

SUPERGRADS TEST SERIES

INDIA'S FINEST MOCK TESTS, STUDY MATERIAL & CLASSROOM TRAINING FOR
IPM INDORE, IPM ROHTAK, NPAT, CUET, SET & OTHER UG MANAGEMENT ENTRANCES.



MOCK TEST #1 (IIM IPM INDORE) ANSWER KEY AND EXPLANATIONS

1. (b) (P + Q)'s 1 day's work = $\frac{1}{6}$
(Q + R)'s 1 day's work = $\frac{7}{60}$
Let P alone do the work in x days
According to the question,
 $\frac{3}{x} + \frac{6 \times 7}{60} = 1$
 $\Rightarrow \frac{3}{x} = 1 - \frac{7}{10} = \frac{3}{10}$
 $\Rightarrow x = 10$ days
 \therefore Q's 1 days's work
 $= \frac{1}{6} - \frac{1}{10} = \frac{5-3}{30} = \frac{1}{15}$
R's 1 day's work
 $= \frac{7}{60} - \frac{1}{15} = \frac{7-4}{60} = \frac{1}{20}$
 \therefore Time taken by R = 20 days
 \therefore Required answer = 20 - 10 = 10 days
2. (d) $36x^2 - 13x + 1 = 0$
 $\Rightarrow 36x^2 - 9x - 4x + 1 = 0$
 $\Rightarrow 9x(4x - 1) - (4x - 1) = 0$
 $\Rightarrow (9x - 1)(4x - 1) = 0$
 $\Rightarrow x = \frac{1}{9}, \frac{1}{4}$
Required equation has the roots $\frac{1}{3}, \frac{1}{2}$
Its sum of roots = $\frac{5}{6}$ and their product = $\frac{1}{6}$
 \therefore Required equation = $x^2 - \frac{5}{6}x + \frac{1}{6} = 0$
i.e., $6x^2 - 5x + 1 = 0$
3. (b) Let the number be 'N'.
Given, cube root of the cube and square root of the square is the number itself.
Also, number is 42 less than its square.
 $\therefore N = N^2 - 42$
 $= N^2 - N - 42 = 0$
Hence, N = 7
4. (d) Among $(44)^4, 4^4, (4^4)^4, 4^{44}$
 $(4^2 \text{ to } 4^3)^4, 4^{256}, 4^{16}, 4^{44}$
 $4^8 \text{ to } 4^{12}, 4^{256}, 4^{16}, 4^{44}$
 4^{256} is the highest
 4^{44} is the second highest
5. (a) Let the tree grown by x feet each year.
Therefore, according to the condition $2(4 + 2x) = 4 + 6x$ or $x = 2$
Therefore, at the end of 4 years, the height of the tree will be $4 + 4x = 12$ feet.
6. (d) Actually the watch gains (12+16)
= 28 min in $7 \times 24 \times 60$ min.
Thus, it gains 1 min in 360 minutes.
Therefore, it will gain (12+4) min in $\frac{16 \times 360}{60 \times 24} = 4$ day
7. (d) Interval of flashing of red light = 20 s (3 times per minute)
Interval of flashing of Green light = 15 s (4 times per minute)
Interval of flashing of red light = 10 s (6 times per minute)
Since we have to find their common flash time, we need to find LCM of their intervals
LCM of intervals (20, 15, 10) = 60
 \Rightarrow Lights will blink together after intervals of 60s each
Lights flashed together in 75 minutes = $\frac{75 \times 60}{60} = 75$
8. (c) Let's assume that number of Re. 1 coins is x,
Number of 50 paise coins is y,
Number of 25 paise coins will be $x + (x * 133.33/100) = 2.3333x$
 $x + y + 2.3333x = 105$ ---- (1)
Now we calculate the total value of coins,
 $x + y/2 + 2.3333x/4 = 50.5$
 $31.6665x + 10y = 1010$ -----(2)
Solving (1) and (2) we get
 $1.6665x = 40 \Rightarrow x = 24$
9. (c) First four picks are blue, red, black and white.
Next four picks are blue, red, black, and white.
The next and 9th pick will ensure you got 3 of the same color
10. (c) $(a + 1)(x^2 + x + 1) = x(x + 1)$
 $ax^2 + ax + a + 1 = 0$
for real x, $D \geq 0$
 $a^2 - 4a(a + 1) \geq 0$
 $a = [-4/3, 0]$
11. (b) Suppose a full container without the handle weighed 100g
then the container would weigh 15g and the liquid 85g.
Now, adding a handle adds 5% or 5 grams,
So a full container with a handle would weight 15g + 85g + 5g = 105g
 $1/3$ of this total is $1/3(105) = 35$ g

subtracting the weights of container and the handle we get
 $35g - 5g - 15g = 15g$
 Now calculating our fraction we have,
 $15 / 85 = 3 / 17$

