 = 5$  units

Remuneration of expert:

(निपुण व्यक्ति की मजदूरी)

$$\frac{5}{12} \propto 28,800 > \text{Rs.}12000$$

71. (d) According to the question,



] A does 6 units in 1 day

B does 5 units in 1 day

] Total work of (A+B) in 1 days = 11 units

In 5 days (A+B) work =  $11 \times 5 = 55$  units

] Work left =  $150 - 55 = 95$  units

$$\text{Ratio} > \frac{95}{150} > \frac{19}{30}$$

72. (c)

$$\begin{array}{l} x = 4\text{hr} \\ y = 8\text{hr} \end{array} \begin{array}{l} 2 \\ 1 \end{array} \begin{array}{l} 8 \\ 1 \end{array}$$

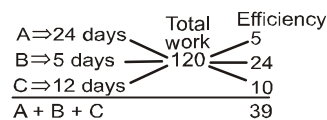
$$x + y = \frac{8}{3}h = 160 \text{ minutes}$$

73. (c)

$$\begin{array}{l} X = \frac{1}{4}w = 6D = 24D \\ y = \frac{3}{4}w = 12D = 16D \end{array} \begin{array}{l} 2 \\ 3 \end{array} \begin{array}{l} 48 \\ 48 \end{array}$$

$$(x, y) > \frac{48}{5} > 9\frac{3}{5} \text{ days}$$

74. (a)



$$\text{No. of days} > \frac{\text{Total work}}{\text{Efficiency}} > \frac{120}{39}$$

$$> 3\frac{1}{13} \text{ days}$$

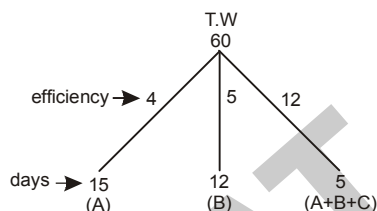
75. (d) Janardan completes  $\frac{2}{3}$  of work in in 10 days (जनार्दन)

न  $\frac{2}{3}$  काम पूरा करता है)

Janardam complete 1 of work in (जनार्दन  $\frac{3}{5}$  काम पूरा करता है)

$$> 15 \propto \frac{3}{5} > 9 \text{ days}$$

76. (a)

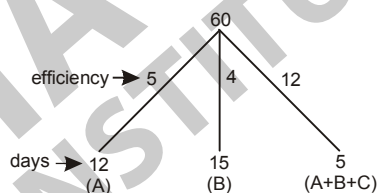


C's efficiency =  $12 - 5 - 4 = 3$

C's share:

$$\frac{3}{12} \propto 1200 > \text{Rs.}300$$

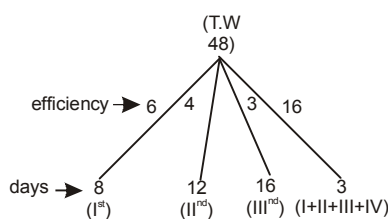
77. (d)



Now,

$$\begin{array}{l} (A+B+C) : A \\ 12 : 5 \\ \downarrow \times 80 \quad \downarrow \times 80 \\ \text{Rs.}960 \quad \text{Rs.}400 \end{array}$$

78. (c)



∴ VI<sup>th</sup> person efficiency

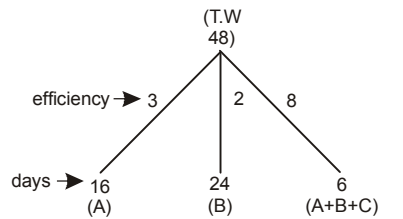
$$= 16 - 6 - 4 - 3 = 3 \text{ units}$$

$$16 \text{ units} \downarrow 1200$$

$$1 \text{ units} \downarrow 75$$

$$3 \text{ units} \downarrow \text{Rs.}225$$

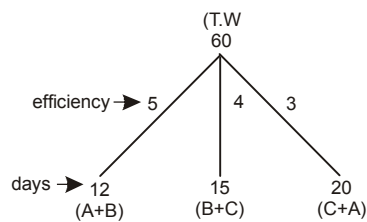
79. (a)



C's efficiency =  $8 - 3 - 2 = 3$  units

(A	:	B	:	C	:	Total
3	:	2	:	3	:	8
$\downarrow \times 50$		$\downarrow \times 50$		$\downarrow \times 50$		$\downarrow \times 50$
Rs.150		Rs.100		Rs.150		Rs.400

80. (b)



efficiency of  $2(A + B + C) = 12$  units/day

$(A + B + C) = 6$  units/day

A's efficiency (A की कार्य क्षमता)

=  $(A + B + C)'s - (B + C)$  efficiency  
 =  $6 - 4$

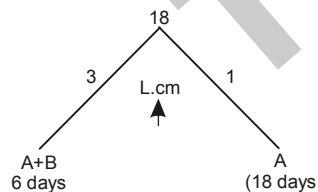
A's efficiency (A की कार्य क्षमता) = 2 units/day

A can complete the whole work in

(A पूरे कार्य को कर सकता है)

$$\frac{T.W}{\text{efficiency}} > \frac{60}{2} > 30 \text{ days}$$

81. (b) Let total work efficiency (माना कि कुल क्षमता)



$\therefore$  efficiencies of

$A+B = 3$

efficiency of  $A = 1$

then B's =  $3 - 1 = 2$

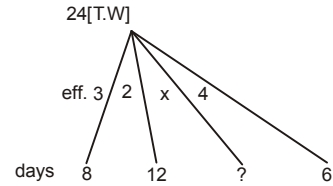
$\therefore$  time, taken by B to finish

the work (B द्वारा कार्य को समाप्त करने में

$$\text{लगा समय} > \frac{\text{Total work}}{\text{efficiency}} > \frac{18}{2}$$

= 9 days

82. (b)



Let efficiency of  $(C+A)$  is 'x' unit per

day (माना कि C+A की प्रतिदिन क्षमता x

यूनिट/प्रतिदिन)

$A+B+C$  one day work ( $A+B+C$  का एक

दिन का कार्य) = 4 units

$2(A+B+C)$  one day work  $2(A+B+C)$

का एक दिन का कार्य = 8 units

One day work of  $(A+B) + (B+C) +$

$(C+A) = 2(A+B+C)$

$3 + 2 + x = 8$ ,  $x = 3$  units/day

$$\text{Total days} > \frac{T.W}{\text{eff.}} \downarrow \frac{24}{3} > 8 \text{ days}$$

83. (a) 60

$\therefore A + B + B + C + C + A = 4 + 6 + 5$

$\downarrow 2(A + B + C) = 15$

$\downarrow (A + B + C)$  total effi. = 7.5

$\downarrow$  Time taken by  $(A + B + C)$  to

gether to complete to the work

$(A + B + C)$  द्वारा कुल कार्य समाप्त करने में लगा समय)

$$> \frac{\text{Total work}}{\text{effi.}} > \frac{60}{7.5}$$

= 8 days.

