Practice Set-1

Part—I
General Intelligence

Directions—(Q. 1-3) Select the related word/ letters from the given alternatives.

1. ABCD : QRST : : BACD : ?
   (A) RQST (B) STQR
   (C) QRST (D) RSTQ

2. BGEK : YTVP : : AFEJ : ?
   (A) UZBK (B) BGFK
   (C) ZUVQ (D) ZEDI

3. Bird : Feather : : Fish : ?
   (A) Gill (B) Scale
   (C) Tail (D) Fin

4. The last two digits of the binary equivalent of the number 2 2 6 8 4 2 8 2 4 8 3 is—
   (A) 01 (B) 11
   (C) 00 (D) 10

Directions—(Q. 5 and 6) Find the odd number/word from the given alternatives.

5. (A) 2 (B) 3
   (C) 12 (D) 24

6. (A) Sow (B) Peacock
   (C) Peahen (D) Mare

7. Number of letters skipped in between adjacent letters in the series increases by one. Which of the following series observe the ruling ?
   1. IMQUYC 2. EGJNSY
   3. DHLPTX 4. ADHLPT
   (A) IMQUYC (B) EGJNSY
   (C) DHLPTX (D) ADHLPT

8. Select the number which does not belong to the given series.
   1956, 1968, 1976, 1982, 1988, 1992.
   (A) 1956 (B) 1976
   (C) 1982 (D) 1992

9. Number of letters skipped in between adjacent letters in the series increases by one. Which of the following series observe the ruling given below ?
   (A) ACFJOU (B) JLNPOQ
   (C) ZXMKJL (D) KCAOPQ

10. Find out the odd/wrong number in the given series—
    62, 46, 34, 24, 16, 10
    (A) 62 (B) 46
    (C) 34 (D) 24

11. Which of the following years did not have 29 days in February month ?
    (A) 2000 (B) 2004
    (C) 1996 (D) 1966

12. From the given alternative words, select the word which **cannot** be formed using the letters of the given word—
    "COMPETITION"
    (A) TOTEM (B) POETIC
    (C) COMPOSE (D) OPINE

13. If NASCENT is written as 2734526, how is SENTENCE written in that code ?
    (A) 35265235 (B) 35256245
    (C) 35265245 (D) 35256275

Directions—(Q. 14 and 15) Some equations are solved on the basis of certain system. Find out the correct answer for the unsolved equation on that basis.

14. $72 + 37 = 6328$; $54 + 13 = 4504$; $61 + 53 = \underline{?}$
    (A) 4524 (B) 5244
    (C) 5424 (D) 5214

15. $1 \times 2 \times 4 = 212$, $5 \times 6 \times 8 = 654$, $3 \times 7 \times 2 = \underline{?}$

(A) 173 (B) 713
(C) 731 (D) 317

Directions—(Q. 16 and 17) Which one of the given responses would be a meaningful order of the following ?

16. (1) Leaf (2) Stem
(3) Root (4) Flower
(A) 4, 3, 1, 2 (B) 1, 2, 3, 4
(C) 3, 2, 1, 4 (D) 2, 1, 4, 3

17. (1) Pupa (2) Egg
(3) Butterfly (4) Larva
(A) 1, 3, 2, 4 (B) 3, 1, 4, 2
(C) 2, 4, 1, 3 (D) 4, 3, 2, 1

18. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?

_bcbca_bcb_aabc_ca

(A) acbb (B) aacb
(C) abcc (D) abbc

Directions—(Q. 19–21) A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

19. DZC, FYH, HXM, JWR, ?
(A) LXT (B) RYW
(C) LVW (D) RXW

20. 2, 11, 47, 128, ?
(A) 175 (B) 219
(C) 272 (D) 353

21. 30, 90, 182, 306, 462, ?
(A) 484 (B) 542
(C) 650 (D) 678

22. Find the **wrong** term in the following series :

8, 27, 64, 111, 216, 343

(A) 343 (B) 216
(C) 111 (D) 27

23. In a row of 10 boys, when Nitin was shifted by two places towards the left, he became the 8th from the left end. What was his earlier position from the right end of the row ?
(A) 2 (B) 3
(C) 1 (D) 4

24. A's mother is the only daughter of B's father. How is B's wife related to A ?
(A) Mother (B) Aunt
(C) Sister (D) Grandmother

25. From the given alternative words, select the word which **cannot** be formed using the letters of the given word :

temperature

(A) Mature (B) Nature
(C) Temper (D) Rapture

26. In a certain code PAIN is written as QBJO. How is STRAIN written in that code ?
(A) UVSBJO (B) TUSCJO
(C) TUSBJO (D) TVSBJP

27. If COLUMN is coded as 198327, how can COMMON be written in that code ?
(A) 192297 (B) 192298
(C) 192927 (D) 192397

28. Which sequence of mathematical symbols can replace * in the given equation ?

3 * 4 * 6 * 18

(A) + = × (B) × + =
(C) + × = (D) × = +

29. If A denotes +, B denotes X, C denotes –, and D denotes +, then what will be the value of the following :

24 A 12 B 4 D 6 C 7

(A) 7 (B) 8
(C) 9 (D) 10

30. A problem is solved on the basis of a certain system. On the same basis find out the correct answer from the given alternatives for the unsolved problem.

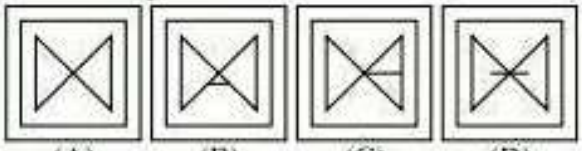
$2 \times 8 \times 6 \times 9 = 9682$,
$8 \times 6 \times 4 \times 7 = ?$

(A) 7468 (B) 6478
(C) 4678 (D) 1344

31. From the given answer figures, select the one in which the question figure is hidden/ embedded.

Question figure

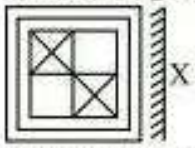
Answer figures



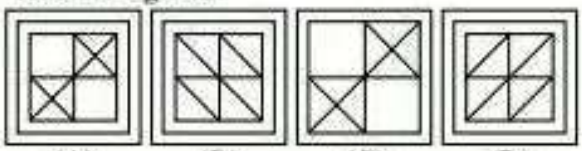
(A) (B) (C) (D)

