MOCK CAT

ANSWERS

1.	(5)	2.	(3)	3.	(1)	4.	(4)	5.	(1)	6.	(3)	7.	(4)	8.	(4)
9.	(4)	10.	(4)	11.	(1)	12.	(2)	13.	(5)	14.	(3)	15.	(4)	16.	(2)
17.	(5)	18.	(2)	19.	(3)	20.	(1)	21.	(3)	22.	(4)	23.	(2)	24.	(3)
25.	(1)	26.	(1)	27.	(4).	28.	(3).	29.	(5)	30.	(3)	31.	(4)	32.	(1)
33.	(3)	34.	(1)	35.	(4)	36.	(3)	37.	(4)	38.	(1)	39.	(5)	40.	(3)
41.	(5)	42.	(1)	43.	(1)	44.	(3)	45.	(5)	46.	(4)	47.	(3)	48.	(5)
49.	(4)	50.	(5)	51.	(1)	52.	(2)	53.	(3)	54.	(2)	55.	(3)	56.	(4)
57.	(2)	58.	(3)	59.	(3)	60.	(2)	61.	(3)	62.	(5)	63.	(4)	64.	(1)
65.	(3)	66.	(4)	67.	(5)	68.	(3)	69.	(2)	70.	(3)	71.	(3)	72.	(2)
73.	(3)	74.	(1)	75.	(2)										

EXPLANATIONS

1. $\frac{3a+4b-5c}{k} = \frac{3a+4b-5c}{3\times3+4\times4-5\times6}$

$\Rightarrow k = 9 + 16 – 30 = 25 – 30 = – 5.$ **Answer: (5)**

2. $V = \text{Value} = K(8)^2 = 64K$

Let weights are x kg and (8 – x) kg.

$V_1 = Kx^2$ and $V_2 = K(8-x)^2$

New value $= K[x^2 + (8-x)^2]$

Given $K[x^2 + (8-x)^2] = \frac{5}{8}(64K)$

$x^2 + 64 + x^2 – 16x = 40.$

$2x^2 – 16x + 24 = 0$

$x^2 – 8x + 12 = 0 \quad \Rightarrow (x-6)(x-2) = 0$

$x = 6, x = 2.$ **Answer: (3)**

3. $\frac{27^{16^{13}}}{4} = \frac{27^{\text{even}}}{4} = \frac{(28-1)^{\text{even}}}{4} = (-1)^{\text{even}}$

Remainder = 1

Unit digit $= y^1 = 7$ **Answer: (1)**

4. $\frac{\text{Milk}}{\text{Water}} = \frac{50 - \left(16\times\frac{5}{8}\right)+16}{30-16\times\frac{3}{8}} = \frac{56}{24} = \frac{8}{3}$

M: W = 8 : 3 **Answer: (4)**

5. Relative speed = 90 – 72 kmph = 18 kmph = $18 \times \frac{5}{18}$ m/s = 5 m/s.

They will meet when Pepsi have a lead of 1 round.

Length of track = time × speed = 20 × 5 = 100 m. A**nswer: (1)**

6. Let work = LCM (10, 15) = 30 units.

1 day work A = 3 unit, B = 2 unit.

Time taken by them = $\frac{30}{5}$ = 6 days.

New work = 2 × 30 = 60 units.

Work of A + B of 8 days = 5 × 8 = 40 units.

Work done by C = 20 units.

Percentage done by C = $\frac{20}{60} \times 100 = 33\frac{1}{3}\%$. **Answer: (3)**

7. Here 2 hr out let work = 8 hr inlet work.

2 × x litre/min × 60 = 8 × 6 litre/min × 60

x = 24 litre/min

Volume of tank = 24 × 60 × 6 litre = 8640 litres. **Answer: (4)**

8. Side of Q = 2 cm

Volume of Q = $(2)^3 = 8\ cm^3$ ……..(1)

Diagonal of q = side of P = $2\sqrt{3}$ cm

Side of cube R = diagonal of P = $(2\sqrt{3})\sqrt{3}$ = 6 cm.

Diameter of sphere inside R = Length of edge = 6 cm.