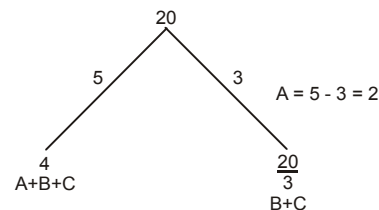
84. (b)

$$> \frac{3}{10} (B, C) > 2 \text{ days}$$

$$> B, C > 2 \propto \frac{10}{3} > \frac{20}{3} \text{ days}$$

$$> \frac{1}{2} (A, B, C) > 2 \text{ days}$$

$$A + B + C = 2 \text{ days}$$

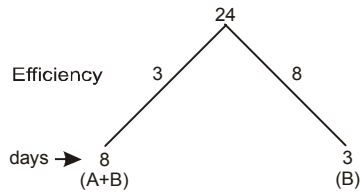


A alone will complete the work

$$(A \text{ पूरा कार्य अकेला करेगा}) > \frac{20}{2} \text{ days}$$

= 10 days

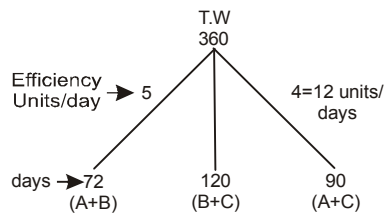
85. (b)



A construct in 6 day  
 $6 \times 3 = 18$  units Construct  
 now work left after destroying by  
 $B = 18 - 16 = 2$  units  
 Now A will do  $24 - 2 = 22$  units

A completes in  $> \frac{20}{2} > 7\frac{1}{3}$  days

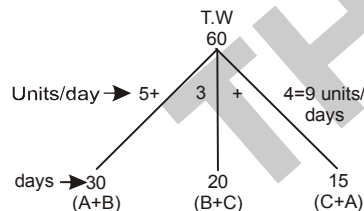
86. (c)



$2(A + B + C) = 12$  units/days  
 $(A + B + C) = 6$  units/days  
 $(B + C)$  one day work is 3 unit  
 A's one day work is (A का 1 दिन का कार्य है) = 6 units - 3 units = 3 units/days  
 A will do whole work in (A पूरा कार्य

खत्म करेगा)  $> \frac{360}{3} > 120$  days

87. (d)



work done by A, B and C together  
 (A, B और C मिलकर कार्य करेंगे)  
 $2(A + B + C) = 9$

Efficiency of A + B + C  $> \frac{9}{2}$

work done by A, B and C together

(A, B और C मिलकर कार्य करेंगे)  $> \frac{60}{9} > \frac{120}{9}$

$> \frac{40}{3} > 13\frac{1}{3}$  days

88. (d) Since we know efficiency and time are inversely proportion to each other. (चूंकि हम जानते हैं कि कार्य क्षमता और समय एक दूसरे के व्युत्क्रमानुपाती होता है, तो)

P : Q  
 efficiency 3 : 4  
 time 4 : 3  
 89. (b)  $(6m + 8b) \times 10$  days  
 $= (26m + 48b) \times 2$  days

$$\left| \frac{m_1 \propto t_1 \propto d_1}{w_1} > \frac{m_2 \propto t_2 \propto d_2}{w_2} \right|$$

$$30m + 40b = 26m + 48b$$

$$4m = 8b$$

$$m = 2b$$

$$\frac{m}{b} > \frac{2}{1}$$

1m (work) = 2 units/day  
 1b (work) = 1 unit/day

Hence,

Total work  
 $= (6 \times 2 + 8 \times 1) \times 10$   
 $= 200$  units

Required time (अभीष्ट समय)  
 $(15m + 20b)$

$$> \frac{200}{(15 \propto 2, 20 \propto 1)} > \frac{200}{50} > 4 \text{ days}$$

90. (b)  $5M \times 6 \text{ days} = 10W \times 5 \text{ days}$   
 $3M = 5W$

$$\frac{M}{W} > \frac{5}{3}$$

1M (work) = 5 units/day  
 1W (work) = 3 units/day

Hence,

Total work =  $(5M \times 6) = 5 \times 5 \times 6 = 150$  units  
 Required time for  $(5W + 3M)$

$$> \frac{\text{Total work}}{\text{Work done/day}}$$

$$> \frac{150}{(5 \propto 3, 3 \propto 5)} > \frac{150}{30} > 5 \text{ days}$$

91. (a)

$$> \left| \frac{m_1 \propto t_1 \propto d_1}{w_1} > \frac{m_1 \propto t_1 \propto d_1}{w_1} \right|$$

$$\frac{10M \propto 20 \text{ days}}{260 \text{ mats}} > \frac{20B \propto 20 \text{ days}}{260 \text{ mats}}$$

$$10M = 20B$$

$$1M = 2B$$

$$\left| \frac{M}{B} > \frac{2}{1} \right|$$

] 1M work = 2 units/day  
 1B work = unit/day

Mats made by  $(8M + 4B)$  in 20 days

$$\frac{10M \propto 20 \text{ days}}{260 \text{ mats}} > \frac{(8M, 4B) \propto 20 \text{ days}}{x \text{ mats}}$$