32. If a mirror is placed on the line X then which of the answer figures is the right image of the given figure ?

Question figure



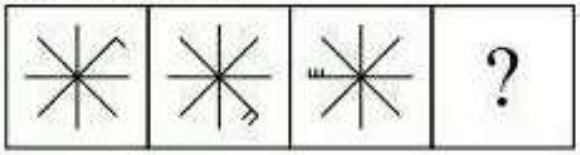
Answer figures



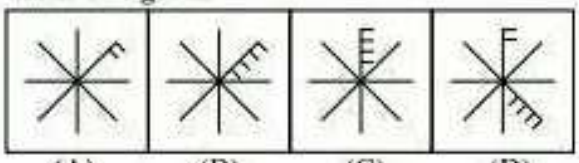
(A) (B) (C) (D)

33. Find the missing figure of the series from the given alternatives.

Question figures



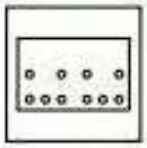
Answer figures



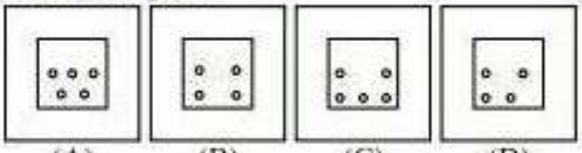
(A) (B) (C) (D)

34. Identify the answer figure which yields the punched pattern in the question figure, when the square paper is folded once.

Question figure

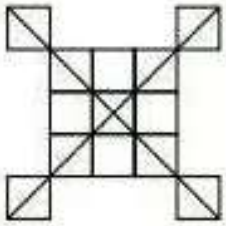


Answer figures



(A) (B) (C) (D)

35. Find out the number of triangles in the given figure.



(A) 32 (B) 20
(C) 24 (D) 28

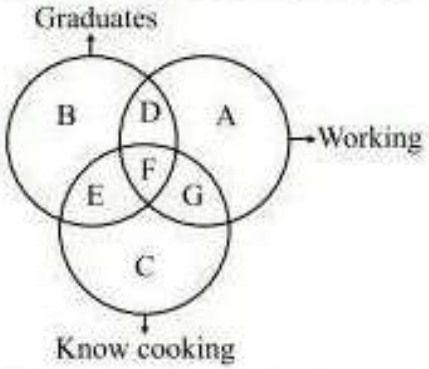
36. Letters given in the first line have codes as in the second line.

V	D	A	S	G	K	I	H	X	O
5	1	3	9	0	8	2	4	7	6

How will the letters IVSHOD be coded ?

(A) 258416 (B) 259641
(C) 254961 (D) 259461

37. Three circles representing GRADUATES, WORKING and KNOW COOKING are intersecting one another. The intersection are marked A, B, C, D, E, F and G. Which part represents GRADUATES KNOWING COOKING and are not WORKING ?



(A) E (B) D
(C) G (D) F

38. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 1 to 4 and that of Matrix II are numbered from 5 to 8. A letter from these matrices can be represented first by its row and next by its column. e.g., 'O' can be represented by 13, 21, etc., and 'E' can be represented by 65, 76

etc. Similarly, you have to identify the set for the word 'TRAMPLE'.

I

	1	2	3	4
1	L	A	O	R
2	O	R	L	A
3	R	L	A	O
4	A	O	R	L

II

	5	6	7	8
5	M	T	P	E
6	E	M	T	P
7	P	E	M	T
8	T	P	E	M

(A) 85, 31, 41, 56, 68, 32, 76

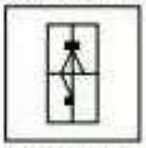
(B) 56, 14, 12, 66, 68, 23, 78

(C) 67, 22, 24, 55, 86, 33, 76

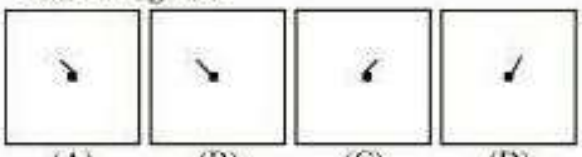
(D) 78, 22, 12, 55, 68, 32, 58

39. Which answer figure will complete the pattern in the question figure ?

Question figure



Answer figures



(A) (B) (C) (D)

40. In a class, there are 80 students who study both Computer Science and Electronics. While 100 students study Computer Science, 120 students study Electronics. How many of them study Computer Science only ?

(A) 100 (B) 40

(C) 180 (D) 20

Directions—(Q. 41-42) An equation is solved on the basis of a certain system. On that basis, find out the correct answer from amongst the four alternatives for the unsolved equation in question.

41. $6 \times 9 \times 3 = 369$

$4 \times 6 \times 8 = ?$

$5 \times 6 \times 4 = 456$

(A) 486 (B) 846

(C) 684 (D) 864

42. 12(158)14 12(182)16 14(?)16

(A) 214 (B) 194

(C) 184 (D) 164

43. A stands for +, B for –, C for × and D for ÷

Premises—(3A5B2) C4D6

(A) 3 (B) 4

(C) 5 (D) 6

Directions—(Q. 44-45) Select the missing number from the given responses.

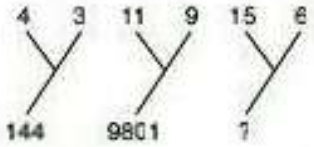
44.

6	5	7
7	8	4
11	12	?
462	480	224

(A) 7 (B) 8

(C) 6 (D) 9

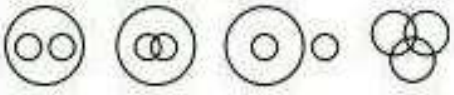
45.



(A) 2250 (B) 8100

(C) 11036 (D) 1216

46. Which one of the following diagrams represents the relationship between Cows, Animals and Goats ?

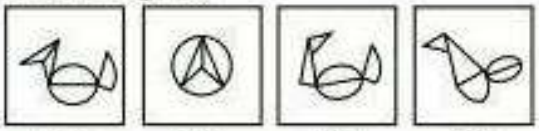


(A) (B) (C) (D)

47. Among the four answer figures, which figure can be formed from the cut-pieces given below in the question figure ?

Question Figure

Answer Figures

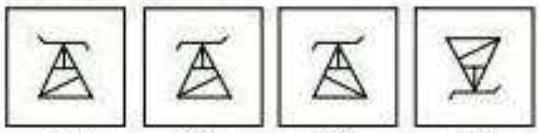


(A) (B) (C) (D)

48. If a mirror is placed on the line LM, then which of the answer figures is the right image of the given question figure ?