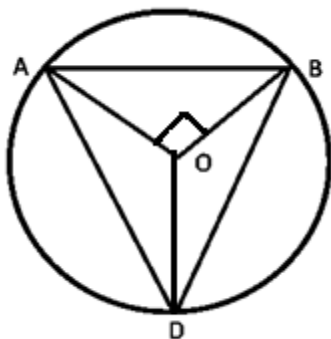
12. (d) No of packets bought during no offer = $6000/100 = 60$ packs
 Cost during no offer = $60 \times 150 = \text{Rs. } 9000$
 New Amount of ladoo material during offer = $150 - (10\% \times 150) = \text{Rs. } 135$
 Ladoos that can be made in the offer pack = $100 + (20\% \times 100) = 120$ ladoos
 Cost during offer = $135 \times 120 = \text{Rs. } 6750$
 $6750/9000 = 3:4$

13. (c) is the correct answer.
 Before robbery (Assume)
- | | | | | |
|----|----|----|----|----|
| W | W | W | W | M |
| 40 | 40 | 40 | 40 | 40 |
- After robbery (Assume)
- | | | | | |
|----|----|----|----|----|
| W | W | W | W | M |
| 45 | 45 | 45 | 45 | 20 |

Required ratio = $45 : 40 = 9 : 8$

14. (c) By Allegation,
 Mining grows by 10%
 Manufacturing grows by 20%
 Economy at large = 18%
 Economy - mining = $18 - 10 = 8$
 Manufacturing - economy = $20 - 18 = 2$
 (Manufacturing - Economy) : (Economy - mining) = $2/8 = 1/4$
 Again;
 Manufacturing = 10%
 Economy = 18%
 Let mining = x
 Economy - manufacturing = $18 - 10 = 8$
 Mining - Economy = $x - 18$
 The ratio is : $8 / (x - 18)$
 Since the growth rate remains the same in both cases, the ratios also remain the same :
 $8 / (x - 18) = 1 / 4$
 $32 = x - 18$
 $x = 18 + 32$
 $x = 50\%$

15. (b) is the correct answer.



Right ΔAOB ,
 Area $\Delta AOB = \frac{1}{2} \times AO \times OB$
 $= \frac{1}{2} \times AO \times AO = 32$ ($AO = 8$)
 $AB = 8\sqrt{2}$
 Angle $BOD = \frac{360 - \angle AOB}{2} = \frac{360 - 90}{2} = 135$

Area $\Delta OBD = \frac{1}{2} \times OB \times OD \times \sin(\angle BOD)$
 $= 32/\sqrt{2}$ sq. unit.
 Area of Triangle $ABD = 32/\sqrt{2} + 32/\sqrt{2} + 32 = 32(\sqrt{2} + 1)$

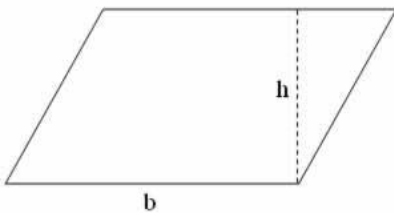
16. (b) $2 \log_3 (2^x - 5) = \log_3 2 + \log_3 (2^x - \frac{7}{2})$
 $\log_3 (2^x - 5)^2 = \log_3 2(2^x - \frac{7}{2})$
 $(2^x - 5)^2 = (2^x - \frac{7}{2})$
 Let $2^x = Y$
 $(y - 5)^2 = 2(y - \frac{7}{2})$
 $Y^2 - 10y + 25 = 2y - 7$
 $Y = 4$ or 8
 $X = 2$ or 3
 But for $x = 2, (2^2 - 5) < 0$
 Hence, $x = 3$
17. (a) Let X be the term required
 So, $X = 150$
 $X = n(n+1)/2$
 $150 = n(n+1)/2$
 $150 \times 2 = n(n+1)$
 $300 = n^2 + n$
 $n^2 + n - 300 = 0$
 Using quadratic formula we get $n = (-1 \pm \sqrt{1201}) / 2$
 It comes to be around 17 approx
18. (c) As $(1 - p)$ is root of the equation: $x^2 + px + (1 - p) = 0$
 $(1 - p)^2 + p(1 - p) + (1 - p) = 0$
 $(1 - p)[1 - p + p + 1] = 0$
 $(1 - p) = 0$
 $p = 1$
 Therefore, given equation now becomes
 $x^2 + x = 0$
 $x(x + 1) = 0$
 $x = 0, -1$
19. (d) No of Ways in which 1 digit can be select = $9 \dots 0$ (can not be first digit)
 Remaining 5 digit number can be arrange in $= 10^n = 10^5$ ways
 Sum of digits to be odd ...
 $e + e + e + e + e + o$
 $e + e + e + o + o + o$
 $e + o + o + o + o + o$
 (where even = e odd = o)
 to sum be odd.. either 1, 3 or 5 no must be odd ..
 so required number is half of $9 \times 10^5 \dots$
 $(9 \times 10^5) / 2 = 45 \times 10^4$
20. (c) Number of elements in set $A = 3$
 Number of elements in set $B = 4$
 Total number of one - one function from A to B is $4 \times 3 \times 2 = 24$
21. (d) Domain of first function $\frac{3}{9-x^2} =$ all real numbers except 3 and -3 (i)
 Domain of $\log_{10} (x^3 - x) = \log_{10} x(x + 1)(x - 1) > 0$
 $(-1, 0) \cup (1, \infty) \dots \dots \dots$ (ii)
 Taking the common part we get $(-1, 0) \cup (1, 3) \cup (3, \infty)$
22. (a) First use all three for 60 second first drive will be used.
 $60 \times 1.5 = 90$ MB each. (first drive is filled completely)
 Now, use two transfer for 55 second = $55 \times 2 = 110$ (second drive will be filled)
 Now, use third transfer for remaining 87 MB ($577 - 90 \times 3 - 110 \times 2$)
 Time required = $87/3 = 29$ sec