$$\frac{10M \propto 20 \text{ days}}{260 \text{ m}} > \frac{20 \propto 20 \text{ days}}{x \text{ m}}$$

after solving,  
 $x = 260$  mats

92. (c) ATQ,

$$3m \times 16 = 6w \times 16$$

$$\frac{m}{w} > \frac{2 \downarrow \text{efficiency of man}}{1 \downarrow \text{efficiency of woman}}$$

$$\text{Total work} = 3 \times 2 \times 16 = 96 \text{ units}$$

$$\text{One day work of } (12m+8w) =$$

$$12 \times 2 + 8 \times 1 = 32 \text{ units}$$

$$\text{Total time taken by } (12m+8w) > \frac{96}{32}$$

$$= 3 \text{ days}$$

95. (d) ATQ,

$$3m \times 43 = 4w \times 43$$

$$> \frac{m}{w} > \frac{8 \downarrow \text{efficiency of man}}{5 \downarrow \text{efficiency of woman}}$$

$$\text{Total work} = 3 \times 4 \times 43 \text{ units}$$

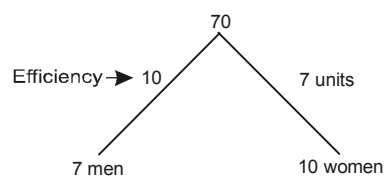
$$\text{One day work of } (7m+5w) = 7 \times 4 + 5 \times 3$$

$$= 43 \text{ units}$$

$$\text{Total time taken by } (7m+5w)$$

$$> \frac{3 \times 4 \times 43}{43} > 12 \text{ days}$$

96. (a)



efficiency (कार्य क्षमता) of (14 men

+ 20 women)

$$= (14 \times 10) + (20 \times 7)$$

$$= 140 + 140$$

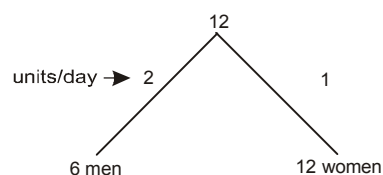
$$= 280$$

Let 'D' days taken.

$$> \frac{(7 \times 10) \times 10}{100} > \frac{280 \times D}{600}$$

$$D = 15$$

97. (c)



$$> \frac{12 \times 20}{1 \text{ work}} > \frac{(16, 16) \times \text{days}}{2 \text{ work}}$$

$$> 12 \times 20 > \frac{32 \times \text{days}}{2}$$

$$\text{days} = 15 \text{ days}$$

98. (a) According to question,

$$(2 \text{ men} + 1 \text{ women}) \times 14 \text{ days}$$

$$= (2 \text{ men} + 4 \text{ women}) \times 8 \text{ days}$$

$$14 \text{ men} + 7 \text{ women} = 8 \text{ men} + 16 \text{ women}$$

$$6 \text{ men} = 9 \text{ women}$$

$$2 \text{ men} = 3 \text{ women}$$

$$1 \text{ man get} = \text{Rs.}600/\text{days}$$

$$2 \text{ men get} = \text{Rs.}1200/\text{days}$$

(wages always divided in the ratio of efficiency) (मजदूरी हमेशा कार्य क्षमता के अनुपात में बाँटी जाती है)

So,

$$3 \text{ women will get} = \text{Rs.}1200/\text{days}$$

$$[2m = 3w]$$

$$1 \text{ woman will get} = 400/\text{days}$$

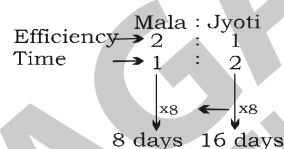
99. (b) Jyoti does  $\frac{3}{4}$  unit of work in 12

days (ज्योति  $\frac{3}{4}$  कार्य को 12 दिनों में करती है)

jyoti does 1 unit of work in (ज्योति 1

इकाई कार्य को करती है)  $> 12 \times \frac{4}{3} > 16 \text{ days}$

According to question



100. (c) According to question

$$A : b : C$$

$$\text{efficiency } 2 : 1 :$$

$$: 1$$

$$\Downarrow 4 : 2 : 1 \text{ units/days}$$

(A+B)'s one day work is (4+2) units

= 6 units

and they complete in 4 days.

So total work :  $6 \times 4 = 24 \text{ units}$

and C completes whole work in

$$> \frac{24 \text{ units}}{1 \text{ units/day}} > 24 \text{ days}$$

101. (c) If no. of days remain same ( Like in this question for men, women and boys ( यदि दिनों की संख्या समान हो तो उनको बराबर रखा जाता है ) , so it clearly shows

$$1 \text{ man} = 2 \text{ women} = 3 \text{ boys}$$

(It means work done by one man in

88 day will be done by 2 women in

88 days so this show efficiency)

$$1 \text{ man} = 2 \text{ women}$$

$$\frac{1}{2} \text{ man}, 1 \text{ woman}$$

similarly

$$1 \text{ boys} > \frac{1}{3} \text{ man}$$

1 man + 1 woman + 1 boy will do work in :

$$1 \text{ man}, \frac{1}{2} \text{ man}, \frac{1}{3} \text{ man}$$

1 man does in 88 days

$$\frac{11}{6} \text{ man does in } > \frac{88 \approx 6}{6} > 48 \text{ days}$$

102. (b) Tapas : Mihir  
efficiency 2 : 1  
units/day  
T + M complete in 12 days  
Total work  $12 \times (2 + 1) = 36$  units  
Tapas alone complete the whole work in

$$\Downarrow \frac{36}{2} > 18 \text{ days}$$

104. (a)  $20M \times 20 \text{ days} = 24W \times 20 \text{ days}$

$$\begin{array}{l} 5M = 6W \\ \downarrow \times M \quad \downarrow \times M \\ 5M = 5M \end{array}$$