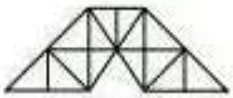
Question Figure

Answer Figures



(A) (B) (C) (D)

49. Count the number of triangles in the following figure—

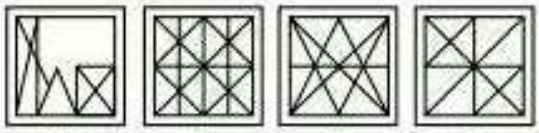


(A) 27 (B) 23
(C) 29 (D) 31

50. From the given answer figures, select the one in which the question figure is hidden / embedded.

Question Figure

Answer Figures

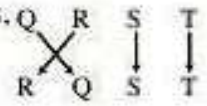


(A) (B) (C) (D)

Answers with Explanations

1. (A) As.

Same as,



2. (C) As,

	B	G	E	K	
Opposite	↓	↓	↓	↓	Letters
	Y	T	V	P	

Same as,

	A	F	E	J	
Opposite	↓	↓	↓	↓	Letters
	Z	U	V	Q	

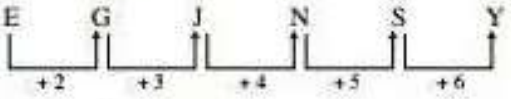
3. (C) As bird flies with the help of feather. Same as fish can swim with the help of tail.

4. (B) Number 22684282483 →
$(01010100100000010110101011100111 0011)_2$
∴ The last two digits are 11.

5. (B) Rest are even numbers.

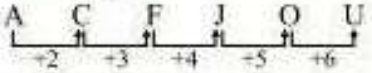
6. (B) Rest are feminine animal.

7. (B)

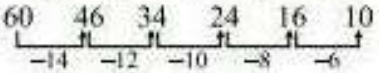


8. (C) Rest are leap years.

9. (A)



10. (A)



11. (D) '1966' is not a leap year.

12. (C) The letter 'S' is not present in the given word.

13. (C) As,

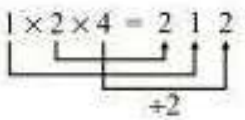
N	A	S	C	E	N	T
↓	↓	↓	↓	↓	↓	↓
2	7	3	4	5	2	6

Same as,

S	E	N	T	E	N	C	E
↓	↓	↓	↓	↓	↓	↓	↓
3	5	2	6	5	2	4	5

14. (B) As. $7 - 1 = 6$
$2 + 1 = 3$
$3 - 1 = 2$
$7 + 1 = 8$
∴ $72 + 37 = 6328$
and $5 - 1 = 4$
$4 + 1 = 5$
$1 - 1 = 0$
$3 + 1 = 4$
∴ $54 + 13 = 4504$
Same as,
$6 - 1 = 5$
$1 + 1 = 2$
$5 - 1 = 4$
$3 + 1 = 4$
∴ $61 + 53 = 5244$

15. (C) As.



and $5 \times 6 \times 8 = 6\ 5\ 4$

$\div 2$

Same as, $3 \times 7 \times 2 = 7\ 3\ 1$

$\div 2$

16. (C) Root → Stem → Leaf → Flower

17. (C) Egg → Larva → Pupa → Butterfly

18. (B) a b c b c a | a b c b c a | a b c b c a

19. (C)

D	$\xrightarrow{+2}$	F	$\xrightarrow{+2}$	H	$\xrightarrow{+2}$	J	$\xrightarrow{+2}$ L
Z	$\xrightarrow{-1}$	Y	$\xrightarrow{-1}$	X	$\xrightarrow{-1}$	W	$\xrightarrow{-1}$ V
C	$\xrightarrow{+5}$	H	$\xrightarrow{+5}$	M	$\xrightarrow{+5}$	R	$\xrightarrow{+5}$ W

20. (C) 2, 11, 47, 128, [272] ?

$+(3)^2$, $+(6)^2$, $+(9)^2$, $+(12)^2$

21. (C) 30, 90, 182, 306, 462, [650] ?

+60, +92, +124, +156, +188

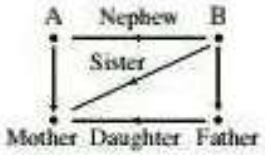
+32, +32, +32, +32

22. (C) All the rest are perfect cube.

23. (C) Left → 1 2 3 4 5 6 7 8 9 10 / 10 9 8 7 6 5 4 3 2 1 ← Right (Nitin)

Hence, the earlier position of Nitin from the right end will be '1'.

24. (B)



∴ A is the nephew of B.

∴ Wife of B is the aunt of A.

25. (B) There is no 'A' in the given word.

26. (C)

As,			Similarly,		
P	$\xrightarrow{+1}$	Q	S	$\xrightarrow{+1}$	T
A	$\xrightarrow{+1}$	B	T	$\xrightarrow{+1}$	U
I	$\xrightarrow{+1}$	J	R	$\xrightarrow{+1}$	S
N	$\xrightarrow{+1}$	O	A	$\xrightarrow{+1}$	B
			I	$\xrightarrow{+1}$	J
			N	$\xrightarrow{+1}$	O

27. (A) ∴

C	O	L	U	M	N
↓	↓	↓	↓	↓	↓
1	9	8	3	2	7

Hence,

C	O	M	M	O	N
↓	↓	↓	↓	↓	↓
1	9	2	2	9	7

28. (B) $3 \times 4 + 6 = 18$

29. (A) 24 A 12 B 4 D 6 C 7

$= 24 \div 12 \times 4 + 6 - 7$

$= 2 \times 4 + 6 - 7$

$= 8 + 6 - 7$

$= 7$

30. (A) As, $2 \times 8 \times 6 \times 9 \rightarrow 9\ 6\ 8\ 2$ in reverse order

Similarly, $8 \times 6 \times 4 \times 9 \rightarrow 9\ 4\ 6\ 8$ in reverse order.

31. (D) 32. (A)

33. (C) In every next figure, a new small line appears on main design. The whole design is also moving 90°, 135°, 90°, ... respectively.