23. (c) Total Time = 60 + 55 + 29 = 144 sec
 Relative velocity of boats = 16 + 12 = 28 kmph,
 Time = $\frac{140}{28} = 5$ hrs.
 Fish covered 40% of total time with speed of 5 kmph,
 Hence, Distance = 5 kmph x 40 % of 5 hrs = 10 km
 And, 60% with 3 kmph, hence Distance = 3 kmph x 60% of 5 hrs = 9 km
 Total distance = 10 + 9 = 19 km
24. (c) No of 2nd days = 183
 No of 3rd days = 122/2 (that were already in second day) = 61
 No of 5th day = 25
 Total no of days in leap year = 366
 No of days activities done = 183 + 61 + 25 = 269
 Sid did not go for activities for (366 - 269) = 97 days
25. (a) The ΔJKM and ΔJLN have a common angle $\angle J$. This common angle is formed by sides JK and JM in ΔJKM , and by sides JL and JN in ΔJLN . We can find the area of the above triangles by the formula $A = \frac{1}{2} ab \sin(\theta)$ as:
 $A(\Delta JKM) = \frac{1}{2} \times JK \times JM \times \sin(J)$
 $= \frac{1}{2} \times (KL + LJ) \times (MN + NJ) \times \sin(J)$
 $= \frac{1}{2} \times 20 \times 25 \times \sin(J)$
 $= 250 \sin(J)$
 Similarly, $A(\Delta JLN) = \frac{1}{2} \times LJ \times NJ \times \sin(J)$
 $= \frac{1}{2} \times 5 \times 4 \times \sin(J)$
 $= 10 \sin(J)$
 So, $A(\square KLMN) / A(\Delta JKM) = (A(\Delta JKM) - A(\Delta JLN)) / A(\Delta JKM)$
 $= (250 \sin(J) - 10 \sin(J)) / 250 \sin(J)$
 $= 24/25$
26. (c) Division: 2, 2, 1
 No. of ways of distributing in that way = $5C_2 \times 3C_2 = 30$
 2, 2, 1 can be permuted in $3C_1 = 3$
 No. Of ways = $30 \times 3 = 90$
 Division: 1, 1, 3
 No. of ways of distributing in that way = $5C_3 \times 2C_1 = 20$
 3, 1, 1 can be permuted in $3C_1 = 3$.
 No. Of ways = $20 \times 3 = 60$
 Total no. Of ways = 150
27. (a) Parallel lines have the same slope. Solve for the slope in the first line by converting the equation to slope-intercept form.
 $3x + 4y = 12$
 $4y = -3x + 12$
 $y = -(3/4)x + 3$
 slope = $-3/4$
 We know that the second line will also have a slope of $-3/4$, and we are given the point (1, 2). We can set up an equation in slope-intercept form and use these values to solve for the y-intercept.
 $y = mx + b$
 $2 = -3/4(1) + b$
 $2 = -3/4 + b$
 $b = 2 + 3/4 = 2.75$
 Plug the y-intercept back into the equation to get our final answer.
 $y = -(3/4)x + 2.75$
28. (a) Area of rectangle = $25x^2 - 35x + 12$
 We know, area of rectangle = length x breadth
 So, by factoring $25x^2 - 35x + 12$, the length and breadth can be obtained.
 $25x^2 - 35x + 12 = 25x^2 - 15x - 20x + 12$
 $\Rightarrow 25x^2 - 35x + 12 = 5x(5x - 3) - 4(5x - 3)$