So,  $(30M + 12W)$  complete the whole work in

$$24W \times 20 = (30M + 12W) \times x$$

$$24W \times 20 = (36W + 12W) \times x$$

$$24W \times 20 = 48W \times x$$

$$x = 10 \text{ days}$$

Alternate:

$$20M \times 20 \text{ days} = 24W \times 20 \text{ days}$$

$$5M = 6W$$

$$\frac{M}{W} > \frac{6}{5}$$

$$\text{Total work} = 20 \times 6 \times 20 \text{ units}$$

$$\text{Efficiency of } (30M + 12W)$$

$$= 30 \times 6 + 12 \times 5$$

$$= 180 + 60 = 240$$

$$\text{Required no. of days} = > \frac{20 \approx 6 \approx 20}{240}$$

$$= 10 \text{ days}$$

105. (b)  $20W \times 16 = 16M \times 15$

$$20W = 15M$$

$$4W = 3M$$

$$\frac{M}{W} > \frac{4}{3}$$

$$\text{Man : Woman} \\ 4 : 3$$

106. (b) We can clearly see the clue that (men + women) are half in second case (हम देख सकते हैं की दुसरी स्थिति में आदमी + औरत की संख्या आधी है)

So, 6 men + 8 women can do work in 10 days

3 men + 4 women can do work in

$$10 \times 2 = 20 \text{ days}$$

107. (b) Equating the work (काम को समतुल्य करने पर)

$$(2M + 3W) \times 10 = (3M + 2W) \times 8$$

After solving

$$\text{We get, } 2M = 7W$$

$$\frac{M}{W} > \frac{7}{2}$$

$$\text{Total work} = (2 \times 7 + 3 \times 2) \times 10$$

$$= 20 \times 10$$

$$= 200 \text{ units}$$

$$\text{eff. of } 2M + 1W = 2 \times 7 + 2 = 16$$

$$\text{number of days} \frac{200}{16} > \frac{25}{2}$$

$$> 12 \frac{1}{2} \text{ days}$$

108. (b)

$$\begin{array}{l} A : B \\ \text{efficiency } 2 : 1 \text{ (gives in Qs)} \\ \text{Time } 1 : 2 \text{ (Inversely proportional)} \end{array}$$

Total work = (one day's work of A and B)  $\times$  (Total no. of days)

$$\text{]} (2 + 1) \times 14$$

$$\text{T.W} = 42 \text{ units}$$

$$\text{A alone finishes in } > \frac{42}{2} > 21 \text{ days}$$

109. (b)

$$\frac{5 \text{ men, } 2 \text{ woman}}{4 \text{ work}} > (1 \text{ man, } 1 \text{ woman})$$

$$5 \text{ men} + 2 \text{ women} = 4 \text{ men} + 4 \text{ women}$$

$$1 \text{ man} = 2 \text{ women}$$

$$\frac{\text{man}}{\text{woman}} > \frac{2}{1}$$

$$\begin{array}{l} M : W \\ 2 : 1 \end{array}$$

110. (c) According to question,

$$8 \text{ men} = 17 \text{ women}$$

(Because they do a work in same no. of days)

Convert men into women (क्योंकि वे समान दिनों में कार्य करते हैं।)

$$\begin{array}{l} 8 \text{ men} = 17 \text{ women} \\ \downarrow \quad \downarrow \\ 12 \text{ men} \quad \frac{15}{2} \text{ Women} \end{array}$$

$$\text{Total work} = 17 \times 33 \times 3$$

(Let 1 woman works 1 unit/day then

17 women will do 17 units/day)

$$12 \text{ men} + 24 \text{ women}$$

$$\frac{51}{2} \text{ women, } \frac{42}{1} \text{ woman} > \frac{99}{2} \text{ women}$$

↓ will do  $(17 \times 33)$  work in

$$\Downarrow \frac{17 \approx 33}{\frac{99}{2}} \approx 3 > 34 \text{ days}$$

111. (a) Man : Woman

$$\text{efficiency } 3 : 2$$

one day's work of a man and a woman

$$= (3 + 2) = 5 \text{ units}$$

$$\text{Total work} = 18 \times 5 = 90 \text{ units}$$

a woman can complete the whole work in

$$\frac{90}{2} > 45 \text{ days}$$

112. (a) (3 men + 4 boys) 12 days  
 = (4 men + 3 boys) 10 days 18 men +  
 24 boys = 20 men + 15 boys  
 2 men = 9 boys.....(i)  
 4 men + 3 boys = (2 × 9) boys + 3 boys  
 = 21 boys  
 21 boys can do a work in 10 days  
 (21 लड़के को 10 दिन में खत्म कर सकते हैं)  
 Total work = 21 × 10 = 210 units  
 2 men + 3 boys = 9 boys + 3 boys  
 (from eq i)  
 = 12 boys

$$\frac{210}{12} > \frac{35}{2} > 17\frac{1}{2} \text{ days}$$

**Alternate:**

$$(3M + 4B) \times 12 = (4M + 3B) \times 10$$

$$\frac{M}{B} > \frac{9}{2}$$

$$\text{Total work} = (3 \times 9 + 4 \times 2) \times 12$$

$$= 35 \times 12 \text{ units}$$

$$\text{Efficiency of 2 men and 3 boys}$$

$$= (2 \times 9) + (3 \times 2) = 24$$

$$\text{Time taken by (2M + 3B) (2M, 3B)} > \frac{35 \times 12}{24}$$

$$> 17\frac{1}{2} \text{ days}$$

114. (d) 10 men = 20 women = 40 children  
 (efficiency of men, women and children  
 will be in calculated by this  
 ratio. As they complete work in same  
 days)

convert them in one figure:

$$10 \text{ men} = 20 \text{ women}$$

$$\frac{10}{20} \text{ men} > 1 \text{ women} \downarrow 5 \text{ women}$$

$$> \frac{1}{2} \times 5 > \frac{5}{2} \text{ men} \dots (i)$$

$$\frac{1}{4} \text{ men} > 1 \text{ child} \downarrow 5 \text{ children} > \frac{1}{4} \times 5$$

$$> \frac{5}{4} \text{ men} \dots (ii)$$

$$5 \text{ men} + 5 \text{ women} + 5 \text{ children}$$

$$> \left( 5, \frac{5}{2}, \frac{5}{4} \right) \text{ men}$$

$$> \frac{20, 10, 5}{4} > \frac{35}{4} \text{ men}$$

Now.

