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Ratio and proportion Questions for SBI PO Pre, IBPS PO Pre, SBI Clerk Mains, IBPS Clerk Mains & LIC AAO Exams.

Direction: Read the following questions carefully and choose the right answer.

1. An alloy A is formed by mixing gold and silver in the ratio 2: 1. Another alloy B is formed by mixing silver and platinum in the ratio 3: 4. An alloy C is obtained by mixing alloys A and B in a certain ratio such that the ratio of gold and platinum in alloy C is 5: 6. Which of the following correctly represents the share of silver in alloy C.

 $A.\frac{29}{51}$

B. $\frac{37}{13}$

C. $\frac{17}{31}$

D. $\frac{49}{126}$

E. $\frac{19}{35}$

2. In the income statement of Asha and Ravenna, the ratio of their income in the year 2017 was 5: 4. The ratio of Asha's income in the year 2018 to that in 2017 is 3: 5 and the ratio of Ravenna's income in the year 2018 to that in 2017 is 3: 2. If Rs. 10242 is the sum of the income of Asha and Ravenna in the year 2018, then find the income of Ravenna in the year 2017?

A. Rs. 1024

B. Rs. 1138

C. Rs. 2776

D. Rs. 2420

E. Rs. 4552

3. Three friends Aravind, Bharat and Chandu are about to have their breakfast. Aravind has 7 apples, Bharat has 5 apples and Chandu has no apples but has 12 coins. He offers to pay for some apples. They agree to share the 12 apples equally among themselves and agree that Chandu would pay 12 coins for his share. Bharat suggests that he be paid 5 coins and Aravind be paid 7 coins. Aravind says that he should get more than 7 coins. How much should Aravind get?

A. 11 coins

B. 10 coins

C. 12 coins

D. 8 coins

E. 9 coins

4. The average score in an examination taken by 52 students of a class is 85. If the scores of the best 5 performers are not considered, the average score of the remaining students falls by 2. If, none of the first five highest scorers is not below 80 and if each of the 5 top scorers had distinct integral scores, find the maximum possible score of the topper.

A. 108

B. 109

C. 177

D. 193

E. 183

5. A bag contains certain number of coins of different denominations. The ratio of the number of Rs. 1 coins to Rs. 2 coins is 5:7, respectively and the ratio of number of Rs. 2 coins to Rs. 5 coins is 7:6 respectively. Find the total value of the Rs. 5 coins, if the total value of the Rs. 1 coins in the bag is Rs. 15.

A. Rs. 180

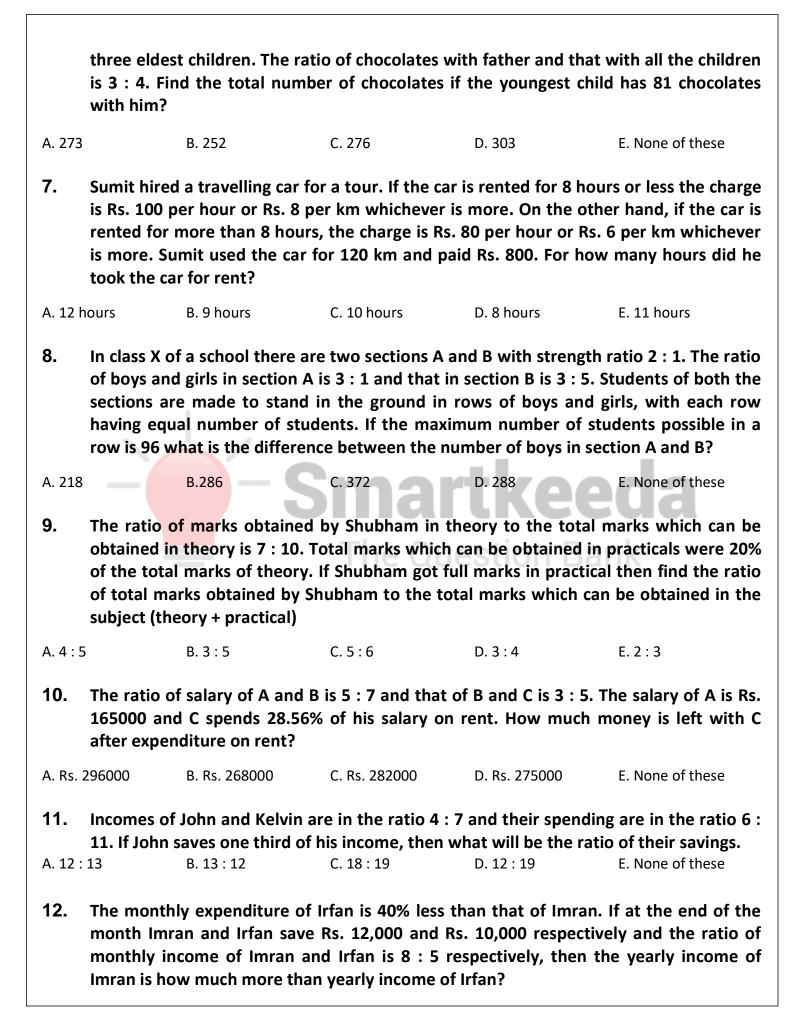
B. Rs. 90

C. Rs. 45

D. Rs. 115

E. None of these

6. A father distributed some chocolates among his four children and kept some with him. The eldest three children got chocolates in the ratio 3:11:7. The total number of chocolates with father and youngest child is three times the total chocolates with the



13.	respectivel the rate of	y and received eq	ual interest from l	ooth the schemes	the ratio of X : Y after three years. If he ratio of 7 : 5, then			
A. 4:	7	B. 5:6	C. 5:7	D. 5:4	E. None of these			
14.	In a race of 300 m P beats Q by 25 m and Q beats R by 15 m. If P and R should finish the race at same time, what head start should P give to R?							
A. 36.	25 m	B. 37.55 m	C. 38.90 m	D. 21.25 m	E. None of these			
15.	saving of A A is Rs. 25	, B, and C are in the OO less than that o	e ratio of 4: 5: 6 res of C and the month	spectively. The monly expenditures of	vely and the monthly onthly expenditure of of B is Rs. 1000 more oney does he save?			
A. Rs.	4500	B. Rs. 3000	C. Rs. 35000	D. rs. 2500	E. None of these			
16.	number of number of	boys and some nuboys to the remai	imber of girls left t ning number of gi	the school, then the rls become 7:5.	is 7:5. When some he ratio of remaining The number of boys, ho left the school?			
A. 150	0%	B. 140%	C. 58.33%	D. 112.5%	E. Can't be determined			
17.	are female	e. 33.33% of the nu fference between t	ımber of male is e	qual to half of th	e are male and some e number of female. of female working in			
A. 50		B. 100	C. 150	D. 75	E. None of these			
18.	age of fath the sum of	er will become 2.5 their ages and the	times of the age of difference of their	son. At present, ages?	Ten years hence, the what is the ratio of			
A. 5 : : 19.		B. 16: 9 of an electric stice	C.3:5 k is black 2/7 th n	D. 9:16	E. None of these ning is blue and the			
	=	part is white. If the	_		nen find the length of			
A. 28	meters	B. 30 meters	C. 24 meters	D. 20 meters	E. None of these			