- $\Rightarrow 25x^2 - 35x + 12 = (5x - 3)(5x - 4)$
 So, the length and breadth are $(5x - 3)(5x - 4)$.
 Now, perimeter = 2(length + breadth)
 So, perimeter of the rectangle = $2((5x - 3) + (5x - 4))$
 $= 2(5x - 3 + 5x - 4) = 2(10x - 7)$
 So, the perimeter = $20x - 14$
29. (c) Sum of infinite terms of a GP –
 $S = 0.7 + 0.77 + 0.777 \dots$ upto 20 terms
 $S = \frac{7}{9} (0.9 + 0.99 + 0.999 \dots)$
 $S = \frac{7}{9} (1 - 0.1 + 1 - 0.01 + 1 - 0.001 \dots)$
 $S = \frac{7}{9} (20 - (\frac{1}{10} + \frac{1}{100} + \dots \text{ upto 20 terms}))$
 $S = \frac{7}{9} (20 - \frac{1}{10} \frac{(1 - \frac{1}{10}^{20})}{(1 - \frac{1}{10})})$
 $S = \frac{7}{81} (179 + 10^{-20})$
30. (a) Suppose, α be the common root of the equations $x^2 + 2x + 3 = 0$ and $ax^2 + bx + c = 0$
 Therefore $\alpha^2 + 2\alpha + 3 = 0$
 Or, $\alpha^2 = -(2\alpha + 3) \dots (1)$
 And $a\alpha^2 + b\alpha + c = 0$
 Or, $a\alpha^2 = -(b\alpha + c)$
 Or, $\alpha^2 = -(b\alpha + c)/a \dots (2)$
 from (1) and (2) we get
 $-(b\alpha + c)/a = -(2\alpha + 3)$
 $ba/a + c/a = 2a + 3$
 Comparing both sides we have
 $b/a = 2$
 Or $b = 2a$
 And $c/a = 3$
 Or, $c = 3a$
 Now $a : b : c = a : 2a : 3a$
 Or, $a : b : c = 1 : 2 : 3$
31. (b) Let total number of women = W
 Total number of men = M
 Number of games in which both players were women = 45
 $\Rightarrow Wc = 45$
 $\Rightarrow W(W - 1)/2 = 45$
 $\Rightarrow W(W - 1) = 90$
 $\Rightarrow W = 10$
 Number of games in which both players were men = 190
 $\Rightarrow Mc = 190$
 $\Rightarrow M(M - 1)/2 = 190$
 $\Rightarrow M(M - 1) = 380$
 $\Rightarrow M = 20$
 We have got that
 Total number of women = 10
 Total number of men = 20
 Required number of games in which one person was a man and other person was a woman
 $= 20c_1 \times 10c_1 = 20 \times 10 = 200$
32. (c) Let A = the event that John is selected and B = the event that Dani is selected.
 Probability that none of them are selected
 $= P(\bar{A} \cap \bar{B}) = P(\bar{A}) \cdot P(\bar{B}) = [1 - P(A)] [1 - P(B)]$
 $= (1 - 1/3)(1 - 1/5)$
 $= 2/3 \times 4/5 = 8/15$
33. (b) Total Cost = 4000 x 3
 Total diesel used = 4000/7.5 + 4000/8 + 4000/8.5

Average cost per litre of diesel = $4000 \times 3 / (4000/7.5 + 4000/8 + 4000/8.5) = 3 / (1/7.5 + 1/8 + 1/8.5) = 7.98$

34. (c) In a month of 30 days beginning with a Sunday, there will be 4 complete weeks and another two days which will be Sunday and Monday. Hence there will be 5 Sundays and 25 other days in a month of 30 days beginning with a Sunday.
Average visitors on Sundays = 510
Total visitors of 5 Sundays = 510×5
Average visitors on other days = 240
Total visitors of other 25 days = 240×25
Total visitors = $(510 \times 5) + (240 \times 25)$
Total days = 30
Average number of visitors per day = $[(510 \times 5) + (240 \times 25)] \div 30 = [(51 \times 5) + (24 \times 25)] \div 3 = (17 \times 5) + (8 \times 25) = 85 + 200 = 285$
35. (d)



Hence, we have
 $p^2 - 4 = (p+4)(p-3)$
 $\Rightarrow p^2 - 4 = p^2 + p - 12$
 $\Rightarrow -4 = p - 12$
 $\Rightarrow p = 12 - 4 = 8$
Hence, actual area = $(p^2 - 4)$
 $= 8^2 - 4 = 64 - 4 = 60$ sq. units

36. (a) Length of the longest rod = $\sqrt{80^2 + 40^2 + 60^2} = \sqrt{11600}$ cm

37. (c) Distance is constant. Hence, Ratio of Time is inversely proportional to speed.