If 10 men can do a work in 7 months

If 1 men can do a work in  $7 \times 10$

$$\text{If } \frac{35}{4} \text{ men can do a work in } \frac{7 \times 10}{35}$$

$$= 8 \text{ months}$$

**Alternate:-**

$$10M \times 7 \text{ Months} = 20W \times 7 \text{ Months}$$

$$= 40C \times 7 \text{ months}$$

$$10M = 20W = 40C$$

$$1M = 2W = 4C$$

$$\frac{M}{4} > \frac{W}{2} > \frac{C}{1} \uparrow \text{ Efficiency}$$

$$\text{Total work} = 10 \times 4 \times 7 \text{ units}$$

$$\text{Efficiency of } 5M + 5W + 5C$$

$$= 5 \times 4 + 5 \times 2 + 5 \times 1$$

$$= 5(4 + 2 + 1)$$

$$= 35 \text{ units/day}$$

$$\text{Time taken by } (5M + 5W + 5C)$$

$$> \frac{10 \times 4 \times 7}{35}$$

$$= 8 \text{ months}$$

115. (c) According to question,

$$(2 \text{ men} + 3 \text{ boys}) \times 10 \text{ days}$$

$$= (3 \text{ men} + 2 \text{ boys}) \times 8 \text{ days}$$

$$20 \text{ men} + 30 \text{ boys} = 24 \text{ men} + 16 \text{ boys}$$

$$2 \text{ men} = 7 \text{ boys}$$

$$2 \text{ men} + 1 \text{ boy} = 7 \text{ boys} + 1 \text{ boys} = 8 \text{ boys}$$

from 1st line:

$$2 \text{ men} + 3 \text{ boys} \approx 7 \text{ boys} + 3 \text{ boys}$$

$$\downarrow 10 \text{ boys Given}$$

$$10 \text{ boys can do a piece of work in}$$

$$10 \text{ days}$$

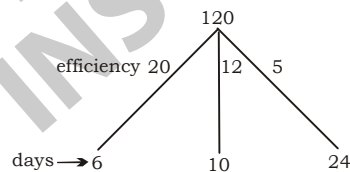
$$1 \text{ boys can do a piece of work in } 10$$

$$\times 10$$

$$8 \text{ boys can do a piece of work in}$$

$$\frac{10 \times 10}{8} > 12\frac{1}{2} \text{ days}$$

116. (c)



$$(\text{man} + \text{woman} + \text{boy}) (\text{man}) (\text{woman})$$

$$\text{boy's efficiency is} = 20 - 12 - 5$$

$$\downarrow 3 \text{ units/day}$$

$$\text{boy can complete the work in}$$

$$\frac{120}{3} > 40 \text{ days}$$

117. (d) 40 men = 60 women = 80 children

$$2 \text{ men} = 3 \text{ women} = 4 \text{ children}$$

$$2 \text{ men} = 3 \text{ women}$$

$$1 \text{ women} > \frac{2}{3} \text{ men} \downarrow 10 \text{ women}$$

$$\downarrow \frac{2}{3} \times 10 > \frac{20}{3} \text{ men}$$

Similarly

$$2 \text{ men} = 4 \text{ children}$$

$$1 \text{ children} > \frac{1}{2} \text{ men} \downarrow 10 \text{ children}$$

$$> \frac{10}{2} > 5 \text{ men}$$

$$10 \text{ men} + 10 \text{ women} + 10 \text{ children}$$

$$= 10 \text{ men} + > \frac{20}{3}, 5 \downarrow \frac{30, 20, 15}{3}$$

10 men + 10 women + 10 children

$$> \frac{65}{3} \text{ men}$$

40 men can do a piece of work in 6 months

1 man can do a piece of work in  $6 \times 40$

$$\frac{65}{3} \text{ men can do a piece of work in}$$

$$\frac{6 \times 40}{\frac{65}{3}}$$

$$> 11 \frac{1}{13} \text{ months}$$

Alternate:

$$40 \text{ m} = 60 \text{ w} = 80 \text{ c}$$

$$2 \text{ m} = 3 \text{ w} = 4 \text{ c}$$

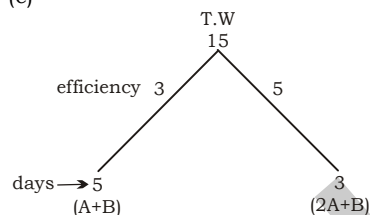
$$\text{m} : \text{w} : \text{c} = 6 : 4 : 3 \text{ (Efficiency)}$$

$$\text{Total work} = 40 \times 6 \times 6 = 1440 \text{ units}$$

$$\text{Total time taken by } (10\text{m} + 10\text{w} + 10\text{c})$$

$$> \frac{\text{Total work}}{\text{Efficiency}} > \frac{1440}{130} > 11 \frac{1}{13} \text{ days}$$

118. (c)



Now, assume A eff. is 2 units B's is 1 unit.

(A की कार्य क्षमता दो इकाई है और B की कार्य

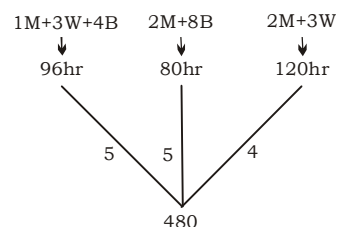
क्षमता एक इकाई है) So it satisfies the equation of both cases

So actual efficiency of A is 2 units/day

A alone complete the work in (A अकेला कार्य कर सकता है)

$$> \frac{\text{T.W}}{\text{efficiency}} > \frac{15}{2} > 7 \frac{1}{2} \text{ days}$$