C. Rs. 504200

D. Rs. 50400

E. Rs. 50800

A. Rs. 42000

B. Rs. 504000

20.		mes of Arun and Va then find the ratio		o 5 : 7 and their ex	penditure are in the	
A. 3:	5	B. 2:5	C. 5:7	D. Can't be determin	ned E. None of these	
21.	each empl		n the ratio 4:5. B	y doing so, compa	: 2 and the salary of ny saves Rs. 12,000.	
A. Rs.	72000	B. Rs. 62000	C. Rs. 82000	D. Rs. 52000	E. None of these	
22.					e the ratio of their he annual income of	
A. Rs.	9000	B. Rs 8000	C. Rs. 7000	D. Rs. 6000	E. None of these	
23.	sum of the difference the age of	e age of Reena and between the age	d Sandhya is 14 ye of Sujata and Sand	ears more than the	ata is 21 years. The e age of Sujata. The difference between Reena, Sandhya and	
A. 22	years	B. 25 years	C. 21 years	D. 23 years	E. 26 years	
24.			etween A, B and C.	The ratio of share	e of A and B is 3 : 7. ween shares of A and	
A.Rs.	34000	B. Rs. 15000	C. Rs. 35000	D. Rs. 49000	E. None of these	
25.	25. Marks obtained by Mohan in Hindi and English are in the ratio of 4:5, respectively, while ratio of marks obtained by Mohan in Maths and Science is 5:6, respectively. He scored 36 marks more in Science than in English, and 32 marks more in Maths than in Hindi. Find the ratio of marks obtained by Mohan in Hindi and Science.					
A. 5 :	6	B. 6:7	C. 2:3	D. 1:2	E. 4:5	
26.		e of Suresh and Ra If each saves Rs. 60			penditure are in the	
A. Rs.	12000	B. Rs. 15000	C. Rs. 16000	D. Rs. 10000	E. None of these	
27.	-	orice of 2 shirts and . 2400. Find the rat	-		ice of 2 jeans and 4 s and the shirt.	

A. 8 :	9	B. 10 : 7	C. 6:5	D. 11 : 10	E. None of these
28.	both the fr	ruits in a certain nu and equal number vo varieties in a bo	mber of boxes such of oranges. If the	n that each box cor e difference betwe	: 17. He has to pack ntains equal number een the numbers of 16, what is the total
A. 54	40	B. 5376	C. 5200	D. 2240	E. None of these
29.	blue area 1	L: 3. If the ratio of veation in lower hem	yellow and blue are	ea in the upper her	e ratio of yellow and misphere is 4 : 9, the blue area in lower
A. 17	.89%	B. 24.45%	C. 21.17%	D. 23.81%	E. None of these
30. A. Rs. 31.	expenditui monthly in . 400, Rs 500 Madhu has	res are in the ratio comes? B. Rs 200, Rs 250 s three friends; Son	of 7: 9. If each s C. Rs 100, Rs 125 am, Divya and Rad	D. Rs 300, Rs 375	and their monthly then what are their E. None of these
	: 3 respect her three	ively. Monthly inco	me of Madhu is tw income of Madhu	ice that of total m	Radha and Divya is 4 onthly income of all what is the highest
A. Rs.	. 5500	B. Rs. 5600	C. Rs. 4600	D. Rs. 5400	E. Rs. 5800
	idual salarie		r's and this year's	salaries are 4 : 5 ar	The ratio of their and 2:3 respectively.
A. 12 ¹	A certain sone third of	-	ether did and P go	t one fourth of wh	E. None of these ain way. Q received at Q and R together
A. 5 :	4:11	B. 4:5:11	C. 5:11:4	D. 11:4:5	E. None of these

34.	Sweeta is 10 years younger than her sister Seema who was 14 years old when her mother was 34 years old. The ratio of the ages of the mother and Sweeta after 6 years will be 2:1. After how many years the average of their ages will be 39.33 years?						
A. 3 y	ears	B. 2 years	C. 4 years	D. 1 year	E. 5 years		
35.	times the s	share of the secon	=	e share of third w	of the first wife, 3 ife and 6 times the third wife?		
A. Rs.	20000	B. Rs. 30000	C. Rs. 35000	D. Rs. 40000	E. Rs. 25000		
36.	-		e age of two frien Find the average o		sh was 3 : 1. Their years?		
A. 12	years	B. 14 years	C. 11 years	D. 13 years	E. 10 years		
37.	of age of A	rjun and Shyam wa		and Radhika was 10	9 years ago, the ratio O years younger than		
A. 5 : 8	3 —	B. 4:5	C. 8 : 9	D. 3:4	E. 7:9		
38.	-				Alia. The ratio of the pika and Alia after 6		
A. 44,	39	B. 42, 37	C. 41, 36	D. 38, 33	E. 40, 35		
39.		nki's daily wages is	•		which is Rs 300 and al to Rs. 60, then find		
A. 25		B. 30	C. 300	D. 250	E. 40		
40.	6. Out of th	e males 35% are wo	• •	of females 25% are	les are in the ratio 7: working as HR. Find		
A. 257		B. 27700	C. 23500	D. 23700	E. None of these		
41.			cesh are in the ration (1907), then Suresh's in		penditure are in the		
A. Rs.	12000	B. Rs. 15000	C. Rs. 16000	D. Rs. 10000	E. None of these		

42.		h of pure gold, the	•	•	re gold and 20 carat If to the pure gold in			
A. 5 : 8	8	B. 9:10	C. 10:9	D. 8:5	E. None of these			
43.	43. The average of salary of all 35 employees is Rs.22000. If the average salary of all regular employees is Rs.25000 and average salary of all part time employees is Rs.18000, then find the ratio of total regular employees to the part time employees of the company.							
A. 4:3	3	B. 5:3	C. 4:5	D. 5:4	E. None of these			
44.	B and C is 5		rence between the	-	tio of the income of I C if the average of			
A. Rs.	1050	B. Rs. 700	C. Rs. 800	D. Rs. 600	E. Rs. 900			
45.	number of s		by 40%, 75% and 2!	5% respectively in ne	8 respectively. If the ext year and the total initially?			
A. 900		B. 800	C. 850	D. 750	E. None of these			
46.	140% more the monthly	than the monthly sa	e in the ratio 8: 9 re avings of B. Monthly Find the difference	y expenditure of B is in the yearly salar	y expenditure of A is s Rs. 2000 more than ies of A and B if the			
A. Rs.	4000	B. Rs. 18000	C. Rs. 36000	D. Rs. 45000	E. None of these			
47.	47. In a town with population of 4500, the ratio of males to females is 3:2 and the ratio of females to children is 4: x. In election of Nagar – Palika, two candidates are there, children aren't allowed to vote and 10% of the eligible population didn't cast their vote. If the winner candidate won by 400 votes and the runner up candidate got 1150 votes, then find the value of 'x'. [Note: Total population of village = Male + Female + Children]							
A. 1 48.	years. The Shubhash's Find the rat	present age of Poo age 5 years hence tio of the present a	onam is 10 less that e, will be 5 years l ge of Shubhash to	in twice the presentess than the presentes the present age of				
A. 3:5	5	B. 4:5	C. 1:3	D. 3:4	E. 2:3			

5 years ago, the age of father was 2.25 times the age of his son. 2 years hence, the age 49. of father becomes 2.6 times the age of his daughter. If the son is 7 years elder to daughter, find the present age of Father.

A. 45 years

B. 60 years

C. 55 years

D. 50 years

E. 70 years

The expenses on food, rent and electricity of a family are in the ratio 5:15:3. The **50.** expenditure on food, rent and electricity is increased by 20%, 10% and 30% respectively. The total expenses of family thus increased by how much percent.