R = $\frac{6}{2}$ = 3 cm

Volume of sphere S = $\frac{4}{3}\pi (3)^3 = 36\pi$ ……..(2)

Required ratio = S : q = 36π : 8 = 9π : 2 **Answer: (4)**

9. x% of y = z $\Rightarrow$ xy = 100z ……. (1)

y% of z = x $\Rightarrow$ yz = 100x ……(2)

and z% of x = 100 $\Rightarrow$ zx = 10000 ……..(3)

(1) × (2) × (3)

$(xyz)^2 = 10^8\ xy$

$xy^2z = 10^8$ ……(4)

From (3) and (4)

$10^4.y^2 = 10^8$

$y^2 = 10^4 \quad \Rightarrow y = 100$

From (1)

$x \times 100 = 100z \quad \Rightarrow x = z$

From equation (3)

$x^2 = 100{,}00$

$x = 100$. **Answer: (4)**

10. $\frac{\log a}{\log 10} - \frac{\log \sqrt{a}}{\log 10} = \frac{2 \log 10}{\log a}$

$\Rightarrow \log_{10} a - \frac{1}{2}\log_{10} a = 2\frac{1}{\log_{10} a}$

Put $\log_{10} a = x \quad x - \frac{1}{2}x = \frac{2}{x} \quad \Rightarrow x^2 = 4$

$x = 2 = \log_{10} a \quad$ or $\quad x = -2 = \log_{10} a$

$a = 100 \quad \Rightarrow a = \frac{1}{100}$ **Answer: (4)**

11. $m = 2^{99} + 4^{99} + 6^{99} + 8^{99} + \ldots\ldots\ldots + 100^{99}$

Unit digit $\equiv 2^3 + 4^3 + 6^3 + 8^3 + \ldots\ldots\ldots + 100^3 \equiv (8 + 4 + 6 + 2 + 0) \times 10 \equiv 0$ (since this repeats 10 times)

So, unit digit = 0

$n = 1^{99} + 3^{99} + 5^{99} + \ldots\ldots\ldots + 99^{99} \equiv (1^{99} + 3^{99} + 5^{99} + 7^{99} + 9^{99}) \times 10$

Unit digit $\equiv 0$

Hence unit digit of $m - n = 0 - 0 = 0$ **Answer: (1)**

12.

Sachin	Anjali	Son	
a	b	c	Present age
a + b – c	2b – c	b	When son age equal to Anjali's age
2a – b	a	c + a – b	When Anjali as old as Sachin is

According to the conditions,

$\frac{a+b-c}{2b-c} = \frac{18}{17}$

$\Rightarrow 17a + 17b - 17c = 36b - 18c$

$17a - 19b + c = 0 \quad \ldots\ldots\ldots(1)$

and $\frac{2a-b}{c+a-b} = \frac{3}{1}$

$\Rightarrow 2a - b = 3c + 3a - 3b$

$a - 2b + 3c = 0 \quad \ldots\ldots\ldots(2)$

or $\quad 17a - 34b + 51c = 0 \quad \ldots\ldots\ldots(3)$

(1) – (3)

$\Rightarrow$ 15b – 50c = 0

$\Rightarrow$ b : c = 50 : 15 = 10 : 3 **Answer: (2)**

13. We know $x^2 + \frac{1}{x^2} = \left(x - \frac{1}{x}\right)^2 + 2 = (2)^2 + 2 = 6$

So, $x^4 + \frac{1}{x^4} = (6)^2 - 2 = 34$

$x^8 + \frac{1}{x^8} = (34)^2 - 2 = 1156 - 2 = 1154.$

Required remainder = $\frac{1154}{2^8} = \frac{1154}{256} = 130$

Remainder = 130. **Answer: (5)**

14. Let CP of 1 item = Rs. 1, and SP of 1 article = Rs. x

CP	MP	SP	discount (Rs.)
10	14	10x	2x

Also, Discount = MP – SP

2x = 14 – 10x

12x = 14

$x = \frac{14}{12} = \frac{7}{6}$

$\frac{SP}{CP} = \frac{x}{1} = \frac{7/6}{1} = \frac{7}{6} = 1 + \frac{1}{6}$

Profit = $\frac{1}{6}$ = 16.67% **Answer: (3)**

Solutions 15 – 17:

15.

Humpa	Mampa	Champa	Sampa
1	2	4	3
2	4	3	1

Sampa always gets odd. **Answer: (4)**

16.