Let, Speed of boat = B
Speed of Current = C
Hence,
 $\frac{B+C}{B-C} = \frac{44}{4 \times 5}$
 $20B + 20C = 44B - 44C$
 $64C = 24B$
B : C = 8 : 3

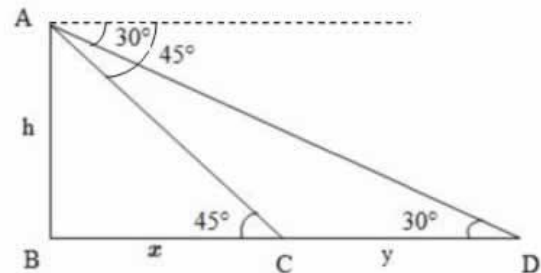
38. (a) Let speed upstream = x
Then, speed downstream = 2x
Speed in still water = $(2x+x)/2 = 3x/2$
Speed of the stream = $(2x-x)/2 = x/2$
Speed in still water : Speed of the stream = $3x/2 : x/2 = 3:1$

39. (a) Mentioned month begins on a Saturday and has 30 days
Sundays = 2nd, 9th, 16th, 23rd, 30th
 \Rightarrow Total Sundays = 5
Every second Saturday is holiday.
1 second Saturday in every month
Total days in the month = 30
Total working days = $30 - (5 + 1) = 24$

40. (d) Let the number of revolutions made by the larger wheel be x
More cogs, less revolutions (Indirect proportion)
Hence we can write as (cogs) 6 : 14 :: x : 21
 $6 \times 21 = 14 \times x$
 $\Rightarrow 6 \times 3 = 2 \times x$
 $\Rightarrow 3 \times 3 = x$

41. Let the required actual distance be x km
More scale distance, More actual distance (direct proportion)
Hence we can write as
(scale distance) 0.6 : 80.5 :: 6.6 : x
 $\Rightarrow 0.6x = 80.5 \times 6.6$
 $\Rightarrow 0.1x = 80.5 \times 1.1$
 $\Rightarrow x = 80.5 \times 11 = 885.5$
Only integer answer = 885
42. Let x number of people came after 15 days.
Then, total number of people after 15 days = $(2000 + x)$
Then, the remaining food was sufficient for $(2000 + x)$ people for 20 days
More men, Less days (Indirect Proportion)
(men) 2000 : $(2000+x)$:: 20 : 39
 $\Rightarrow 2000 \times 39 = (2000 + x) \times 20$
 $\Rightarrow 100 \times 39 = (2000+x)$
 $\Rightarrow 3900 = 2000 + x$
 $\Rightarrow x = 3900 - 2000 = 1900$

43. Let the numbers be 13x and 13y (\because HCF of the numbers = 13)
 $13x \times 13y = 2028$
 $\Rightarrow xy = 12$
Co-primes with product 12 are (1, 12) and (3, 4)
Hence the numbers with HCF 13 and product 2028 = $(13 \times 1, 13 \times 12)$ and $(13 \times 3, 13 \times 4)$
= (13, 156) and (39, 52)
Given that the numbers are 2 digit numbers.
Hence numbers are 39 and 52
44. Since the numbers are co-prime, their HCF = 1
Product of first two numbers = 119
Product of last two numbers = 391
The middle number is common in both of these products. Hence, if we take HCF of 119 and 391, we get the common middle number. HCF of 119 and 391 = 17
 \Rightarrow Middle Number = 17
First Number = $119/17 = 7$
Last Number = $391/17 = 23$
Sum of the three numbers = $7 + 17 + 23 = 47$
45. Consider the diagram shown above. Let AB be the tower. Let D and C be the positions of the car. Then, $\angle ADC = 30^\circ$, $\angle ACB = 45^\circ$
Let AB = h, BC = x, CD = y



$\tan 45^\circ = AB/BC = h/x$
 $\Rightarrow 1 = h/x$
 $\Rightarrow h = x$ (1)
 $\tan 30^\circ = AB/BD = AB/(BC + CD) = h/(x + y)$
 $\Rightarrow 1/\sqrt{3} = h/(x + y)$
 $\Rightarrow x + y = \sqrt{3}h$
 $\Rightarrow y = \sqrt{3}h - x = y = \sqrt{3}h - h$
 $\Rightarrow y = h(\sqrt{3}-1)$ is covered in 8 minutes
 $h(\sqrt{3}-1) \propto 8$
.....(A)