A. $12\frac{18}{23}\%$

B. $11\frac{17}{21}\%$ C. $14\frac{18}{23}\%$ D. $24\frac{11}{21}\%$ E. $15\frac{17}{23}\%$

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1.	अनुपात में मि	ालाने पर प्राप्त होती है।		A तथा B को इस प्रका	ी और प्लैटिनम को 3 : 4 के र मिलाने पर कि सोने और सही अनुपात बताता है?
$A.\frac{29}{51}$		B. $\frac{37}{13}$	C. $\frac{17}{31}$	D. $\frac{49}{126}$	E. $\frac{19}{35}$
2.	की आय का उ	अनुपात ३ : ५ है और वर्ष		ान्ना की आय का अनुपात	र्भ 2018 और 2017 में आशा त 3 : 2 है यदि वर्ष 2018 में
A. Rs.	. 1024	B. Rs. 1138	C. Rs. 2776	D. Rs. 2420	E. Rs. 4552
3.	सेब हैं और ^इ पेशकश कर 12 सिक्के दे	वंदू के पास कोई सेब ता है। वे 12 सेबों को उ गा। भरत बताते हैं कि गा गया। अरविंद कहते	नहीं है, बल्कि 12 सिव आपस में बराबर बांटने उन्हें 5 सिक्कों का भुग	के हैं। वह कुछ सेब वे के लिए सहमत हैं और ातान किया गया और	7 सेब हैं, भरत के पास 5 हे लिए भुगतान करने की इ चंदू अपने हिस्से के लिए अरविंद को 7 सिक्कों का हेए। अरविंद को कितना
A. 11	coins	B. 10 coins	C. 12 coins	D. 8 coins	E. 9 coins
4.	किया जाता है	<mark>, तो शेष</mark> छात्रों का औसत	न स्कोर 2 से गिर जाता है	। यदि पहले पांच उच्चतः	ारों के अंकों पर विचार नहीं म छात्रों में से कोई भी 80 से र का अधिकतम संभव अंक
A. 10	8	B. 109	C. 177	D. 193	E. 183
5.	संख्या का अनु	पपात क्रमशः ५ : ७ हैं, औ		संख्या और 5 रुपये के सि	। और 2 रुपये के सिक्के की नक्के की संख्या का अनुपात हा कुल मान 15 रुपये है।
A. Rs.	. 180	B. Rs. 90	C. Rs. 45	D. Rs. 115	E. इनमें से कोई नहीं।
6.	तीन बच्चों को कुल चॉकलेट	चॉकलेट मिली। पिता ॐ का तीन गुना है। पिता के	गैर सबसे छोटे बच्चे के प	।।स चॉकलेट की कुल सं ⁻ पास चॉकलेट का अनुप	11: 7 अनुपात में सबसे बड़े ख्या तीन बड़े बच्चों के पास ात 3: 4 है। यदि सबसे छोटे
A. 27	3	B. 252	C. 276	D. 303	E. इनमें से कोई नहीं।

7.	रु प्रति घंटे या लिए किराए पर	8 रु प्रति किमी जो भी अ र ली जाती है, तो खर्चा 80	धिक हो की दर से होता रु प्रति घंटे या 6 रु प्रति	है। दूसरी ओर, यदि कार किमी जो भी अधिक हो व	र ली जाती है, तो खर्चा 100 8 घंटे से अधिक समय के ठी दर से होता है। सुमित ने टि के लिए कार किराए पर
A. 12	घंटे	в. 9 घंटे	C. 10 घंटे	D. 8 घंटे	E. 11 घंटे
8.	और वर्ग B में : प्रत्येक पंक्ति मे	3: 5 है।दोनों वर्गों के छा:	त्रों को लड़कों और लड़ि	केयों की पंक्तियों में जर्म	ड़िकयों का अनुपात 3: 1 है न पर खड़ा किया गया है, II 96 है तो वर्ग A और B में
A. 218	3	B.286	C. 372	D. 288	E. इनमें से कोई नहीं।
9.	जो कि प्रैक्टिक	ल में प्राप्त किए जा सक	ते हैं, थ्योरी के कुल अंकों	का 20% था। यदि शुभम	ानुपात 7: 10 है। कुल अंक I को प्रैक्टिकल में पूरे अंक सकने वाले कुल अंकों का
A. 4 : !	5	B. 3:5	C. 5:6	D. 3:4	E. 2:3
10.		<mark>ान का अ</mark> नुपात 5: 7 है औ <mark>ज्राए प</mark> र खर्च करता है। वि			00 रु है और c अपने वेतन ता बचा?
A. Rs.	296000	B. Rs. 268000	C. Rs. 282000	D. Rs. 275000	E. इनमें से कोई नहीं।
11.		वेन की आय 4: 7 के अनु 11 लेता है, तो उनकी बचत		र्व 6: 11 के अनुपात में है।	यदि जॉन अपनी आय का
A. 12	: 13	B. 13 : 12	C. 18:19	D. 12 : 19	E. इनमें से कोई नहीं।
12.	12,000 रु औ		ौर इरफान और इमरान	की मासिक आय का अ	फान और इमरान क्रमशः ानुपात क्रमशः 8: 5 है, तो
A. Rs.	42000	B. Rs. 504000	C. Rs. 504200	D. Rs. 50400	E. Rs. 50800
13.	दोनों योजनाओ				किया और तीन साल बाद ाज की दर 7: 5 के अनुपात
A. 4:	7	B. 5:6	C. 5:7	D. 5:4	E. इनमें से कोई नहीं।

14.			-	· · · · · · · · · · · · · · · · · · ·	देया। यदि P और R को एक
	_	। पूरी करनी है, तो P को F 			
A. 36.	25 मीटर	B. 37.55 मीटर	C. 38.90 मीटर	D. 21.25 माटर	E. इनमें से कोई नहीं।
15.	अनुपात में है।	A का मासिक व्यय C के	मासिक व्यय से 2500 र		बचत क्रमश: 4 : 5 : 6 के सिक A के मासिक व्यय से I है?
A. Rs.	4500	B. Rs. 3000	C. Rs. 35000	D. rs. 2500	E. इनमें से कोई नहीं।
16.	स्कूल छोड़ते है		iख्या और लड़कों की शे	ष संख्या का अनुपात ७ : !	लड़के और कुछ लड़कियां 5 हो जाता है। स्कूल छोड़ने
A. 150	0%	B. 140%	C. 58.33% D. 11	2.5% E. निर्धारि	त नहीं किया जा सकता है।
17.		गओं की संख्या के आधे			ष हैं। पुरुषों की संख्या का ो तथा महिलाओं की संख्या
A. 50		B. 100	C. 150	D. 75	E. इनमें से कोई नहीं।
18.		<mark>ने, पिता</mark> की उम्र बेटे की उ न में, उनकी आयु के योग			टे की आयु का 2.5 गुना हो
A. 5 :	3	B. 16: 9	C. 3:5	D. 9:16	E. इनमें से कोई नहीं।
19.		स्टिक का 1/8 भाग काल है तो इलेक्ट्रिक स्टिक की		नीला है और शेष भाग सपे	न्द है। यदि सफेद भाग की
A. 28	मीटर	B. 30 मीटर	C. 24 मीटर	D. 20 मीटर	E. इनमें से कोई नहीं।
20.	यदि अरुण औ अनुपात ज्ञात व		रु अनुपात में है और उन	का व्यय ३: ४ के अनुपात	। में है, तो उनकी बचत का
A. 3 : नहीं।	5	B. 2:5	C. 5:7	D. Can't be determir	ned E. इनमें से कोई
21.					कर्मचारी का वेतन 4: 5 के ो के शुरुआती खर्च का पता
A. Rs. 22.		B. Rs. 62000 रू की वार्षिक आय का • 1,000 ₹ बचाता है, तो अ		उनके व्यय का अनुपात 5	E. इनमें से कोई नहीं। 5: 3. है। यदि वर्ष के अंत में