Humpa	Mampa	Champa	Sampa
2	4	3	1
2	3	4	1
1	3	4	2

Here Mampa always gets more than Sampa. **Answer: (2)**

17. Mampa get less than Champa and Sampa gets less than Champa and Humpa less than Mampa. Combining we have two cases

	H	M	S	C	OR	H	S	M	C
Number of coins	1	2	3	4		1	2	3	4
Value	1×5 = 5	$2 \times 2 + 1 \times 1$ = 5				1×2 = 2	1×2 = 2		

So difference in value for both = 0 (zero). **Answer: (5)**

18. Let m = AAA, n = BBB and p = CCC, then B has to be 1 since the digits after adding gives BAAC. Also all digits are multiple of 111. So check for those multiplies of 111 that satisfy given situation.

m + n + p = AAA + BBB + CCC = 111(A + B + C)

So, BAAC = $111 \times 18 = 1998$.

i.e. B = 1, A = 9, C = 8.

Sum A + B + C = 9 + 1 + 8 = 18. **Answer: (2)**

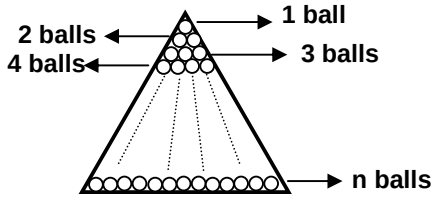
19. Let a = 1, b = 3, c = 5 satisfying the condition.

Then f(1, 3, 5) = max(1, 3, 1) = 3

g(1, 3, 5) = min(3, 5, 5) = 3

f(a, b, c) – g(a, b, c) = 3 – 3 = 0 **Answer: (3)**

20. A side will contain n balls and figure will look like



Total balls

= 1 + 2 + 3 + 4 + ……. + n

$= \frac{n(n+1)}{2}$ **Answer: (1)**

21. Minimum speed required = $\frac{225}{10}$ = 22.5 kmph.

Bogies attached	Speed (kmph)
1	50 – 5 = 45
2	45 – 4.50 = 40.5
3	36.45
4	32.81
5	29.52
6	26.57
7	23.91
8	21.52

i.e. if 8 bogies are attached the speed reduces less than minimum so maximum number of bogies = 7.

Answer: (3)

22. Le, 1 man 1 week work = 1 unit.

Total work = 120 × 25 units = 3000 units

10 week, 120 men work = 120 × 10 = 1200

Left work = 3000 – 1200 = 1800

Left men = 120 – 60 = 60

Work per week = 1.5 unit

Number of week = n

So, 60 ×1.5 × n = 1800

$n = \frac{1800}{60 \times 1.5}$

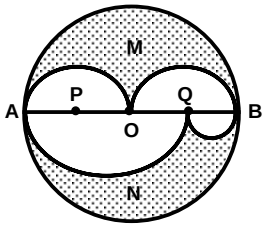
Require 20 weeks

Extra weeks = 20 – 15 = 5 weeks **Answer: (4)**

23. Let diameter of 4 cm. Then

Area M = $\frac{1}{2}\pi\left(\frac{4}{2}\right)^2 - 2 \times \frac{1}{2}\pi\left(\frac{2}{2}\right)^2 = 2\pi - \pi = \pi$

Area N = $\frac{1}{2}\pi\left(\frac{4}{2}\right)^2 - \left[\frac{1}{2}\pi\left(\frac{3}{2}\right)^2 + \frac{1}{2}\pi\left(\frac{1}{2}\right)^2\right]$



$= 2\pi - \frac{10}{8}\pi = \frac{6}{8}\pi = \frac{3}{4}\pi$

So required ratio

Area M: Area N = $\pi : \frac{3}{4}\pi = 4 : 3$

Answer: (2)

Solution 24 – 25:

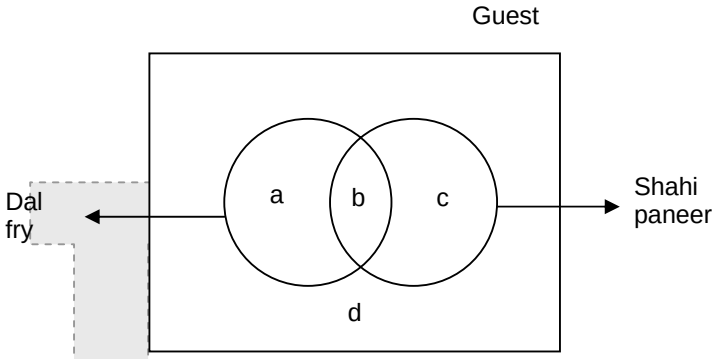
b + c = 150 – 50 = 100.

a + d = 50 (not eat Shahi paneer)

a + b = 90, d = 20

$\Rightarrow$ a + 20 = 50 $\Rightarrow$ a = 30

b = 90 – 30 = 60, c = 100 – 60 = 40.