34. (C) 35. (A) 36. (D) 37. (A)

38. (D) T → 56, 67, **78**, 85.
R → 14, **22**, 31, 43.
A → **12**, 24, 33, **41**.
M → **55**, 66, 77, 88.
P → 57, **68**, 75, 86.
L → 11, 23, **32**, 44.
E → **58**, 65, 76, 87

39. (C)

40. (D) The number of students study computer science only.

$= 100 - 80 = 20$

41. (B) $6 \times 9 \times 3 = 3\ 6\ 9$ (1 2 3 / 3 1 2)

$5 \times 6 \times 4 \rightarrow 4\ 5\ 6$ (1 2 3 / 3 1 2)

Similarly, $4 \times 6 \times 8 \rightarrow 8\ 4\ 6$ (1 2 3 / 3 1 2)

42. (A) $12 \times 14 \rightarrow 168 - 10 = 158$.

$12 \times 16 \rightarrow 192 - 10 = 182$

Similarly,

$14 \times 16 \rightarrow 224 - 10 = 214$

43. (B) (3 A 5 B 2) C 4 D 6

$= (3 + 5 - 2) \times 4 \div 6$

$= 6 \times \frac{4}{6}$

$= 4$

44. (B) $6 \times 7 \times 11 = 462$

$5 \times 8 \times 12 = 480$

Similarly, $7 \times 4 \times ? = 224$

$\therefore \quad ? = \frac{224}{7 \times 4} = 8$

45. (B) $4 \times 3 = 12 \rightarrow (12)^2$

$= 144$

$11 \times 9 = 99 \rightarrow (99)^2$

$= 9801$

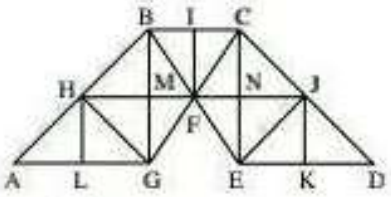
Similarly, $? = (15 \times 6)^2$

$= 8100$

46. (A) Cows and Goats are separate animals but these are animals.

47. (B) 48. (B)

49. (C)



It has 29 triangles.

1. AHL	2. HGL	3. BHM
4. GHM	5. BFM	6. FGM
7. BIF	8. CFI	9. CFN
10. EFN	11. CJN	12. EJN
13. EJK	14. DJK	15. AGH
16. BGH	17. BFH	18. BFG
19. FGH	20. BCF	21. CEF
22. EFJ	23. CEJ	24. CFJ
25. DEJ	26. ABG	27. BCG
28. BCE	29. CDE	

50. (B)

Part—II
English Language

Directions—(Q. 1–10) Sentences are given with blanks to be filled in with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four and indicate it by blackening the appropriate oval (●) in the Answer Sheet.

1. Go home immediately ..... your mother is looking for you.
   (A) after (B) so that
   (C) because (D) but
2. He was slow as usual. Even a snail would have seemed .....
   (A) fastest (B) faster
   (C) too fast (D) not fast
3. The father seems relieved as he has married ..... both of his daughters.
   (A) of (B) off
   (C) to (D) away
4. Mohan : Have you ever ..... before ? It's my first time in a plane and I am a little nervous.
   (A) fled (B) flowed
   (C) flown (D) flying
5. They have already completed the job, ... ?
   (A) isn't it (B) has they
   (C) haven't they (D) won't they
6. The whole class sympathised ..... the peon.
   (A) at (B) for
   (C) with (D) towards
7. Your tie does not go well ..... your shirt.
   (A) above (B) with
   (C) for (D) over
8. I am grateful ..... him.
   (A) with (B) in
   (C) for (D) to
9. The subordinate made a ..... remark against his boss that cost his job.
   (A) derogatory (B) complimentary
   (C) oblique (D) conscientious
10. He ..... before the court that he was innocent of the crime.
    (A) denied (B) denounced
    (C) demanded (D) declared

Directions—(Q. 11–15) Sentences are given with blanks to be filled in with an appropriate word. Four alternatives are suggested for each question. Choose the correct alternative out of the four and indicate it by blackening the appropriate rectangle (▬) in the Answer Sheet.

11. The delegates listened to the speaker .....
(A) attend (B) attentively
(C) attention (D) attentive

12. The prices of foodgrains have gone up .....
(A) consider (B) considerate
(C) consideration (D) considerably

13. The officer ..... leave to his secretary.
(A) offered (B) granted
(C) allowed (D) awarded

14. Nothing ..... like success.
(A) success (B) succeed
(C) succeeds (D) successful

15. Whenever I look at Mohan I am ..... of my brother.
(A) recalled (B) recollected
(C) reminded (D) remembered

Directions—(Q. 16–20) Out of the four alternatives, choose the one which best expresses the meaning of the given word and mark it in the Answer Sheet.

16. Absolutely
(A) Partly (B) Really
(C) Entirely (D) Exclusively

17. Penury
(A) Bribery (B) Injury
(C) Poverty (D) Penalty

18. Negligent
(A) Ignorant (B) Unimportant
(C) Careless (D) Cheat

19. Impromptu
(A) Unrehearsed (B) Uninfluenced
(C) Unconvincing (D) Improbable

20. Erudite
(A) Snobbish (B) Scholarly
(C) Saintly (D) Secretive

Directions—(Q. 21–25) Choose the word opposite in meaning to the given word and mark it in the Answer Sheet.

21. Conclude
(A) Preclude (B) Commence
(C) Seclude (D) Finish

22. Virtue
(A) Truth (B) Vice
(C) Wisdom (D) Idiocy

23. Notorious
(A) Famous (B) Popular
(C) Eminent (D) Distinguished

24. Particular
(A) Usual (B) Random
(C) General (D) Any

25. Cheer
(A) Fear (B) Threat
(C) Abuse (D) Decry

Directions—(Q. 26–35) Some of the sentences have errors and some are correct. Find out which part of a sentence has an error and blacken the rectangle (■) corresponding to the appropriate letter (A, B. C). If a sentence is free from errors, blacken the rectangle corresponding to (D) in the Answer Sheet.