23.	चार दोस्तों रीना, संध्या, यामिनी और सुजाता की औसत आयु 21 वर्ष है। रीना और संध्या की आयु का योग सुजाता की आयु से 14 वर्ष अधिक है। सुजाता और संध्या की उम्र का अंतर 4 साल है सुजाता और रीना की उम्र का अंतर 6 साल है 3 साल के बाद रीना, संध्या और यामिनी की औसत आयु ज्ञात करें।								
A. 22	22 years B. 25 years C. 21 years D. 23 years E. 26 years								
24.	,	A, B और C के बीच विभ है। A और C के शेयरों में		और в के शेयर का अनुपा	ात 3: 7 है। B का शेयर C के				
A.Rs.	34000	B. Rs. 15000	C. Rs. 35000	D. Rs. 49000	E. इनमें से कोई नहीं।				
25.	प्राप्त अंकों क	ा अनुपात क्रमशः 5: 6 है	। उन्होंने अंग्रेजी की तुलन्	ना में विज्ञान में 36 अंक अ	और विज्ञान में मोहन द्वारा अधिक प्राप्त किए और हिंदी प्राप्त अंकों के अनुपात का				
A. 5 :	6	B. 6:7	C. 2:3	D. 1:2	E. 4 : 5				
26.		<mark>केश की</mark> आय 5: 4 के अनु <mark>ने आय हो</mark> सकती है:	पात में है और उनका ख	र्च 3: 2 के अनुपात में है।	यदि प्रत्येक 6000 रु बचाता				
A. Rs.	12000	B. Rs. 15000	C. Rs. 16000	D. Rs. 10000	E. इनमें से कोई नहीं।				
27.		जींस की कीमत 2200 र बीच का अनुपात ज्ञात क		। शर्ट की कीमत 2400 र	पये है। जींस और शर्ट की				
A. 8 :	9	B. 10:7	C. 6:5	D. 11 : 10	E. इनमें से कोई नहीं।				
28.	में पैक करना	होता है, जैसे कि प्रत्येक	बॉक्स में समान संख्या	में सेब और समान संख्या	एक निश्चित संख्या में बॉक्स में संतरे होते हैं। यदि एक है, तो फलों की कुल संख्या				
A. 54	40	B. 5376	C. 5200	D. 2240	E. इनमें से कोई नहीं।				
29.	यदि ऊपरी गो				फल 1: 3 के अनुपात में है। ता क्षेत्रफल निचले गोलार्ध में				
A. 17. 30.	दो व्यक्तियों व	B. 24.45% ठी मासिक आय 4: 5 के र ठी बचत होती है, तो उनकी		D. 23.81% मासिक व्यय 7: 9 के अ	E. इनमें से कोई नहीं। नुपात में है। यदि प्रत्येक को				
A. Rs.	400, Rs 500	B. Rs 200, Rs 250	C. Rs 100, Rs 125	D. Rs 300, Rs 375	E. इनमें से कोई नहीं।				

C. Rs. 7000

A. Rs. 9000

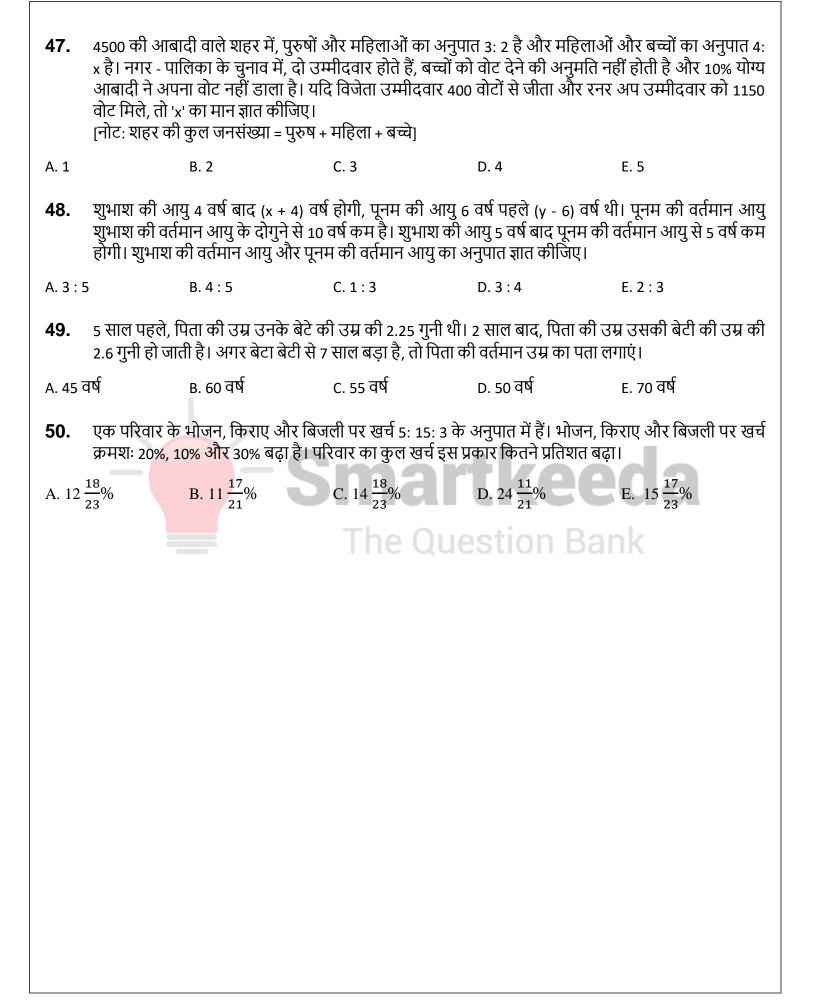
B. Rs 8000

E. इनमें से कोई नहीं।

D. Rs. 6000

31.	राधा और दिव्य	ा की मासिक आय का अ ते दोगुनी है। यदि मधु र्क	नुपात क्रमशः ४: ३ है। म	धु की मासिक आय उसके	नुपात क्रमशः 5: 6 है और ज्ञसभी तीन दोस्तों की कुल भी दोस्त की सबसे ज्यादा
A. Rs.	5500	B. Rs. 5600	C. Rs. 4600	D. Rs. 5400	E. Rs. 5800
32.					र्ष के वेतन के बीच उनके 50 है। गजोधर का वर्तमान
A. 120	0	B. 1400	C. 1600	D. 1800	E. इनमें से कोई नहीं।
33.		त किया और P ने कुल C			्र ने कुल P और R का एक : P, Q और R के शेयरों के
A. 5 : 4	l : 11	B. 4:5:11	C. 5:11:4	D. 11:4:5	E. इनमें से कोई नहीं।
34.		हन सीमा जो 14 साल क आयु का अनुपात 2: 1 हो			छोटी है। 6 वर्ष के बाद माँ).33 वर्ष होगा?
A. 3 ব্য	र्घ	B. 2 वर्ष	c. 4 वर्ष	D. 1 वर्ष	E. 5 वर्ष
35.	एक आदमी 12 का 3 गुना, तीर राशि ज्ञात कीर्जि	तरी पत्नी के हिस्से का 4	में विभाजित करता है। प	ाहली पत्नी के हिस्से का 2 हिस्सा का 6 गुना बराबर	गुना, दूसरी पत्नी के हिस्से है। तीसरी पत्नी को मिली
A. Rs.	20000	B. Rs. 30000	C. Rs. 35000	D. Rs. 40000	E. Rs. 25000
26					
30.		ो दोस्तों विराट और दिनेष् आयु का औसत ज्ञात कीर्वि		: 1 था। उनकी वर्तमान अ	11यु ४ वर्ष से भिन्न है। २ वर्ष
A. 12 $\overline{}$	के बाद उनकी	_	जेए?	: 1 था। उनकी वर्तमान उ D. 13 वर्ष	
A. 12 ⁷	के बाद उनकी वर्ष अर्जुन और राष्ट्रि	आयु का औसत ज्ञात कीर्व B. 14 वर्ष धेका की वर्तमान आयु क्र	जेए? C. 11 वर्ष ज्मशः 3: 2 के अनुपात मे	D. 13 वर्ष में है। 9 साल पहले, अर्जु	
A. 12 ⁷	के बाद उनकी वर्ष अर्जुन और राष्ट्रि अनुपात क्रमश क्या होगा। 5 साल बाद दी	आयु का औसत ज्ञात कीर् B. 14 वर्ष धेका की वर्तमान आयु क्र : 4: 5 था और राधिका श्य B. 4 : 5	जेए? C. 11 वर्ष रमशः 3: 2 के अनुपात मे गम से 10 वर्ष छोटी थी। C. 8:9 री उम्र से 5 साल ज्यादा	D. 13 वर्ष में है। 9 साल पहले, अर्जुः 3 साल बाद अर्जुन और इ D. 3 : 4 होगी। दीपिका और आं	E. 10 वर्ष न और श्याम की आयु का