24. **Answer: (3)**

25. **Answer: (1)**

26. For choosing the correct option, we need to keep in mind that the idea should be in continuation of the last line in the passage. The passage is talking about how the Iraq situation will not be a success practically. Option (3), (4) and (5) are not related, hence eliminated. Pyrrhic victory refers to a situation where one loses a lot and victory does not remain significant. This is not related, hence, eliminated. **Answer: (1)**

27. The end phrase of the passage is 'the power of the weak against the strong'. Going by the POE method, (1), (2) and (5) are not related to the passage. Use of the word 'oppressed' renders (3) as incorrect. Hence, answer is (4).

28. (2), (4) and (5) are eliminated in first go as they are unrelated to the passage and ideas. (1) is a tricky option. 'Technology follows science', but does the sentence say that it should follow the principles. This is why (1) is also rejected. **Answer: (3)**

29. 'However' in the beginning of the sentence shows that the idea which is to follow is contradictory to the belief earlier. This means we would look for an option that talks about 'dogmatic' knowledge, this is only done in (5), hence, it is the answer.

30. The comparison is between an educated man and an uneducated one. (1), (2) and (4) are unrelated, hence eliminated (5) would be the second best choice, but (3) is a better choice as it continuous the idea. **Answer: (3)**

31. (B) is an awkward and a meaningless sentence, using continuous 'forgetting' with indefinitive 'relaxed'. (D) is incorrect as the parallelism in the sentence has not been maintained. 'Ing' form with 'convey' was required to have a correct structure of the sentence. **Answer: (4)**

32. Apostrophe 's' with 'it' has been incorrectly used in (B). Similarly 'sceneries' is a syntax error as the plural for scenery does not exist. **Answer: (1)**

33. 'With' is used for a person and 'by' is used for an object. Therefore, (A) is incorrect. (B) is incorrect due to a syntax error. One sits 'beside' the other; 'besides' refers to 'other than'. (C) has no error. (D) has a subject verb disagreement; ('was far less important' should replace 'were far less important'). Hence, it is also incorrect. **Answer: (3)**

34. 'Right on track' should be the correct phrase; therefore, (A) is incorrect. 'One of those' should be followed by a plural verb 'have' and not 'has'; therefore (B) is also incorrect. (C) and (D) are correct. **Answer: (1)**

35. (A) makes a faulty comparison of system to America. (B) uses 'after even' incorrectly. (C) is incorrect, using the plural 'they' for the singular 'IMF'. "Lay' should replace 'laid' in D. **Answer: (4)**

36. In this sentence, we need a word that would compliment integration. 'gross', 'universal' and 'wholesome' integration does not make sense. 'Botched' is not related. 'Seamless' tells us that the integration is without a gap or joint. **Answer: (3)**

37. The second sentence hints that the 'word' is being used in harmony with other tools, so the only options to consider are (2) and (4). Again, (4) is a better option as it signifies the synchronisation of ideas. **Answer: (4)**

38. The word on look out should be related to 'collecting', so, (3), (4) and (5) are all eliminated. Scouring means to 'search', but scraping relates to collect something with labour and hard work; hence, (1) is the answer. **Answer: (1)**

39. Skills are developed and reinforced after what? Synchronisation/adjustment is the word we are looking for, (1), (2), (3) and (4) refer to changes, only (5) refers to planning/adjustment for precise results. **Answer: (5)**

40. The physical universe is an exact 'rendition/replica' of the whole infinite universe. Hence, (3).

41. (1), (2) and (4) can be easily ruled out. Though Marx's sociological ideas of literature might be considered revolutionary (the profound influence of Hegel notwithstanding) as they presented a new perspective and later became the basis of the proletariat revolutions, but these can hardly be conceptualized from the passage and are rather based on our prior knowledge. The right answer is thus (5) as it deals with the theme of the passage. **Answer: (5)**