26. It should be obvious to you / that if you
(A) (B)
persist bothering him. / he will get angry
(C)
with you. No error
(D)

27. I and Raju / left for Delhi / last summer.
(A) (B) (C)
No error
(D)

28. I certainly / differ with you / in this matter.
(A) (B) (C)
No error
(D)

29. He had a suspected fracture. / so he was /
(A) (B)
admitted into the hospital. No error
(C) (D)

30. The wages / of hard work / are sweet.
(A) (B) (C)
No error
(D)

31. I will certainly / avail of your offer / when
(A) (B)
the occasion arises. No error
(C) (D)

32. All the pupils / stood up respectively / as the
(A) (B)
Guru entered the room. No error
(C) (D)

33. Many a men / attended the meeting /
(A) (B)
last night. No error
(C) (D)

34. The hour / to prepare lessons / has arrived.
(A) (B) (C)
No error
(D)

35. Even at this late stage in her career, / Rekha
(A)
acts nicely. / doesn't she ? No error
(B) (C) (D)

Passage
(Q. 36 to 45)

India and 25 other countries agreed to the Copenhagen Accord even as other developing countries accepted it as an irreversible decision later. The Accord came out of ...(36)... bargaining lasting almost 20 hours among ...(37)... of governments of some of the most ...(38)... countries of the world. At the ...(39)... of the day on Saturday. India ...(40)... to have given ground on some ...(41)... but blocked intrusion on other red lines. It had become ...(42)... within the first week of the ...(43)... that the best even the four emerging and ...(44)... economies of the developing world were going to do was to defend the ...(45)... economic resource sharing regimes.

36. (A) difficult (B) hard
(C) easy (D) early

37. (A) rulers (B) kings
(C) heads (D) chiefs

38. (A) influential (B) corrupted
(C) useless (D) beautiful

39. (A) middle (B) evening
(C) night (D) end

40. (A) proved (B) appeared
(C) viewed (D) cleared

41. (A) materials (B) thoughts
(C) issues (D) discussions

42. (A) evident (B) ambiguous
(C) vague (D) indecisive

43. (A) accord (B) talks
(C) issues (D) thoughts

44. (A) economic (B) political
(C) powerful (D) praiseworthy

45. (A) expected (B) existing
(C) resultant (D) consequential

Directions—(Q. 46–50) In the following questions, you have two brief passages with 5 questions following each passage. Read the passages carefully and choose the best answer to each question out of the four alternatives and mark it in the Answer-Sheet.

Passage I
(Q. 46 to 50)

The Stone Age was a period of history which began in approximately 2 million B.C. and lasted until 3000 B.C. Its name was derived from the stone tools and weapons that modern scientists discovered. This period was divided into the Paleolithic, Mesolithic, and Neolithic Ages. During the first period (2 million to 8000 B.C.) the fist hatchet and the use of fire for heating and cooking were developed. As a result of the Ice Age, which evolved about 1 million years in the Paleolithic Age, people were forced to seek shelter in caves, wear clothing and develop new tools.

During the Mesolithic Age (8000 to 6000 B.C.) people made crude pottery and the first fish hooks, took dogs for hunting, and developed a bow and arrow, which was used until the fourteenth century A.D.

The Neolithic Age (6000 to 3000 B.C.) saw human kind domesticating sheep, goats, pigs, and cattle, becoming less nomadic than in the previous Ages, establishing permanent settlements and creating governments.

Questions :

46. The Stone Age was divided into ..... periods.
(A) five (B) four
(C) three (D) six

47. What developed first in the Paleolithic period ?
(A) The bow and arrow
(B) Pottery
(C) The fist hatchet
(D) The fish hook

48. For how many years did Mesolithic Age exist ?
(A) 2000 (B) 3000
(C) 4000 (D) 5000

49. Which period lasted longest ?
(A) Paleolithic (B) Ice Age
(C) Mesolithic (D) Neolithic

50. When did people create governments ?
(A) 8000–6000 B.C.
(B) 2 million to 8000 B.C.
(C) 6000 to 3000 B.C.
(D) 2 million to 1 million B.C

Answers with Explanations

1. (C) 2. (B) 3. (B) 4. (C) 5. (C)
6. (C) 7. (B) 8. (D) 9. (A) 10. (D)
11. (B) Listening to someone carefully because we are interested.
12. (D) Much or a lot.
13. (B) 14. (C)
15. (C) The meaning of 'reminded' is to seem similar 'to someone or something else'.
16. (C) 17. (C) 18. (B) 19. (A) 20. (B)
21. (B) 22. (B) 23. (A) 24. (C) 25. (D)
26. (B) Delete 'that'. It is redundant.
27. (A) Third person comes before first person.
28. (B) Change 'with' to 'from'.
29. (C) Change 'into' to 'to'.
30. (C) Change 'are' to 'is'. The subject of the verb is singular.
31. (B) Avail is always followed by reflexive pronoun. Put myself after avail.
32. (B) Change 'respectively' to 'respectfully'.
33. (A) Change 'men' to 'man'.
34. (D) 35. (D) 36. (B) 37. (C) 38. (A)
39. (D) 40. (A) 41. (A) 42. (A) 43. (B)
44. (C) 45. (B) 46. (C) 47. (C) 48. (A)
49. (B) 50. (C)

Part—III
Quantitative Aptitude

1. A and B were assigned to do a job for an amount of ₹ 1,200. A alone can do it in 15 days, while B can do it in 12 days. With the help of C, they can finish in 5 days. The share of amount that C earns is—
(A) ₹ 300 (B) ₹ 400
(C) ₹ 500 (D) ₹ 600

2. Which of these pipes will empty a pool the fastest ?
1. One pipe of diameter 60 cm
2. Two pipes of diameter 30 cm each
3. Three pipes of diameter 20 cm each
(A) 1 (B) 2
(C) 3 (D) None of these

3. The ratio of the area of an equilateral triangle and that of its circumcircle is—
(A) $2\sqrt{3} : 2\pi$ (B) $4 : \pi$
(C) $3\sqrt{3} : 4\pi$ (D) $7\sqrt{2} : 2\pi$

4. The dimensions of a rectangular parallelepiped are in the ratio 2 : 2 : 1 and the area of its whole surface is 144 sq. cm. Its volume is—
(A) 72 c.c. (B) 108 c.c.
(C) 288 c.c. (D) 144 c.c.