39.		क मजदूरी जो 300 रुपये त 2: 1 है। यदि जानकी व			नेक मजदूरी का 22.5% के (का मान ज्ञात कीजिए।
A. 25		B. 30	C. 300	D. 250	E. 40
40.	रूप में काम क				हैं। पुरुषों में से 35% HR के में HR के रूप में काम कर
A. 257	700	B. 27700	C. 23500	D. 23700	E. इनमें से कोई नहीं।
41.		ज्श की आय 5: 4 के अनुष । आय हो सकती है:	गत में है और उनका खच	र्व 3: 2 के अनुपात में है। र	मिद प्रत्येक ६००० रु बचाता
A. Rs.	12000	B. Rs. 15000	C. Rs. 16000	D. Rs. 10000	E. इनमें से कोई नहीं।
42.		5 24 कैरेट सोना शुद्ध सो ट सोने में और 20 कैरेट स) कैरेट सोना शुद्ध सोने का
A. 5 : 8	3	B. 9:10	C. 10:9	D. 8:5	E. इनमें से कोई नहीं।
43.	रुपये है और स		यों का औसत वेतन 1800		गें का औसत वेतन 25000 सभी नियमित कर्मचारियों
A. 4 : 3	3	B. 5 : 3	c. 4:5 e Que	0.5:40n Bai	E. इनमें से कोई नहीं।
44.		भाय का अनुपात क्रमशः ज्ञात करें यदि A, B और C			4 है। A और C की आय के
A. Rs.	1050	B. Rs. 700	C. Rs. 800	D. Rs. 600	E. Rs. 900
45.		र 25% की वृद्धि हुई है उ			संख्या में अगले वर्ष क्रमशः oo है, तो शुरू में छात्रों की
A. 900)	B. 800	C. 850	D. 750	E. इनमें से कोई नहीं।
46.	है। в का मासि		र्व से 2000 रुपये अधिक	है। यदि A और B की मा	नक बचत से 140% अधिक सिक बचत क्रमशः 4: 5 के
A. Rs.	G	B. Rs. 18000	C. Rs. 36000	D. Rs. 45000	E. इनमें से कोई नहीं।



CORRECT ANSWERS:

1	D	11	D	21	Α	31	В	41	В
2	Е	12	В	22	D	32	С	42	В
3	Е	13	С	23	D	33	В	43	Α
4	D	14	E	24	Α	34	В	44	Е
5	В	15	В	25	D	35	Е	45	С
6	В	16	В	26	В	36	Е	46	Е
7	С	17	Α	27	В	37	С	47	Е
8	D	18	В	28	В	38	С	48	Е
9	D	19	С	29	D	39	В	49	D
10	D	20	D	30	Α	40	D	50	С



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Explanations:

1. We have been given that alloy A contains gold and silver in the ratio 2:1. Let there be 21x units of A. So it will have 14x units of gold and 7x units of silver. Let there be 21y units of alloy B. So we have 9 units of silver and 12 units of platinum. Let these two be mixed to get the desired alloy.

Hence, the total amount of gold in alloy C will be 14x and total amount of platinum will be 12y. We have been given that

$$\frac{14x}{12y} = \frac{5}{6}$$

$$\Rightarrow \frac{x}{y} = \frac{5}{7}$$

Thus alloys A and B must have been mixed in the ratio 5:7

Thus, the share of silver in the final mixture

$$=\frac{35+63}{252}=\frac{98}{252}=\frac{49}{126}$$

Hence, option D is correct.



The Question Bank

2. Let the income of Asha in 2018 and 2017 be 3x and 5x respectively.

Let the income of Ravenna in 2018 and 2017 be 3y and 2y respectively

Since, the ratio of their income in the year 2017 was 5:4

$$2x = y$$

The sum of their incomes in 2018 is Rs. 10242

$$3x + 3y = 10, 242$$

$$9x = 10, 242$$

Ravenna's income for the year 2017 = 2y = Rs. 4552 Hence, option E is correct.

3. As they together have 12 apples, each person gets a share of 4 apples. Chandu took 4 apples as his share and paid 12 coins of the 4 apples. 1 apple is given by Bharat and 3 apples are given by Aravind. The ratio of apples of Aravind and Bharat = 3:1.

They must be paid in that ratio i.e., 3:1

Hence, the number of coins that Aravind should get = $\frac{3 \times 12}{4}$ = 9 coins

Hence, option E is correct.

4. Let the score of the topper be T.

Total score of the 52 students = $52 \times 85 = 4420$

Total score of the remaining 47 students after scores of the best five performers are removed = 47×83 = 3901

Total score of the top five students = 4420 - 3901 = 519

T + (total score of the next 4 top scores) = 519

T is the maximum when the total score of the next 4 top scorers is minimum.

Total score of the next 4 top scorers has a minimum value of 80 + 81 + 82 + 83 = 326 (since all the top 5 scores are distinct) and the least is 80.

T has a maximum value of 519 - 326 = 193

Hence, option D is correct.

5. Ratio of the number of coins of denominations Rs. 1 : Rs. 2 : Rs. 5 = 5 : 7 : 6

Let, the number of coins of Rs. 1, Rs. 2 and Rs. 5 in the bag be 5x, 7x and 6x.

Since, the total value of Rs. 1 coin in the bag is Rs. 15

So, the number of coins of Rs. 1 in a bag = 15

$$5x = 15$$
, $\Rightarrow x = 3$

Therefore, number of Rs. 5 coins in the bag = 6x = 18 So, required value of Rs. 5 coins = $6 \times 3 \times 5 = Rs.90$ Hence, option B is correct..

6. Let the children be P, Q, R and S and Father be F

Chocolates with P:Q:R=3:7:11

Let the number of chocolates be 3k, 7k and 11k

Total chocolates with three eldest children = 21k

Chocolate with F and $S = 3 \times 21k = 63k$

Total chocolates = (21k + 63k) = 84k

Chocolate with F: (P + Q + R + S) = 3:4

Total 7 units of chocolate = 84 k

1 unit = 12k

Chocolate with $F = 3 \times 12k = 36k$

Chocolate with S = (63k - 36k) = 27k

 $27 k = 81 \rightarrow k = 3$

Total number of chocolates = $84k = 84 \times 3 = 252$

The Question Bank

Hence, option B is correct.

7. Let the car is rented for 8 hours or less.

Then the number of hours it is rented for

$$\frac{800}{100}$$
 = 8 hours

But if it charged Rs. 8 per km, the amount that should paid be 120(8) = 960 But he paid only Rs. 800

The car is rented for more than 8 hours

Number of hours =
$$\frac{800}{80}$$
 = 10 hours

If it is charged at Rs. 6 per km, the amount that should paid be 120(6) = Rs. 720 which is less than s. 800 Sumit rented car for 10 hours.

Hence, option C is correct.

8. Let the strength of A = 16k and that of = 8k

Section A ratio of Boys: girls = $3:1 \rightarrow boys = 12k$ and girls = 4k

Section B ratio of boys: girls = $3:5 \rightarrow$ boys = 3k and girls = 5k

A + B - boys = 15k and girls = 9k

Maximum number of students in a row = HCF (15k, 9k) = $3k \rightarrow 3k = 96 \rightarrow k=32$

Difference between boys of section A and B = $12k - 3k = 9k \rightarrow 9 \times 32 = 288$

Hence, option D is correct.

9. Let, marks obtained by Shubham in theory and total marks of theory be '7x' and '10x' respectively

So, total marks (theory + practical) = 10x + 2x = 12x

Marks obtained by Shubham (theory + practical) = 7x + 2x = 9x

So, reqd. ratio =
$$\frac{9x}{12x} = \frac{3}{4}$$



Salary ratio of A: B = 5: 7 and B: C = 3: 5 so A: B: C = 15: 21: 35 and A: C = 3: 7 10.

Salary (A) = 165,000 so salary of (C)

$$=\frac{7}{3} \times 165000 = \text{Rs.} 385000$$

C spends 28.56% on rent => C spends 2/7 on rent so remaining will be 5/7 of salary

Remaining =
$$\frac{5}{7}$$
 × 385000 = Rs. 275000

Hence, option D is correct.