42. Para 2, line 2 mentions the phrase used in the question stem and go on to elaborate the reasons, which are best summarized in (1). **Answer: (1)**

43. The answer is best summed up in the last sentence of para 2: "Marxian sociological … social consciousness". This answer is available only in (1). **Answer: (1)**

44. (1) Incorrect ,as Marx and Engles never propounded the deterministic view of art and literature.
(2) It is not the social life that constitutes economic structure. It is the other way round.
(4) and (5) may not be incorrect, but do not reflect the central idea. **Answer: (3)**

45. (5). In the given phrase, art and literature represent consciousness. These do not create life but are its creation. (1) and (4) can be easily ruled out. (2) is rendered incorrect by the latter part of the sentence. The real choice is between (3) and (5). Here too economic needs do not 'create' art and literature. **Answer: (5)**

46. (1) 'Warlike attitude' though mentioned in the passage, does not define heroism.
(2) Heroic deeds need not be 'intellectual'. Moreover, the phrase 'He finds a rare divine spark in him' in the third paragraph renders the answer incorrect.
(3) Heroism is not transcendental.
(4) The second last line of para 2 mentions 'self-trust and inner strength of the soul' among the qualities of a hero. The third para mentions that 'He finds a rare divine spark in him', and again that '(it) follows the dictates of conscience and to become unanswerable to any external agency'.
(5) Heroic deeds need not be 'impulsive'. **Answer: (4)**

47. Although all the statements are extracted from the passage, the central idea is best stated in (3). (1) becomes restrictive because of the warlike attitude. (2) talks about the self trust and the fighting spirit, along with the suffering, but not about 'altruism'. Fight for 'self' need not mean heroism, as defined in the passage. (4) and (5) are also similarly restrictive. **Answer: (3)**

48. (1) The phrase 'classical and renaissance literature' makes the option restrictive.
(2) The passage enumerates and does not 'propound'.
(3) Restrictive
(4) 'The effects' are not the main focus.
(5) The statement represents the gist of the passage.
Answer: (5)

49. Heroism is not about 'reason' and academic 'pursuits' (I). Neither is it **'**an expression of pride and war-like persistence' (II). **Answer: (4)**

50. (5) The tone of the passage is positive, as can be made out from the concluding statement. So adulatory is the right answer as the author eulogizes the heroic traits in a man. **Answer: (5)**

51. It is clear that (by common sense), the sum of values in table 1 is equal to the sum of values in table 2.
So k = 1. **Answer: (1)**

52. It is given that, Andus, Seelum, and Mavi all flow through a common state, so that state should have 3 rivers, i.e. Jammu and Kashmir.
Hasna and Badavari and Hasna and Laveri flow through common state.
So Hasna should flow through 2 states among Andhra Pradesh, Karnataka and Maharashtra.
Where as Badavari and Laveri flows through at least one of these states.
So, the river which flows through only Punjab and Himachal Pradesh is Atluj. **Answer: (2)**

53. Binga should definitely flow through Uttar Pradesh, Bihar, Uttaranchal and West Bengal. Because, the river which flows in Kerala also flows in Tamil Nadu. **Answer: (3)**

54. Laveri should definitely flows through Tamil Nadu and Kerala. Hasna flows through Andhra Pradesh, Karnataka and Maharastra.
If Badavari doesn't go to Karnataka, it should flow in Andhra Pradesh and Maharastra.
So, the rivers in Andhra Pradesh are Hasna and Badavari. **Answer: (2)**

55. The minimum state value is 2 for Punjab or Himachal Pradesh.
Maximum value is 6, i.e. for the state in which both Hasna and Laveri flows. **Answer: (3)**

56. Monday
He can select 3 cities to visit
Wednesday, 3 choices
Friday, 3 choices
Saturday, 4 choices
Answer: (4)

57. If he goes to Jammu on Wednesday, he can go Amrtisar on Saturday.

Hence

Ludhiana on Monday

Jalandhar on Friday

Patiala on Thursday

So, Chandigarh on Tuesday.