5. A machine is marked at ₹ 6,800 and available at a discount of 10%. The shopkeeper gives another off season discount to the buyer and sells the machine for ₹ 5,202. Find the off season discount—
(A) 10% (B) 12%
(C) 15% (D) 18%

6. A purchased a dining table, marked at ₹ 3,000 at a successive discounts of 10% and 15% respectively. He gave ₹ 105 as transportation charge and sold it at ₹ 3,200. What is his gain percentage ?
(A) $22\frac{1}{3}\%$ (B) 25%
(C) $33\frac{1}{3}\%$ (D) $37\frac{17}{24}\%$

7. A shop offers 10% discount on every purchase of an article. It also offers an additional discount of 12%, if the payment is made in cash. If the original price of an item is ₹ 250, how much a customer will pay, if he wants to pay the price in cash ?
(A) ₹ 180 (B) ₹ 192
(C) ₹ 198 (D) ₹ 195

8. The ratio in which the Darjeeling tea at ₹ 32 per kg is mixed with the Assam tea at ₹ 25

per kg so as to gain 20% by selling the mixture at ₹ 32·40 per kg is—

(A) 4 : 3 (B) 3 : 4

(C) 5 : 2 (D) 2 : 5

9. A box contains 420 coins in rupee, 50 paisa and 20 paisa coins, the ratio of their rupee values being 13 : 11 : 7. The number of 50 paisa coins is—

(A) 42 (B) 78

(C) 66 (D) 132

10. Divide 37 into two parts so that 5 times one part and 11 times the other are together 227—

(A) 15, 22 (B) 20, 17

(C) 25, 12 (D) 30, 7

11. The average age of four boys A, B, C and D is 5 years and the average age of A, B, D, E is 6 years. C is 8 years old. The age of E is (in years)—

(A) 12 (B) 13

(C) 14 (D) 15

12. What is the average of the first six (positive) odd numbers each of which is divisible by 7 ?

(A) 42 (B) 43

(C) 47 (D) 49

13. A businessman bought an article and sold it at a loss of 5%. If he had bought it for 10% less and sold it for ₹ 33 more, he would have had a profit of 30%. The cost price of the article is—

(A) ₹ 330 (B) ₹ 155

(C) ₹ 150 (D) ₹ 300

14. $\frac{1}{3-\sqrt{8}}-\frac{1}{\sqrt{8}-\sqrt{7}}+\frac{1}{\sqrt{7}-\sqrt{6}}-\frac{1}{\sqrt{6}-\sqrt{5}}+\frac{1}{\sqrt{5}-2}$ is equal to—

(A) 5 (B) 3

(C) 1 (D) 0

15. A and B can do a piece of work in 8 days, B and C can do it in 24 days, while C and A can do it in $8\frac{4}{7}$ days. In how many days can C do it alone ?

(A) 60 (B) 40

(C) 30 (D) 10

16. A is thrice as good a workman as B and therefore is able to finish a job in 40 days less than B. Working together, they can do it in—

(A) 14 days (B) 13 days

(C) 20 days (D) 15 days

17. In measuring the sides of a rectangle, there is an excess of 5% on one side and 2% deficit on the other. Then the error per cent in the area is—

(A) 3·3 (B) 3·0

(C) 2·9 (D) 2·7

18. An equilateral triangle and a regular hexagon have the same perimeter. The ratio of the area of the triangle to that of the hexagon is—

(A) 3 : 2 (B) 2 : 3

(C) 1 : 2 (D) 1 : 4

19. A sphere and a cube have equal surface areas. The ratio of the volume of the sphere to that of the cube is—

(A) $\sqrt{\pi} : \sqrt{6}$

(B) $\sqrt{6} : \sqrt{\pi}$

(C) $\sqrt{2} : \sqrt{\pi}$

(D) $\sqrt{\pi} : 3$

20. The difference between a discount of 35% and two successive discounts of 20% on a certain bill was ₹ 22. The amount of the bill was—

(A) ₹ 200 (B) ₹ 220

(C) ₹ 1,100 (D) ₹ 2,200

21. Ratio between the monthly incomes of A and B is 9 : 8 and the ratio between their expenditures is 8 : 7. If they save ₹ 500 each, find A's monthly income.

(A) ₹ 3,500 (B) ₹ 4,000

(C) ₹ 4,500 (D) ₹ 5,000

22. If $x : y = 3 : 4$, then the value of $\frac{5x-2y}{7x+2y}$ =

(A) $\frac{7}{25}$ (B) $\frac{7}{23}$

(C) $\frac{7}{29}$ (D) $\frac{7}{17}$

23. The average of three numbers is 135. The largest number is 195 and the difference between the other two is 20. The smallest number is—

(A) 65 (B) 95
(C) 105 (D) 115

24. If I purchased 11 books for ₹ 100 and sold 10 books for ₹ 110, the percentage of profit per book sold is—
(A) 10 (B) 11·5
(C) 17·3 (D) 21

25. A cloth merchant sold half of his cloth at 40% profit, half of remaining at 40% loss and the rest was sold at the cost price. In the total transaction his gain or loss will be—
(A) 20% gain
(B) 25% loss
(C) 10% gain
(D) 15% loss

26. In an examination, 1100 boys and 900 girls appeared. 50% of the boys and 40% of the girls passed the examination. The percentage of candidates who failed is—
(A) 45 (B) 45·5
(C) 50 (D) 54·5

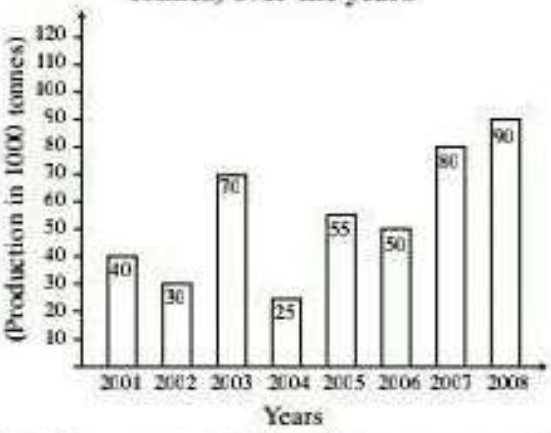
27. When the price of cloth was reduced by 25%, the quantity of cloth sold increased by 20%. What was the effect on gross receipt of the shop ?
(A) 5% increase
(B) 5% decrease
(C) 10% increase
(D) 10% decrease

28. Walking at the rate of 4 km an hour, a man covers a certain distance in 3 hours 45 minutes. If he covers the same distance on cycle, cycling at the rate of 16·5 km/hour, the time taken by him is—
(A) 55·45 minutes
(B) 54·55 minutes
(C) 55·44 minutes
(D) 45·55 minutes

29. In a certain time, the ratio of a certain principal and the simple interest obtained from it are in the ratio of 10 : 3 at 10% interest per annum. The number of years the money was invested is—
(A) 1 (B) 3
(C) 5 (D) 7

Directions—Study the following graph and answer questions No. 30—33.