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11. Let the income of John 4x, Kelvin 7x

And expenditure be:

John
$$\rightarrow$$
 6y.....(i)
Kelvin \rightarrow 11y

John spending = John's earning - John's savings

John's expenditure = $4x - \frac{4x}{3} = \frac{8}{3}x$ (ii)

$$(i) = (ii)$$

$$6y = \frac{8}{3}x \Rightarrow \frac{x}{y} = \frac{9}{4}$$

Reqd. Ratio =
$$\frac{4x - 6y}{7x - 11y} = \frac{4x - (\frac{4}{9}x)6}{7x - (\frac{4}{9}x)11} = \frac{36 - 24}{63 - 44} = \frac{12}{19}$$

Hence, option D is correct.

Smartkeeda

12. Let the monthly income of Imran and Irfan is Rs. R and Rs. S respectively.

Then, according to the question Ratio of their monthly income = R : S = 8 : 5

Let us assume it 8x and 5x, then the difference between their monthly income $\Rightarrow 8x - 5x = 3x$ (i)

Let the monthly expenditure of Imran is Rs. 100a Then the monthly expenditure of Irfan = Rs. 60a Ratio of Imran's and Irfan's expenditures = 100a : 60a = 5 : 3

According to question:

$$\Rightarrow \frac{8x - 12000}{5x - 10000} = \frac{5}{3}$$

$$\Rightarrow$$
 24x - 36000 = 25x - 50000

$$\Rightarrow$$
 x = 14,000

∴ Required difference = $3x = 3 \times 14000 \times 12 = Rs. 504000$

Hence, option B is correct.

13. Let, the rate of interest in scheme A be 7x and scheme B be 5x

$$\therefore X \times 3 \times \frac{7x}{100} = Y \times 3 \times \frac{5x}{100}$$

$$\Rightarrow \frac{X}{Y} = \frac{5}{7}$$

Reqd. ratio = 5:7

Hence, option C is correct.

14. P beats Q by 25 m.

Means if P runs 300 m, Q will run 275 m.

When Q runs 300 m, R will run 285 m.

If Q runs 275 m, R will run =
$$\frac{275 \times 285}{300}$$
 = 261.25

It means, P will beat R by (300 - 261.25) = 38.75 m

Р	Q	R
300	275	?
	300	285

Smartkeeda

The Question Bank

Hence, option E is correct.

15. Let the income of A = 3x then the income of B = 4x

The expenditures of C = 5000

The expenditures of A = 5000 - 2500 = 2500

The expenditures of B = 2500 + 1000 = 3500

Let us consider the ratio of A and B only

$$\frac{3x - 2500}{4x - 3500} = \frac{4}{5}$$

$$15x - 12500 = 16x - 14000$$

$$X = 1500$$

The saving of A = 3X - 2500 = 4500 - 2500 = 2000 = 4Y

$$Y = 500$$

The saving of $C = 6y = 6 \times 500 = 3000$

Hence, option B is correct.

16. Let the number of boys = 7x and the number of girls = 5x

Let a boys and b girls left the school then the ratio

$$=\frac{7x-a}{5x-b}=\frac{7}{5}$$

By solving, a: b = 7:5

The reqd. percentage =
$$\frac{7 \times 100}{5}$$
 = 140%

Hence, option B is correct.

17. According to the question, 33.33% of the number of male= 1/2 of the number of female

$$\frac{Male}{3} = \frac{female}{2}$$

Male: Female = 3:2

Let Male = 3x and Female = 2x

Then sum =
$$5x = 250$$
, $x = 50$

Then sum =
$$5x = 250$$
, $x = 50$
Required difference = $3x - 2x = x = 50$

Hence, option A is correct.

18. 5 years before, let the age of father = 5x then the age of son = xAt present, the age of father = 5x + 5 years and the age of son = x + 5

10 years hence, the age of father will become 5x + 5 + 10 = 5x + 15 and the age of son will become = x + 5 + 10 = x + 15 years

The Question Bank

According to the question

$$5x + 15 = 2.5(x + 15)$$

By solving, x = 9

At present, the age of father = 5x + 5 = 50 years and the age of son = x + 5 = 14

The required ratio = (50 + 14): (50 - 14) = 64 : 36 = 16 : 9Hence, option B is correct.

19. Let the length of the electric stick = x meters

In the first minute, black part

=
$$1 \times \frac{x}{8}$$
 meters = $\frac{x}{8}$ meters

Remaining =
$$x - \frac{x}{8} = \frac{7x}{8}$$
 meters

Blue part = 2/7th of the remaining

$$=\frac{7x}{8}\times\frac{2}{7}=\frac{x}{4}$$
 meters

Remaining =
$$\frac{7x}{8} - \frac{x}{4} = \frac{5x}{8}$$
 meters = white part = 15 cm

By solving, x = 24 cm

Hence, option C is correct.

20. Let the incomes of Arun and Varun be 5a and 7a respectively.

> Let their expenditure be 3b and 4b respectively. artkeeda

Savings = Income - Expenditure

$$\therefore \frac{\text{Arun's savings}}{\text{Varun's savings}} = \frac{(5a - 3b)}{(7a - 4b)}$$

The values of a and b are not known.

Hence, the ratio of savings cannot be determined.

Hence, option E is correct.

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21. Let the number of employees earlier = '3a'

Then, number of employees now = '2a'.

- : Average salary of employees earlier = '4b',
- ∴ Average salary of employees now = '5b'.
- \Rightarrow Total salary of employees earlier = $3a \times 4b = 12ab$
- \Rightarrow Total salary of employees now = $2a \times 5b = 10ab$
- ∴ Difference = 12ab 10ab = 2ab

Given that,

$$\Rightarrow$$
 2ab = Rs. 12,000

Then, initial expenditure = $12ab = 2ab \times 6 = Rs. 72000$

Hence, option A is correct

22. Amit's income = ₹ 3x and his expenditure =₹ 5y

Veeru's income = ₹ 2x and his expenditure = ₹ 3y

As per the question.

Amit's savings = Veeru's savings

$$3x - 5y = 2x - 3y$$

$$\Rightarrow$$
 x = 2y

$$3x - 5y = 1000$$

$$\Rightarrow$$
 6y – 5y = 1000

$$\Rightarrow$$
 y = 1000

$$x = 2000$$

Hence, option D is correct.

23. Let the present age of Reena, Sandhya, Yamini and Sujata be R, Sa, Y and Su respectively.

The Question Bank

$$R + Sa + Y + Su = 21 \times 4 = 84 \text{ years ...(i)}$$

$$R + Sa = Su + 14 ...(ii)$$

$$Su - Sa = 4$$

$$Sa = Su - 4$$

$$Su - R = 6$$

$$R = Su - 6$$

Put the value of R and Sa in (ii)

$$Su - 6 + Su - 4 = Su + 14$$

$$R = 18$$
 years

Average age after 3 years,

$$=\frac{18+3+20+3+22+3}{3}=23 \text{ years}$$

Hence, option D is correct.

The Question Bank

24. Ratio of shares:
$$A : B = 3 : 7$$

$$B = \frac{5}{7}C \Rightarrow B:C = 5:7$$

Making the ratio of B common

$$A: B = 3 \times 5: 7 \times 5 = 15:35$$

B:
$$C = 5 \times 7 : 7 \times 7 = 35 : 49$$

$$\Rightarrow$$
 A : B : C = 15 : 35 : 49

Difference between shares of A and C =
$$\frac{49-15}{15+35+49} \times 99000 = \text{Rs. } 34000$$

Hence, option A is correct.