There is only one way. **Answer: (2)**

58. **Case: 1**

If he visit Ludhiana on Saturday,

Then

Ludhiana – Saturday

Chandigarh – Tuesday

Jammu – Friday

Amritsar – Wednesday

Patiala – Thursday

Jalandhar – Monday

Case: 2

If he visits Ludhiana on Monday, we can get different ways.

So, by taking Ludhiana on Monday and Jalandhar on Wednesday.

Ludhiana – Monday

Jalandhar – Wednesday

Then,

Amritsar – Saturday

Jammu – Friday

Patiala – Thursday

And

Chandigarh – Tuesday

Case: 3

If he visits Ludhiana on Monday and Jalandhar on Friday.

Then

Ludhiana – Monday

Jalandhar – Friday

Patiala – Thursday

Chandigarh – Tuesday/Saturday

Jammu – Wednesday/Saturday

Amritsar – Wednesday/Saturday

If Mr. Kamal has to visit Jammu and Amritsar on Wednesday and Saturday respectively then Chandigarh can only be visited upon on Tuesday.

So, here two cases are possible. So, total ways = 4. **Answer: (3)**

59. From the above, it is clear that, in all the cases, Mr. Kamal has to visit Chandigarh on Tuesday and Patiala on Thursday. **Answer: (3)**

60. Total 2 (Chandigarh and Patiala) **Answer: (2)**

61. **Answer: (3)**

62. Number of students good in both verbal and interpretation is 22 + 8 + 1 + 9 = 40.
So answer is 40. **Answer: (5)**

63. Students not good in math
= 4 + 1 + 9 + 26 + 4 + 3 + 6 + 8 = 61. **Answer: (4)**

64. Answer is 6. **Answer: (1)**

65. Isha earned maximum money. **Answer: (3)**

66. Answer is 4321. **Answer: (4)**

67. 3 persons guessed first digit right, 4 guessed second right, 2 guessed third right and only Isha guessed the last digit right.
So, total money I lost = $3 \times 100 + 4 \times 200 + 2 \times 300 + 1 \times 400 = 2100$. **Answer: (5)**

68. Swetha earned 100 + 200 = 300. **Answer: (3)**

69. 2nd digit. **Answer: (2)**

70. 3, Isha, Priya, Swetha **Answer: (3)**

71. If he attempts only 5 questions right, he can not get 9 marks at all.
If he attempts 6 questions right, 2 continuous wrong and 6 continuous right and again 2 continuous wrong, total marks will be
– 1 + 6 + 5 – 1 = 9 **Answer: (3)**

72. If he attempts 6 questions correctly, then the maximum marks he can get is 9 only.
Because if he do question as shown below.

	WRR WRR WRR W	→	6 + 1 + 1 + 1 = 9
OR	WRRRR W RR WW	→	4 + 3 + 2 + 1 – 1 = 9
OR	WW RRRRRR WW	→	– 1 + 6 + 5 – 1 = 9

These are only the maximum possible cases, because to get maximum score, the right answers should be consecutive and wrong ones should not be consecutive.
To get minimum score, the wrong answers should be consecutive.
If we try

	RR WWWW RRRR	=	2 + 1 – 3 + 4 + 3 = 7.
OR	RR WW RR WW RR	=	2 + 1 – 1 + 2 + 1 – 1 + 2 + 1 = 7
OR	R WR WR WRW RR	=	6 + 1 = 7
	R WWWW RRRR	=	1 – 3 + 5 – 3 = 6

So, the minimum score he can get is 6.
So, answer = 9 – 6 = 3. **Answer: (2)**

73. 1 and 10 cannot be the answer.

Even 4 cannot be the answer, because, in the previous problem, if we take 4 wrongs, a student can get a minimum of 6 marks.

So try option (3) directly.

If anyone do 7 mistakes, as shown below

WWW RRR WWWW = – 1 + 3 + 1 – 3 = 0

So non-negative. **Answer: (3)**

74. With 4 wrongs, he can get a maximum of 9 marks as in the problem (75) and (76) such that no two continuous questions wrong.

The only possibility is W RR W RR W

So, the answer is 1st. **Answer: (1)**

75. If he do 6 rights, he will get a minimum of 7 marks and maximum of 9 marks (from the above problems).

So, option (3) and (4) can be eliminated.

If he do 5 questions right, as shown below.

WWWW	RRRRR	=	5
WWWW RRRR WR		=	5
RR WW RR WW R W		=	5

Answer: (2)