Production of salt by a company (in 1000 tonnes) over the years



30. In how many of the given years was the production of salt more than the average production of the given years ?
(A) 1 (B) 2
(C) 3 (D) 4

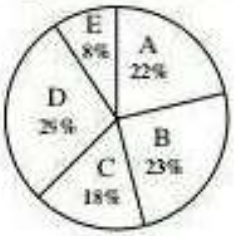
31. The average production of 2004 and 2005 was exactly equal to the average production of which of the following pairs of years ?
(A) 2006, 2007 (B) 2005, 2006
(C) 2002, 2006 (D) 2001, 2005

32. What was the percentage decline in the production of salt from 2003 to 2004 ?
(A) 64·2 (B) 180
(C) 62·4 (D) 107

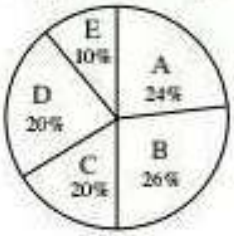
33. What was the percentage increase in production of salt in 2008 compared to that of 2001 ?
(A) 55·5 (B) 125
(C) 150 (D) 220

Directions—(Q. 34–38) Study the pie charts given below carefully and answer each of the questions based on it.

The following pie charts represent the percentage of the workers of five types for two years.



1995
Number of total workers : 18000



1996
Number of total workers : 20000

a = Award staff

b = Managers of first class

c = Managers of second class

d = Managers of third class

e = Executives

34. At the end of the year 1995, if 300 managers of first class left, then how many managers of first class entered in the year 1996 ?
(A) 340
(B) 460
(C) 280
(D) Data inadequate
(E) None of these

35. In 1996 if 500 managers of second class are on duty in the company then in 1996 how many managers of third class was on duty in the company ?
(A) 300
(B) 800
(C) 200
(D) Data inadequate
(E) None of these

36. In 1996 if 1000 executives joined the company then in the year 1995 how many executives left the company ?
(A) 540 (B) 640
(C) 440 (D) 240
(E) None of these

37. In which of the following types of workers the deviation was maximum between 1995 and 1996 ?
(A) E (B) B
(C) D (D) A
(E) C

38. What was the difference in the numbers of award staff during 1995 and 1996 ?
(A) 840
(B) 400
(C) 360
(D) Data inadequate
(E) None of these

Directions—(Q. 39–40) Study the following table carefully and answer each of the questions.

Number of types of different tyres sold, by a company over years

(Number in lakhs)

Years	Types of Tyres					Years
	A	B	C	D	E	
1989	35	20	40	15	25	135
1990	40	15	55	20	35	165
1991	30	25	45	25	30	155
1992	25	30	50	30	35	170
1994	42	28	34	42	30	176
1995	36	34	38	48	25	181

39. What is the approximate percentage increase in 'D' type of tyres from 1992 to 1993 ?
(A) 25 (B) 30
(C) 35 (D) 20
(E) 40

40. In which of the following years the percentage sale of 'D' type of tyres was maximum as compared total sale of that year ?
(A) 1992 (B) 1994
(C) 1990 (D) 1995
(E) None of these

41. The value of $\left(\sqrt{4^3 + 15^2}\right)^3$ is—
(A) 3943 (B) 4913
(C) 4313 (D) 4193

42. By selling 4 articles for 1 rupees, a man loses 4%. Had he sold three articles per rupee, the profit would have been—
(A) 12% (B) 30%
(C) 28% (D) 16%

43. If 5·5 of a = 0·65 of b, then $a : b$ is equal to—
(A) 110 : 13 (B) 13 : 11
(C) 11 : 13 (D) 13 : 110

44. An article is sold at a loss of 10%. Had it been sold for ₹ 90 more, there would have been a gain of 5%. The original sale price of the article (in ₹) is—
(A) 650 (B) 540
(C) 600 (D) 628

45. A contractor undertook to finish a work in 92 days and employed 110 men. After 48 days, he found that he had already done $\frac{3}{5}$ part of the

work, the number of men he can withdraw so that the work may still be finished in time is—

(A) 30 (B) 45

(C) 40 (D) 35

46. From a class of 42 boys, a boy aged 10 years goes away and in his place, a new boy is admitted. If on account of this change, the average age of the boys in that class increases by 2 months, the age of the newcomer is—

(A) 12 years 2 months

(B) 19 years

(C) 17 years

(D) 10 years 6 months

47. What is to be added to 15% of 160 so that the sum may be equal to 25% of 240 ?

(A) 36 (B) 24

(C) 84 (D) 60

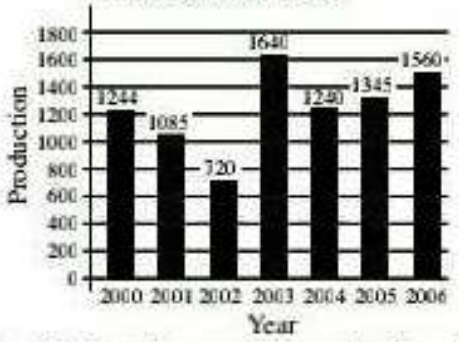
48. Two trains starts from station A and B and travel towards each other at speeds of 16 miles/hour and 21 miles/hour respectively. At the time of their meeting, the second train has travelled 60 miles more than the first. The distance between A and B (in miles) is—

(A) 540 (B) 444

(C) 496 (D) 333

Directions—(Q. 49 and 50) The bar diagram below shows the production of potatoes (in quintals) from the year 2000 to 2006. Study the diagram and answer the questions.