25. Let, marks obtained by Mohan in Hindi and English be 4x and 5x, respectively And, marks obtained by Mohan in Maths and Science be 5y and 6y, respectively

So,
$$6y - 5x = 36$$

$$y = \frac{36 + 5x}{6}$$

And,
$$5y - 4x = 32$$

$$5 \times \frac{36 + 5x}{6} - 4x = 32$$

$$180 + 25x - 24x = 192$$

$$x = 12$$

So,
$$y = \frac{96}{6} = 16$$

Required ratio = $4x : 6y = 4 \times 12 : 6 \times 16 = 48 : 96 = 1 : 2$

Hence, option D is correct.

26. Let the ratio of their income be 5x and 4x and their expenditure be 3y and 2y.

So,
$$5x - 3y = 6000$$
 and $4x - 2y = 6000$.

On solving the above equations we get x = 3000 and y = 3000

Suresh's income =
$$5x = Rs. 15000$$

Hence, option B is correct.



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27. Let the cost price of one shirt = Rs. x, the cost price of one jeans = Rs. y

According to the question,

$$2y + 4x = 2400$$

After solving these 2 equation,

$$x = Rs. 350., y = Rs. 500$$

Hence, option B is correct.

28. Let the total number of apples and oranges be 11k and 17k

The difference between the fruits of two varieties in a box will be in the same ratio 11:17

Difference between apples and oranges = 72 = 6 units (17 - 11)

Total fruits in a box = $(11 + 17) \times 12 = 336$

Total boxes = 16

Total fruits = $16 \times 336 = 5376$

Hence, option B is correct.

29. Ratio of yellow and blue = 1 : 3 (4 parts) Ratio of yellow and blue in upper hemisphere = 4:9 (13 parts)

> Let the total sphere be divided into 52 parts, then as per the ratio, the number of parts = 13 yellow and 39 blue parts

In upper hemisphere there will be 26 parts, as per the ratio (4:9), number of parts = 8 yellow and 18 blue parts

Number of parts in lower hemisphere = Total – upper hemisphere

Yellow parts = 13 - 8 = 5 parts and blue parts = 39 - 18 = 21 parts

Reqd.
$$\% = \frac{5}{21} \times 100 = 23.81\%$$



30. Let the income of two persons be Rs 4x Rs 5x and their expenses be Rs 7y and Rs 9y respectively.

Then,
$$4x - 7y = 50 \dots$$
 (i)

And
$$5x - 9y = 50$$
 (ii)

On solving Eqn. (i) and (ii), we get

$$x = 100 \text{ and } y = 50$$

⇒ The income of persons are Rs 400 and Rs 500

Hence, option A is correct.

31. Let the income of Sonam and Divya be Rs 5n and 6n respectively.

According to the question

ratio of income of Radha and Divya = 4:3 = 8:6

Hence ratio of income of Sonam, Divya and Radha = 5:6:8

Now sum of their total income = Rs (5n + 6n + 8n) = Rs 19n

According to the question income of Madhu = Rs $(2 \times 19n)$ = Rs 38n

Hence; 38n = 26600

From the ratio it is clear that the income of Radha is highest amongst all the three friends of Madhu hence total monthly income of Radha = $Rs (8 \times 700) = Rs 5600$

Hence, option (B) is correct.

32. Let the salaries of Gajodhar and Manohar one year before be, a,b respectively and now be c,d respectively.

$$a:b=3:4$$

$$a:c=4:5$$

$$b: d = 2:3$$

It is given that c + d = 4160

$$\frac{a}{b} = \frac{3}{4}, \frac{a}{c} = \frac{4}{5}, \frac{b}{d} = \frac{2}{3}$$

$$\frac{a}{c} \times \frac{d}{b} = \frac{4}{5} \times \frac{3}{2}$$

$$\frac{a \times d}{b \times c} = \frac{6}{5} \text{ or } \frac{d}{c} \times \frac{3}{4} = \frac{6}{5}$$

$$\therefore \frac{c}{d} = \frac{5}{8}, c + d = 4160$$

$$c = \frac{5}{13} \times 4160 = 1600$$

Hence, option (C) is correct.

33. According to the question:

$$Q = \frac{1}{3} \times (P + R)$$

$$\Rightarrow 3Q = P + R \qquad -----(i)$$

$$P = \frac{1}{4} \times (Q + R)$$

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$$\Rightarrow$$
 4P = Q + R -----(ii)

$$\Rightarrow P = \frac{Q + R}{4}$$

Putting the value of P in equation (i)

$$3Q = \frac{Q + R}{4} + R$$

$$\Rightarrow$$
 12Q = Q + R + 4R

$$\Rightarrow$$
 12Q = Q + 5R

$$\Rightarrow$$
 11Q = 5R

$$\Rightarrow \frac{Q}{R} = \frac{5}{11}$$

Let Q = 5x and R = 11x

Putting the values of Q and R in equation (i)

$$3 \times 5x = P + 11x$$

$$\Rightarrow$$
 15x = p + 11x

$$\Rightarrow$$
 P = 4x

Hence, P:Q:R=4x:5x:11x=4:5:11

Therefore, option B is correct.

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34. Let the present age of Seema be x years

Sweeta's present age = x - 10

When Seema was 14 years, mother was 34 years. So, when Seema is x years, mother will be = 34 - 14 + x

Mother's present age = 20 + x

According to the question,

$$\frac{x+20+6}{x-10+6} = \frac{2}{1}$$

$$\frac{x+26}{x-4} = \frac{2}{1}$$

x = 34 years

Seema's age = 34 years

Sweeta's age = 24 years

Mother's present age = 54 years

Average =
$$\frac{34 + 24 + 54}{3}$$
 = 37.33 years

After 2 years, Seema's age = 36 years, Sweeta's age = 26 years, Mother's age = 56 years

Average after 2 years,

Avg =
$$\frac{36 + 26 + 56}{3}$$
 = 39.33 years

Hence, option B is correct.

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35. Let W_1 , W_2 , W_3 and W_4 be his 4 wives.

Given that,

$$W_1 + W_2 + W_3 + W_4 = 125000 ...(i)$$

$$2W_1 = 3W_2 = 4W_3 = 6W_4 = k$$

Substituting the value in terms of k in (i)

$$\frac{k}{2} + \frac{k}{3} + \frac{k}{4} + \frac{k}{6} = 125000$$

$$k\left(\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{6}\right) = 125000$$

$$k\left(\frac{15}{12}\right) = 125000$$

$$k = 100000$$

Amount received by third wife

$$=\frac{k}{4}=\frac{100000}{4}=\text{Rs. }25000$$

Hence, option E is correct.

Let the age of Virat and Dinesh be V and D respectively 36. martkeeda

Given that,

$$V - D = 4$$

$$V = D + 4 ...(i)$$

4 years ago,

Virat will be (V - 4) years and Dinesh will be (D - 4) years

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$$(V-4):(D-4)=3:1$$

Using (I), we get D = 6 and V = 10 years

Average of their ages after 2 years

$$=\frac{V+2+D+2}{2}=10$$
 years

Hence, option E is correct.

37. Let the present age of Arjun and Radhika be 3x and 2x respectively.

And the present age of Shyam be y years.

So,
$$y - 2x = 10$$

$$y = 10 + 2x ...(i)$$

$$\frac{3x-9}{y-9} = \frac{4}{5}$$

$$15x - 45 = 4y - 36$$

 $15x - 45 = 4(10 + 2x) - 36$
 $15x - 45 = 40 + 8x - 36$
 $x = 7$
 $y = 24$

Reqd. ratio =
$$\frac{3x+3}{y+3} = \frac{21+3}{24+3} = 8:9$$

Hence, option C is correct.

38. Let the present age of Deepika and Alia be 7x and 6x respectively.

5 years hence,

Deepika's age =
$$7x + 5$$

Alia's age = $6x + 5$

Given that,
$$7x + 5 = 5 + 6x + 5$$

Given that, 7x + 5 = 5 + 6x + 5Smartkeeda

Present age of Deepika = 35 years and Alia = 30 years After 6 years, age of Deepika = 41 years and Alia = 36 years

Hence, option C is correct.

Smart Approach:

It can be done fast if we see the options:-

Subtract 6 years from the age given in options, then check whether the ratio comes out to be 7:6 In this case only option C satisfies it.