<p>46. $h \propto t$B) $h(\sqrt{3}-1)/h = 8/t$ $(\sqrt{3}-1) = 8/t$ $t = 8/(\sqrt{3}-1) = 8/(1.73-1)$ ≈ 10 minutes 57 seconds Only integer answer = 10 $476ab0$ is divisible by 3 $\Rightarrow 4 + 7 + 6 + a + b + 0$ is divisible by 3 $\Rightarrow 17 + a + b$ is divisible by 31 $476ab0$ is divisible by 11 $\Rightarrow (4+6+b) - (7+a+0)$ is 0 or divisible by 11 $\Rightarrow 3 + (b-a)$ is 0 or divisible by 112 If $a = 8$ and $b = 5$, $17 + a + b = 17 + 8 + 5 = 30$ which is divisible by 3 (Meet equation 1) $3 + (b - a) = 3 + (5 - 8) = 0$ (Meet equation 2) Since these values satisfies both equation 1 and equation 2, Sum = 13 A : B : C $= (20000 \times 5 + 15000 \times 7) : (20000 \times 5 + 16000 \times 7)$ $: (20000 \times 5 + 26000 \times 7)$ $= (20 \times 5 + 15 \times 7) : (20 \times 5 + 16 \times 7) : (20 \times 5 + 26 \times 7)$ $= 205 : 212 : 282$ A's share = $69900 \times 205 / (205 + 212 + 282)$ $= 69900 \times 205 / 699 = 20500$ $\Rightarrow 15\%$ of eligible candidates = 4275 \Rightarrow eligible candidates = $4275 \times 100 / 15 = 28500$ 5% of the applicants were ineligible. Therefore, remaining 95% were eligible. $\Rightarrow 95\%$ of applicants = 28500 \Rightarrow number of applicants = $28500 \times 100 / 95 = 30000$</p> <p>47. $A : B : C$ $= (20000 \times 5 + 15000 \times 7) : (20000 \times 5 + 16000 \times 7)$ $: (20000 \times 5 + 26000 \times 7)$ $= (20 \times 5 + 15 \times 7) : (20 \times 5 + 16 \times 7) : (20 \times 5 + 26 \times 7)$ $= 205 : 212 : 282$ A's share = $69900 \times 205 / (205 + 212 + 282)$ $= 69900 \times 205 / 699 = 20500$</p> <p>48. $\Rightarrow 15\%$ of eligible candidates = 4275 \Rightarrow eligible candidates = $4275 \times 100 / 15 = 28500$ 5% of the applicants were ineligible. Therefore, remaining 95% were eligible. $\Rightarrow 95\%$ of applicants = 28500 \Rightarrow number of applicants = $28500 \times 100 / 95 = 30000$</p> <p>49. The first ring can be worn in any of the 3 fingers (3 ways). Similarly each of the remaining 5 rings also can be worn in 3 ways. Hence total number of ways = $3 \times 3 \times 3 \times 3 \times 3 \times 3 = 729$</p> <p>50. Here $n=8, m=3$ Required number of straight lines $= {}^nC_2 - {}^mC_2 + 1$ $= {}^8C_2 - {}^3C_2 + 1$ $= {}^8C_2 - {}^3C_1 + 1$ $= (8 \times 7) / (2 \times 1) - 3 + 1 = 28 - 3 + 1 = 26$</p> <p>51. LCM(40,30,20)=120 Suppose capacity of the cistern = 120 litre. Quantity filled by pipe A in 11 min = $120/40 = 3$ litre. Quantity filled by pipe B in 11 min = $120/30 = 4$ litre. Net quantity filled by pipe A, pipe B and the third pipe together in 11 min = $120/20 = 6$ litre. Therefore, quantity emptied by the third pipe in 11 min = $3 + 4 - 6 = 1$ litre. Therefore, third pipe alone can empty the cistern in $120/1 = 120$ minutes.</p> <p>52. 2% of the cost price = $400 - 380 = 20$ cost price = $20 \times 50 = 1000$</p> <p>53. speeds of A and B are in the ratio 5 : 4 \Rightarrow when A covers 5 metre, B covers 4 metre i.e., when A covers 5 metre, A gains 1 metre over B \Rightarrow when A covers $5 \times 400 = 2000$ metre, A gains 400 metre over B. i.e., when A covers 2000 metre, the winner pass the other 1 time. \Rightarrow when A covers 5000 metre, the winner pass the other $5000/2000 = 2\frac{1}{2}$ times Only integer answer = 2</p>	<p>54. $6200 = \frac{P \times 8 \times 4}{100}$ $P = \text{Rs. } 19375$</p> <p>55. $3600 = 2^4 \times 3^2 \times 5^2$ Therefore, the smallest number by which 3600 needs to be divided to make it a perfect cube = $2 \times 3^2 \times 5^2 = 2 \times 9 \times 25 = 450$</p> <p>56. Market Value = Rs. 96. Required Income = Rs. 650. Here face value is not given. Take face value as Rs.100 if it is not given in the question To obtain Rs.10 (ie, 10% of the face value 100), investment = Rs.96 To obtain Rs.650, investment = $(96/10) \times 650 = 6240$</p> <p>57. To reach point A at 1 pm, he must take average time of the given cases. Hence, required speed is the average speed of the given cases. Required speed = $(2 \times 10 \times 15) / (10 + 15) = 300 / 25 = 12$ kmph</p> <p>58. Train 1, starting from A, travels 60 km in first hour. Hence, at 9 a.m., both trains are $330 - 60 = 270$ km apart and relative speed is $60 + 75 = 135$ kmph. Time needed now for the trains to meet = $270 / 135 = 2$ hour i.e., the trains meet 2 hours after 9 a.m. i.e., at 11 a.m.</p> <p>59. Work completed in 1st day = $1/16$ Work completed in 2nd day = $(1/16) + (1/16) = 2/16$ Work completed in 3rd day = $(1/16) + (1/16) + (1/16) = 3/16$ An easy way to attack such problems is from the choices. You can see the choices are very close to each other. So just see one by one. For instance, The first choice given in 3 $\frac{1}{4}$ The work done in 3 days = $1/16 + 2/16 + 3/16 = (1+2+3)/16 = 6/16$ The work done in 4 days = $(1+2+3+4)/16 = 10/16$ The work done in 5 days = $(1+2+3+4+5)/16 = 15/16$, almost close, isn't it? The work done in 6 days = $(1+2+3+4+5+6)/16 > 1$ Hence the answer is less than 6, but greater than 5. Hence the answer is 5 $\frac{1}{6}$ days. (Just for your reference, work done in 5 days = $15/16$. Pending work in 6th day = $1 - 15/16 = 1/16$. In 6th day, 6 people are working and work done = $6/16$. To complete the work $1/16$, time required = $(1/16) / (6/16) = 1/6$ days. Hence total time required = $5 + 1/6 = 5 \frac{1}{6}$ days Only integer answer = 5</p> <p>60. $\log_2 [\log_3 (\log_2 x)] = 1$ $\Rightarrow \log_2 [\log_3 (\log_2 x)] = \log_2 (2)$ $\Rightarrow \log_3 (\log_2 x) = 2$ $\Rightarrow \log_2 x = 3^2 = 9$ $\Rightarrow x = 2^9 = 512$</p> <p>61. (b) In the first sentence, the author states that "... the subject— matter of knowledge is intimately united" (line 2), while in the second Science he add "... the Sciences have multiple bearings on one another" (lines 3-4). In line 6 he states the "... sciences complete, correct, balance each other".</p> <p>62. (d) In the first sentence, the author states that "... all branches of knowledge are connected together" (opening line of the passage). Then, in the second sentence, he writes— "Hence it is that the Sciences, into which our knowledge may be cast"</p>