119. (c)



$$2M + 8B = 6 \text{ units/hr}$$

$$\text{So, } 1M + 4B = 3 \text{ units/hr}$$

$$1M + 3W + 4B = 5 \text{ units/hr}$$

$$3W + 3 = 5$$

$$3W = 2 \text{ units/hr}$$

$$W > \frac{2}{3} \text{ units/hr}$$

Now,

$$2M + 3W = 4$$

$$2M = 4 - 2 = 2$$

$$M = 1 \text{ unit/hr}$$

Hence,

$$2M + 8B = 6$$

$$2 + 8B = 6$$

$$8B = 6 - 2 = 4$$

5M + 12B will complete the whole work in

$$> \frac{480}{5M, 12B} > 5 \times 1 \frac{12}{2} > \frac{480}{11}$$

$$> 43 \frac{7}{11} \text{ hrs.}$$

$$\begin{aligned} 120. (d) & (3 \text{ men} + 7 \text{ women}) \times 5 \text{ days} \\ &= (4 \text{ men} + 6 \text{ women}) \times 4 \text{ days} \\ &1 \text{ men} = 11 \text{ women} \\ &3 \text{ men} + 7 \text{ women} \\ &= (3 \times 11) \text{ women} + 7 \text{ women} = 40 \text{ women} \\ &40 \text{ women can do a work in 5 days} \\ &1 \text{ can do a work in } 5 \times 40 \text{ days} \end{aligned}$$

$$10 \text{ women can do a work in } \frac{5 \times 40}{10}$$

$$= 20 \text{ days}$$

123. (a) Given

$$\downarrow 4m + 6w \downarrow 8 \text{ days}$$

$$\downarrow 32m + 48w \downarrow 1 \text{ day} \dots (i)$$

$$\downarrow 2m + 9w \downarrow 8 \text{ days}$$

$$\downarrow 16m + 72w \downarrow 1 \text{ day} \dots (ii)$$

$$\downarrow \text{from equation (i) = (ii)}$$

$$\downarrow 32m + 48w = 16m + 72w$$

$$\downarrow 32m - 16m = 72w - 48w$$

$$\downarrow 16m = 24w$$

$$\downarrow 2m = 3w$$

Here, it is given that a group of

4m + 6 women can do the work in 8 days,

converting the whole equation into women. (दिया हुआ

है कि चार आदमी तथा छ औरतें किसी काम को आठ दिन में कर सकते हैं

अतः पूरस मीकरण को औरतों में बदलने पर)

$$\downarrow 4m + 6w \downarrow 8 \text{ days}$$

$$\downarrow (2 \times 2m) + 6w \downarrow 8 \text{ days}$$

$$\downarrow (2 \times 3w) + 6w \downarrow 8 \text{ days}$$

$$\downarrow 6w + 6w \downarrow 8 \text{ days}$$

$$\downarrow 12w \downarrow 8 \text{ days}$$

i.e 12 women can do the work

in 8 days (अतः बारह औरतें उसी काम को आठ दिन में कर सकती हैं)

Then a group of 18 women can

do the work (अतः अठारह औरतों का स मूह

उस काम को करेगा)

$$M_1 \times D_1 = M_2 \times D_2$$

$$12w \times 8d = 18w \times ?$$

$$\text{days} > \frac{12 \times 8}{18} \downarrow 5\frac{1}{3} \text{ days}$$

124. (a) According to question,  
 $\downarrow 4m = 8w \downarrow 15 \text{ days}$   
 $\downarrow \text{i.e. } 4m = 8w$   
 $\downarrow 1m = 2w$   
 $\downarrow 6m + 12w = ?$   
 $\downarrow$  Converting the whole group  
 into women (पूरे समीकरण को औरतों में बदलने पर)  
 $\downarrow 12w + 12w = ?$   
 $\downarrow 24w = ?$   
 $\downarrow M_1 \times D_1 = M_2 \times D_2$   
 $\downarrow 8w \times 15 = 24 \times ?$   
 $\downarrow \text{days} > \frac{8 \times 45}{24}$   
 $\downarrow \text{days} = 5$   
 $\downarrow$  Therefore, time taken by a group of  $6m + 12w$   
 is (अतः छ आदमी तथा बारह औरतों द्वारा लिया गया समय) = 5 days

125. (a) According to the question,  
 $15\text{men} = 20 \text{ days}$   
 $300 \text{ men} = 1 \text{ day} \dots (i)$   
 $24 \text{ women} = 20 \text{ days}$   
 $480 \text{ women} = 1 \text{ day} \dots (ii)$   
 Compare equation and (ii)  
 $300 \text{ men} = 480 \text{ women}$   
 $5 \text{ men} = 8 \text{ women} \dots (iii)$   
 $\downarrow 10\text{men} + 8 \text{ women} = ?$   
 $10 \text{ men} + 5 \text{ men} = ?$   
 $15 \text{ men} = ?$   
 $15\text{men} \times 20 \text{ days} = 15\text{men} \times x \text{ days}$   
 $x = 20 \text{ days}$

**Alternate:-**

$$15M \times 20 \text{ days} = 24W \times 20 \text{ days}$$

$$\frac{M}{W} > \frac{8}{5}$$

So, 1 man work 8 units work in one day  
 and 1 women work 5 units work in one day. (एक आदमी प्रतिदिन 8 यूनिट काम करता है तथा एक औरत प्रतिदिन 5 यूनिट काम करती है)

$$\begin{aligned} \text{Total work} &= \text{Hence, } (10M + 8W) \\ \text{work whole work in 'D' days} \\ (10M + 8W) \times D &= 15 \times 8 \times 20 \\ (10 \times 8 + 8 \times 5) \times D &= 15 \times 8 \times 20 \\ (80 + 40) \times D &= 15 \times 8 \times 20 \\ D &= 20 \text{ days} \end{aligned}$$

126. (c) According to question,  
 $3 \text{ men} = 5 \text{ women}$   
 (As they complete the same work in same time)  
 $6\text{men} + 5\text{women} = 6\text{men} + 3\text{men}$   
 $= 9 \text{ men}$   
 If, 3 men does a work in 12 days  
 1 men does a work in  $= 12 \times 3$   
 $9 \text{ men does a work in } \frac{12 \times 3}{9}$   
 $= 4 \text{ days}$