Hence option C is correct

39. Let Janki's daily wages be Y.

As per the question,

$$X\% \times 300 : 22.5\% \times Y = 2 : 1$$

$$(X \times 300) \times 1 = 2 \times (Y \times 22.5)$$

$$20 \times X = 3 \times Y$$

$$Y = 20 \times X \div 3$$

Given X% of Y = 60

$$X \div 100 \times 20 \times X \div 3 = 60$$

$$X^2 = 900$$

$$X = 30$$

Hence, option B is correct.

40. Number of males in the company

$$=\frac{7}{13}\times78000=42000$$

Number of males working as HR = $\frac{35}{100} \times 42000 = 14700$

Number of females in the company = $\frac{6}{13} \times 78000 = 36000$

Number of females working as HR = $\frac{25}{100} \times 36000 = 9000$

Total number of employees working as HR = 14700 + 9000 = 23700

Hence, option (D) is correct.

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41. Let the ratio of their income be 5x and 4x and their expenditure be 3y and 2y.

So,
$$5x - 3y = 6000$$
 and $4x - 2y = 6000$.

On solving the above equations we get x = 3000 and y = 3000

Suresh's income = 5x = Rs. 15000

Hence, option (B) is correct.

42.

18 carat gold =
$$\frac{3}{4}$$
pure gold = $\frac{3}{4} \times 24 = 18$

20 carat gold =
$$\frac{5}{6}$$
 pure gold = $\frac{5}{6} \times 24 = 20$

$$\Rightarrow$$
 Required ratio = 18 : 20 = 9 : 10

Hence, option (B) is correct.

43. Method I: We can solve this question by applying alligation method

Let number of regular and part time employees is 'R' and 'P' respectively. Method II:

$$R + P = 35 \dots (1)$$

Total salary of regular employees = $R \times 25000$

Total salary of part time employees = $P \times 18000$

Total salary of part time employees = $P \times 18000$ Total salary of all 35 employees = $35 \times 22000 = 25000R + 18000P$

$$\Rightarrow$$
 770 = 25R + 18P (2)

From (1) and (2)-

$$\Rightarrow$$
 (25R + 18P) - 18 × (R + P) = 770 - (18 × 35)

$$\Rightarrow$$
 R = 20

Required ratio =
$$R : P = 20 : (35 - 20) = 20 : 15 = 4 : 3$$

Hence, option A is correct.

44. The ratio of the incomes of A, B and C = $7 \times 5 : 8 \times 5 : 4 \times 8 = 35 : 40 : 32$

Let the income of A, B and C be Rs. 35x, Rs. 40x and Rs. 32x

Average of the income of A, B and C = Rs. 10700

$$\frac{35x + 40x + 32x}{3} = 10700$$

$$107x = 10700 \times 3$$

$$x = 300$$

Income of A = Rs. 10500

Income of B = Rs. 12000

Income of C = Rs. 9600

Required difference = 10500 - 9600 = Rs. 900

Hence, option E is correct.

45. Let the students in school A, B and C = 5x, 4x, 8x

After increment, students in school A = $5x \times 140\% = 7x$

After increment, students in school B = $4x \times 175\% = 7x$

After increment, students in school $C = 8x \times 125\% = 10x$

According to the question,

$$7x + 7x + 10x = 1200$$

24x = 1200

x = 50

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Students in school A initially = $5 \times 50 = 250$

Students in school B initially = $4 \times 50 = 200$

Students in school C initially = $8 \times 50 = 400$ Required number of students = 250 + 200 + 400 = 850Hence, option C is correct.

46. Let the monthly savings of A and B are Rs. 4x and Rs. 5x respectively

Monthly expenditure of A = $2.40 \times 5x = Rs. 12x$ Monthly expenditure of B = Rs. 12x + 2000So, monthly salary of A = Rs. (4x + 12x) = Rs. 16xMonthly salary of B = Rs. (5x + 12x + 2000) = Rs. (17x + 2000)

So, according to the question,

$$\frac{4x + 12x}{5x + 12x + 2000} = \frac{8}{9}$$

$$\frac{2x}{17x + 2000} = \frac{1}{9}$$

$$18x = 17x + 2000; x = 2000$$

So, monthly salary of A = 16×2000 = Rs. 32000

Monthly salary of B = $17 \times 2000 + 2000 = Rs. 36000$

Difference in the monthly salaries of A and B = 36000 - 32000 = Rs.4000

Difference in the yearly salaries of A and B = 12×4000 = Rs. 48000

Hence, option E is correct.

47. Ratio of Male: Female: children = $3 \times 2: 2 \times 2: x = 6: 4: x$

Number of children in town =
$$\frac{x}{10 + x} \times 4500 = \frac{4500x}{10 + x}$$

Number of people eligible to vote = Number of males and females = $\frac{10}{10 + x} \times 4500 = \frac{45000}{10 + x}$

Number of people who didn't cast their vote = $0.1 \times \frac{45000}{10 + x} = \frac{4500}{10 + x}$

According to question

According to question
$$\frac{45000}{10 + x} - \frac{4500}{10 + x} = 1150 + (1150 + 400)$$

$$\frac{40500}{10+x} = 2700$$

$$x = 5$$

Hence, option E is correct.

Alternate solution:-

Total votes got by winner and runner up = (1150 + 400) + 1150 = 2700

These 2700 votes are given by 90% of male and female as 10% of male and female did not cast their vote.

So, 90% of total male and female = 2700

So, Total male + female = 3000

Therefore, number of children = 1500

Ratio of Male: Female: children = $3 \times 2: 2 \times 2: x = 6: 4: x$

The number of children is 1500 which is half of the total number of male and female which is 3000.

So, x will be half the number of parts of male and female in the ratio which will be equal to 5 as total part of male and female is (6 + 4 = 10)

Hence, option E is correct.

48. Shubhash's age 4 years hence is (x + 4), so his present age is x years.

Poonam's age 6 years ago is (y - 6), so her present age is y years.

$$y = 2x - 10 \dots (i)$$

$$x + 5 = y - 5 \dots(ii)$$

Solving both the equations, x = 20 and y = 30 years

Reqd. ratio =
$$\frac{20}{30}$$
 = 2 : 3

Hence, option E is correct.

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49. Let the present age of father, son and daughter be F, S and D respectively.

According to the question,

5 years ago, the age of father is 2.25 times the age of son.

$$F - 5 = 2.25 (S - 5)$$

$$F = 2.25S - 5(2.25 - 1)$$

$$F = 2.25S - 6.25$$
 ...(1)

2 years hence, the age of father becomes 2.6 times the age of daughter,

$$F + 2 = 2.6 (D + 2)$$

$$F = 2.6D + 2(2.6 - 1)$$

$$F = 2.6D + 3.2$$
 ...(2)

$$S - D = 7$$
 ...(3)

From (1) and (2),

$$2.25S - 6.25 = 2.6D + 3.2$$

$$2.25S - 2.6D = 9.45$$
 ...(4)

Multiply (3) by 2.25 and subtract it from (4)

$$-0.35D = -6.3$$

$$D = 18 \text{ years}, S = 18 + 7 = 25 \text{ years}$$

Substituting value of D in (2),

 $F = 2.6 \times 18 + 3.2$ F = 50 years

Hence, option D is correct.

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50. The expenses on food, rent and electricity of a family are in the ratio 5 : 15 : 3 respectively.

Let the expenses on food, rent and electricity be Rs. 5, Rs. 15, Rs. 3 respectively

Increase on food \rightarrow 20% on 5 i.e., Rs. 1

Increase on rent \rightarrow 10% on 15 i.e., Rs. 1.5

Increase on electricity \rightarrow 30% on 3 i.e., Rs. 0.90

Total increase in expenses = Rs. (1 + 1.50 + 0.90)

Reqd.
$$\% = \frac{(1+1.50+0.90)\times 100}{5+15+3} = \frac{340}{23}\% = 14\frac{18}{23}\%$$



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