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- (lines 3-4). Thus, Newman is using the term "the Sciences to refer to all knowledge".
63. (c) The word "excise" here is used in an unusual way to mean 'impose' or 'put upon'. The main context clue is the word "influence", which suggests a 'giving to' rather than a 'taking away'.
64. (a) Throughout the first paragraph, the author emphasizes the interdependence of the branches of knowledge and warns against focusing on one branch at the neglect of others. He states that "... to give undue prominence to one [area of study] is to be unjust to another; to neglect " *lit* supersede these is to divert those from their object" (of the first paragraph). More importantly, he states that this action would serve to "... unsettle the boundary lines between science and science, to destroy the harmony which binds them together" (closing lines of the first paragraph). Thus the knowledge received would be skewed; it would tell a different tale when it is not viewed as a portion of a whole (of the first paragraph).
65. (b) The first sentence of the second paragraph shows that its purpose is to further develop the idea in the first by way of example. Newman writes - "Let me make use of an illustration" - an illustration that further demonstrates how one's understanding of an idea changes in relation to the other ideas around it.
66. (a) Here, the word "apprehends" is used to mean 'understands'. In this paragraph, the author describes what it is the university student would learn from his or her professors.
67. (c) Throughout the passage, the author argues that the branches of knowledge are interrelated and should be studied in combination and in relation to each other. He argues against focusing on one science or discipline, and he states that the university student "... apprehends the 'great outlines of knowledge ...'" (last paragraph), suggesting that he understands the broad issues in many subject areas.
68. (b) In the beginning of the third paragraph, the author states that "it is a great point then to enlarge the range of studies which a university professes "and that students would be best served "by living among those and under those who represent the whole circle" of knowledge. He argues that students will learn from the atmosphere created by their professors who "adjust together the claims and relations of their respective subjects and who learn to respect, to consult, to aid each other".
69. (a) She is confident of her success. I don't want any further explanation. The doctor advised the patients to quit smoking. He says he is enjoying his latest job. All students should have access to a good library. Besides football, he plays cricket.
70. (c) Don't lie in bed all day. Susie was supposed to go to the party, but she was ill so Joe went instead of her. The least expensive holidays could be the most interesting. He lied to me when he said he loved me. After questioning they were allowed to go home. I very much like you and your husband.
71. (d) The study of human societies, their cultures and development is called anthropology.
72. (a) 'Perseverance' means steadfastness. It indicates consistent efforts to achieve the desired.
73. (c) 'Sinecure' is a position that requires little or no work but provides status or financial benefit.
74. (b,c) The class teacher told Mrs Kapoor that neither Priya nor Shikha are good dancers. Option (d) is grammatically wrong as neither.... Nor expression should be followed by a singular noun and helping verb should be according to it.
75. (c) Each of the girls living in the Orphanage had been ill treated by her family before she was abandoned Option (a) and (b) have subject verb agreement problem whereas option (d) has tense error, so only option (c) is correct.
76. (a) statement (a) is correct grammatically. (cancelled)
77. (c) Statement (c) is correct grammatically.
78. (a) The only incorrect usage is in option (a). The correct usage is "I was putting on an act and laughing a lot."
79. (c) The only incorrect usage is in option (c). The correct usage is "crossover movies are the current trend in Bollywood." Crossover is creative work, such as a television episode or story that incorporates characters from a different (often related) show or story
80. (c) The correct expression is 'lose the plot'.
81. (d) The primary function of a lens is to magnify.
82. (b) They distort the language. But that is. willed i.e. done on purpose.-They achieve this by using ambiguity, i.e. using words with more than one possible meaning. If it is 'confusing' then no one can understand. 'Distortion' being negative cannot be equated with something that is positive, this rules out 'clarity'. They do it on purpose and so there is no 'doubt'.
83. (c) 'Long for' is to wish for something especially if it is not likely to happen in the near future. This is not suitable because the verb, which follows, is 'revel in' which means they have achieved it. 'Work on' would be suitable but not 'work into'. 'Aim at' is 'to try and achieve' which is the most appropriate choice.
84. (c) The language or writing of an author should be 'coherent' (clear and logical). The word 'force' renders 'dynamism' ". redundant, 'Unity' is used to describe people or country and 'consistency' applies more for substances.
85. (a) Since the passage says that plain words lead us 'out' of books, it has to be 'into' life. Hence 'above' and 'beyond' are not appropriate. The adjective 'practical' and 'real' says it is already 'into', not just moving 'towards'
86. (b) One **must** have a quality to bear weal and woe of life.
87. (d) All the efforts of NGO's to root out the curse of dowry system is still a wild-goose chase in certain areas.
88. (a) Sardar Patel did a Yeoman's service by welding numberless states into one strong nation.
89. (b) is the correct answer.
90. (d) **is** the correct answer.
91. (c) Let us take the phrase 'indulge in this fallacy' in the sentence following the blank as the clue. So, the sentence in this blank should be negative. Choice (c), which is negative is our answer.
92. (a) The first sentence states that there are two people taking '-; different sides of an issue. The sentence