**Alternate:-**

$$3M \times 12 = 5W \times 12$$

$$\frac{M}{W} > \frac{1}{2}$$

$$\text{Total work} = 3 \times 5 \times 12 = 15 \times 12 = 180 \text{ units}$$

$$\text{Efficiency of } 6M + 5W = (6 \times 5 + 5 \times 3) = 45$$

$$\text{Time taken by } (6M + 5W) = \frac{180}{45} = 4 \text{ days}$$

127. (a)  $10M \times 12 \text{ days} = 10W \times 6 \text{ days}$   
 $2M = 1W$

$$\frac{M}{W} > \frac{1}{2}$$

$$1M \text{ work} = 1 \text{ unit/day}$$

$$1W \text{ work} = 2 \text{ units/day}$$

$$\text{Total work} = 10M \times 12 \text{ days} = 10 \times 1 \times 12 = 120 \text{ units}$$

$$\text{Time required (अभीष्ट समय) } (10M + 10W)$$

$$> \frac{\text{Total work}}{\text{eff.}} \left| \frac{\text{कुल समय}}{\text{कार्यक्षमता}} \right|$$

$$> \frac{120}{10 \times 1, 10 \times 2} > \frac{120}{30} > 4 \text{ days}$$

128. (a) Let 'x' are the men in working  
 (माना काम करने वाले आदमियों की संख्या x है।)

$$\text{by formula } \frac{M_1 D_1}{W} > \frac{M_2 D_2}{W_2}$$

$$\frac{x \times 30}{1} > \frac{(x, 5) \times 20}{1} \quad 30 \cdot 10 \downarrow 20 \text{ days}$$

$$3x = 2x + 10$$

$$x = 10$$

129. (c) Let additional men be x

$$\frac{25 \times 25}{\text{work} \downarrow \frac{1}{3}} > \frac{(25, x) \times 12}{\frac{2}{3} \left| \text{Remaining work } 1 \cdot \frac{1}{3} \right|}$$

130. (c) A : B

**A.T.Q**

no of unit of work done 1 : 2

(काम का अनुपात)

time taken 1 : 6

(समय का अनुपात)

we balance the time of A with B.

(हम A और B के समय को संतुलित करते हैं)

We have to equal their work according

to their time (हमें उनके समय के अनुसार

उनके काम को भी बराबर करना होगा)

$$A : B \quad A + B \text{ work}$$

$$\text{work done } 6 : 2 \quad \circ$$

$$\text{time taken } 6 : 6$$

If A work 1 unit in 1 unit time so he works 6 units work in 6 units time (यदि A एक इकाई समय में एक इकाई काम करता है तो वह 6 इकाई समय 6 इकाई काम करेगा)

$$A : B = 3 : 1 \downarrow 3 + 1 = 4 \text{ units/day}$$

Together they complete in 10 days.

So, total work

(वे एक साथ मिलकर काम को 10 दिन में करते हैं अतः पूरा काम है) =

$$4 \times 10 = 40$$

B alone will do whole work in

$$(B \text{ अकेला पूरा काम करेगा}) \frac{40}{1}$$

= 40 days

131. (c) ATQ, (प्रश्नानुसार)

If kamal is 100% efficient, then

Bimal 150% efficient (50% more),

(यदि कमल 100% कुशल है तो बिमल 50% अधिक

अथवा 150% कुशल है)

$$\left| \frac{B}{F} > \frac{150}{100} > \frac{3}{2} \right|$$

Kamal Bimal

efficiency ↓ 2 units/day 3 units/day

Total work. 15 days × 2 units/day

= 30 units

Bimal will do that work (बिमल इस काम

को पूरा करेगा) =

132. (c) let 1 men does 1 unit of work per day (माना 1 आदमी प्रति दिन में 1 इकाई कार्य करता है)

Total work (कुल कार्य): 8 × 12 = 96 units

6 days work of 8 men (8 व्यक्तियों का 6

दिन का कार्य) → 8 × 6 = 48 units.

work left (बचा कार्य) → 96 - 48 = 48 units

After 6 day 4 men join. so total men

is 12 men (8 + 4) they will do 12

unit of work per day

(6 दिन बाद 4 व्यक्तियों के शामिल होने से कुल

व्यक्तियों की संख्या 12 हो जाती है वे स भी प्रति दिन

12 इकाई कार्य करते हैं)

Now,

remaining work completed in (अब

$$\text{बचा हुआ कार्य पूरा होता है} \rightarrow \frac{48}{12} = 4 \text{ days}$$

133. (b) Let no. of persons be 'N' (माना व्यक्तियों की कुल संख्या 'N' है)

$$\frac{N \times 55}{1} = \frac{(N+6) \times 44}{1}$$

$$5N = 4N + 24$$

$$N = 24$$

134. (a)

$$\frac{8M \times 9h \times 20 \text{ days}}{1 \text{ unit work}} = \frac{7M \times 10h \times x}{1 \text{ unit work}}$$

$$x = \frac{144}{7} = 20 \frac{4}{7} \text{ days}$$

135. (b) According to formula

Let 'D' is no of days. (माना दिनों की संख्या 'D' है)

$$\frac{639 \times 12 \times 5}{1 \text{ raod}} = \frac{30 \times 6 \times D}{1 \text{ raod}}$$

$$D = 213 \text{ days}$$

136. (a) Here work is 280 m length of wall

and 100 m length of wall (यहाँ 280m तथा 100m लम्बाई की दीवार का काम है)

Let 'M' men will finish 100 m road.

(माना 'M' व्यक्ति 100m लम्बा दीवार बनाते हैं)

$$\frac{72 \times 21}{280} = \frac{M \times 18}{100} \Rightarrow M = 30$$

$$M = 30$$

137. (c)

$$\frac{6_{\text{person}} \times 8_{\text{hr}}}{8400} = \frac{9_{\text{person}} \times 6_{\text{hr}}}{\text{Amount}}$$

Amount earned by 9 person (9 व्यक्ति कुल कमाते हैं) = Rs. 9450

138. (a)

$$\frac{5_{\text{person}} \times 8_{\text{days}} \times 7_{\text{hr}}}{1} =$$

$$\frac{(5 + 2_{\text{person}}) \times 4_{\text{days}} \times H_{\text{perday}}}{1}$$

$$10 = H \text{ per days}$$

139. (d)

$$\frac{4_{\text{mat-weavers}} \times 4_{\text{day}}}{4_{\text{mats}}} =$$

$$\frac{8_{\text{mat-weavers}} \times 8_{\text{days}}}{N_{\text{mats}}}$$

$$\Rightarrow N = 16 \text{ mats}$$

140. (a)

$$\frac{10_{\text{men}} \times 6_{\text{hr}} \times 18_{\text{days}}}{1 \text{ work}} =$$

$$\frac{15_{\text{men}} \times 12_{\text{days}} \times H \text{ hr/day}}{1 \text{ work}}$$

$$= 6 \text{ hrs/day}$$

141. (d) Let there were 'N' number of men in beginning.

(माना शुरू में व्यक्तियों की संख्या N है)

$$\Rightarrow N_{\text{men}} \times 60 \text{ days} = (N + 8)_{\text{men}} \times (60 - 10)$$

$$6N = 5N + 40$$

$$N = 40$$

142. (a)

$$\frac{12_{\text{persons}} \times 4_{\text{days}}}{1 \text{ work}} =$$

$$\frac{\text{persons} \times 2 \text{ days}}{8 \text{ work}}$$

$$\Rightarrow \text{Persons} = 192$$

143. (b) Let total no. of worker in beginning is 'N' (माना

शुरू में मजदूरों की कुल संख्या 'N' है)

According to question, (प्रश्नानुसार)

$$\frac{N \times 100_{\text{days}}}{\text{work}} = \frac{(N-10) \times 110_{\text{days}}}{1 \text{ work}}$$

$$100N = 110N - 1100$$

$$10N = 1100$$

$$\Rightarrow N = 110$$

144. (b) According to Question, (प्रश्नानुसार)

Total work = 12M × 12D = 144 units

Work done by 12 men in 6 days (12

व्यक्तियों द्वारा 6 दिनों में किया गया कार्य है)

$$= 12 \times 6 = 72 \text{ units}$$

$$\text{Rest work} = 144 - 72 = 72 \text{ units}$$

Required time for 6 men to complete the work (6

$$\text{व्यक्तियों के लिए कार्य को पूरा करने में आवश्यक समय है)} = \frac{72}{6} = 12$$

Hence,

$$\text{Total time} = 12 + 6 = 18 \text{ days}$$

$$\text{Extra time} = 18 - 12 = 6 \text{ days}$$

145. (d) By putting the value in formula as given in question no. 71. Let 'N' persons are needed to complete the work. (प्रश्न संख्या 71 में दिये गये फार्मूला में मान रखने पर। माना काम को पूरा करने में व्यक्तियों की संख्या 'N' है।)

According to Question,

$$\frac{2\text{men} \times 9\text{days}}{1\text{work}} =$$

$$\frac{N \text{ men} \times 12 \text{ days}}{2\text{work}}$$

1 work =  
after solving,

$$N = 3 \text{ men}$$

$$\text{More man needed} = 3 - 2 = 1 \text{ man}$$

146. (b) Let 'n' number of man can be discharged.

(माना काम से निकाले गये व्यक्तियों की संख्या n है)

According to question

$$\frac{60_{\text{men}} \times 60_{\text{days}}}{\frac{3}{4} \text{work}} = \frac{(60-n)_{\text{men}} \times 30_{\text{days}}}{\frac{1}{4} \text{work}}$$

$$\left[ \begin{array}{l} \text{formula} \\ \text{Q. 71} \end{array} \right] \text{ of } 40 = 60 - n$$

$$n = 20$$

147. (b) 60 men works for 200 days. They stops for 10 day due to bad weather.

so the work is to complete in ( 60 व्यक्ति 200 दिनों तक काम करते हैं। वे मौसम खराब होने के वजह से कार्य रोकते हैं। तो पूरा कार्य खत्म होगा।) (50 - 10) = 40 days in order to complete in scheduled time

i.e 250 days.

Let 'n' number of more man is required.

(माना जरूरत व्यक्तियों की संख्या 'n' है)

$$(60 \text{ men} \times 200 \text{ days}) + (60 + n) \text{ men} \times 40 \text{ days}$$

$$= 60 \text{ men} \times 250 \text{ days}$$

$$12000 + (60 + n) \text{ men} \times 40 \text{ day} = 15000$$

$$(60 + n) 40 = 3000$$

$$60 + n = 75$$

$$\Rightarrow n = 15$$

Alternate:-

60men can complete a work in 250 days but they work for 200 days.

Then remaining days = 50 days

$$\text{So, } 60 \times 50 = (60+x) \times 40$$

$$x = 15$$

148. (c)

$$\frac{28M \times 1\text{week}}{7/8} = \frac{x \times 1\text{week}}{1/8}$$

$$x = 4 \text{ men}$$

149. (d) According to question,

efficiency of a man, a woman and a child are (एक आदमी, एक औरत और एक बच्चे कार्य क्षमता का अनुपात है) 5 : 4 : 2. units/days.

$$\text{one day work of 2 men} = 2 \times 5 = 10 \text{ units}$$

$$\text{one day work of 3 women} = 3 \times 4 = 12 \text{ units}$$

$$\text{one day work of 4 children} = 4 \times 2 = 8 \text{ ut.}$$

applying formula, let time taken is 'D' days.

$$\frac{(10 + 12 + 8) \times 10_{\text{days}}}{10_{\text{hectare}}}$$

$$\left[ \frac{(6_{\text{men}} \times 5) + (4_{\text{women}} \times 4) + (7_{\text{children}} \times 2) \times D}{16_{\text{hectare}}} \right]$$

$$\frac{(30) \times 10}{10} = \frac{[60] \times D}{16}$$

$$D = 8 \text{ days}$$

150. (d) (Applying formula) let work don by 'n' men and Women.

$$\frac{P_{\text{men}} \times P_{\text{hours}} \times P_{\text{days}}}{P_{\text{units}}} =$$

$$\frac{n_{\text{men}} \times n_{\text{hours}} \times n_{\text{days}}}{\text{'W' units}}$$

$$P^2 = \frac{n^3}{w} = W = \frac{n^3}{P^2}$$