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| <p>following the blank says 'then decides. Decision is possible only after each person presents his view.</p> <p>93. (c) EC is the strongest pair that will leave one only with option (c)</p> <p>94. (a) B and E form a mandatory pair. Also C is conclusive</p> <p>95. (d) option (d) has the most plausible sequence of events.</p> <p>96. (a) D and B form a mandatory pair and also AC is a mandatory pairs.</p> <p>97. (b) Option (b) is the only grammatically correct. Option (a): the phrase "most of the times" is wrong. Option (c): singular "everybody" should be followed by "is" and not by "are". Option (d): "Everybodies" is the grammatically incorrect.</p> <p>98. (a) Though a proper noun, "Yamuna" being a name of a river, carries the definite article. Option (b): "the is</p> | <p>missing before "Yamuna" and a comma is missing after "Yamuna". Option (c): "the" is missing before "Yamuna" and the comma after "which" is redundant. Option (d): comma is missing after "the Yamuna".</p> <p>99. (b) Present perfect continuous tense "has been learning" should be used instead of the present continuous "is learning". Option (a): "is learning" is wrong. Option (c): past continuous tense "was learning" is wrong contextually. Option (d): present continuous "is learning" and simple past "did not acquire" are wrong contextually.</p> <p>100. (a)/(d) Option (a) is the only grammatically correct option. Option (b): "past is" wrong. Option (c): "brighter to" is wrong. Option (d): "then" instead of "than" is wrong.</p> |
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