Production of Potatoes (in quintals) from 2000 to 2006



49. Considering the average production during this period, the number of years in which the production is above average is—

(A) 4 (B) 1

(C) 2 (D) 3

50. During this period, the highest rate of decline in production is—

(A) 35·32% (B) 24·4%

(C) 28·22% (D) 33·64%

Answers with Explanations

1. (A) ∵ Work of A alone for 1 day $= \frac{1}{15}$

$\Rightarrow$ Work of B alone for 1 day $= \frac{1}{12}$

$\Rightarrow$ Work of (A + B + C) together for 1 day

$= \frac{1}{5}$

$\therefore$ Work of C alone for 1 day

$= \frac{1}{5} - \left(\frac{1}{15} + \frac{1}{12}\right)$

$= \frac{1}{5} - \left(\frac{4+5}{60}\right)$

$= \frac{1}{5} - \frac{3}{20} = \frac{1}{20}$

$\therefore$ Ratio of work done by A, B and C

$= \frac{1}{15} : \frac{1}{12} : \frac{1}{20}$

$\Rightarrow$ A : B : C = 4 : 5 : 3

$\therefore$ Share of amount that C earns

$= \frac{3}{(4+5+3)} \times ₹\,1200$

$= \frac{1}{4} \times ₹\,1200$

$= ₹\,300$

2. (A) ∵ Area of cross-section of one pipe of diameter 60 cm

$= \pi (30)^2 = 900\,\pi$ sq. cm

$\Rightarrow$ Area of cross-section of two pipes at diameter 30 cm each

$= \pi (15)^2 + \pi (15)^2$

$= \pi (225 + 225)$

$= 450\,\pi$ sq. cm

$\Rightarrow$ Area of cross-section of three pipes of diameter 20 cm each

$= \pi (10)^2 + \pi (10)^2 + \pi (10)^2$

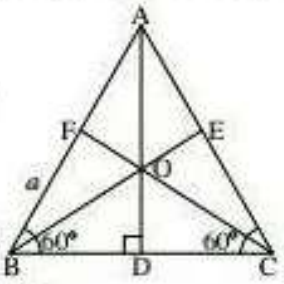
$= \pi (100 + 100 + 100)$

$= 300\,\pi$ sq. cm

$\therefore$ It is clear that area of cross-section of one pipe of diameter 60 cm is biggest. Hence one pipe of diameter 60 cm will empty the pool fastest.

3. (C) Let one side of an equilateral triangle ABC

$= a$ cm



$\because$ AD = AB. sin 60°

$= a \cdot \frac{\sqrt{3}}{2}$

$\Rightarrow$ Radius of the circumcircle

$= OA = OB = OC$

$= \frac{2}{3} \times AD$

$= \frac{2}{3} \times a\frac{\sqrt{3}}{2}$

$= \frac{a}{\sqrt{3}}$

$\therefore$ Reqd. ratio

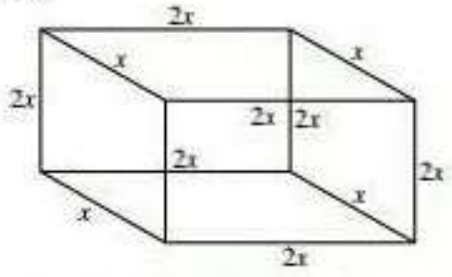
= Area of an equilateral triangle : Area of its circumcircle

$= \frac{\sqrt{3}}{4} \cdot a^2 : \pi\left(\frac{a}{\sqrt{3}}\right)^2$

$= \frac{\sqrt{3}}{4} a^2 : \pi\frac{a^2}{3}$

$= 3\sqrt{3} : 4\pi$

4. (B) Let the dimensions of a rectangular parallelepiped are $2x$, $2x$ and x respectively. Then,



$\because$ 144 sq. cm = Area of its whole surface

$= 4x^2 + 4x^2 + 2x^2 + 2x^2 + 2x^2 + 2x^2$

$= 16x^2$

$\Rightarrow x^2 = \frac{144}{16} = 9 = (3)^2$

$\therefore x = 3$ cm

$\therefore$ Volume of rectangular parallelopiped

$= 2x \times 2x \times x$

$= 4x^3$

$= 4.(3)^3$ c.c.

$= 108$ c.c.

5. (C) Let the off-season discount $= x\%$

Then, single equivalent discount

$= \left[10 + x - \frac{10 \times x}{100}\right]\%$

$= \left[10 + \frac{9}{10}x\right]\%$

$\because 6800 \times \frac{\left[100 - \left(10 + \frac{9}{10}x\right)\right]}{100}$

$= 5202$

$\Rightarrow \left[90 - \frac{9}{10}x\right] = \frac{5202}{68} = 76{\cdot}5$

$\Rightarrow \frac{9}{10}x = 90 - 76{\cdot}5 = 13{\cdot}5$

$\therefore x = \frac{13{\cdot}5 \times 10}{9}$

$= 15\%$

6. (C) $\because$ Single equivalent discount

$= \left[10 + 15 - \frac{10 \times 15}{100}\right]\%$

$= [25 - 1{\cdot}5]\%$

$= 23{\cdot}5\%$

$\Rightarrow$ Cost price of dining table

$= 3000 \times \frac{(100 - 23{\cdot}5)}{100} + 105$

$= 3000 \times \frac{76{\cdot}5}{100} + 105$

$= 2295 + 105$

$= ₹\,2400$

$\therefore$ Required gain percentage

$= \frac{3200 - 2400}{2400} \times 100\%$

$= \frac{1}{3} \times 100\%$

$= 33\frac{1}{3}\%$

7. (C) ∵ Single equivalent discount

$$= \left(10 + 12 - \frac{10 \times 12}{100}\right)\%$$

$$= (22 - 1{\cdot}2)\% = 20{\cdot}8\%$$

If customer paid the price in cash, then

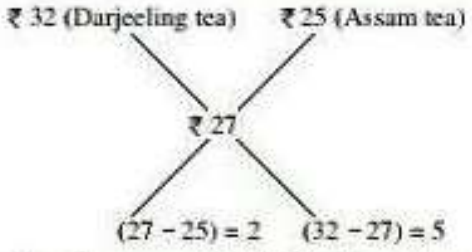
$$\text{Required price} = \frac{(100 - 20{\cdot}8)}{100} \times ₹\,250$$

$$= 79{\cdot}2 \times 2{\cdot}5 = ₹\,198$$

8. (D) ∵ Cost price of the mixture

$$= ₹\,32{\cdot}40 \times \frac{100}{(100 + 20)}$$

$$= ₹\,32{\cdot}4 \times \frac{5}{6} = ₹\,27{\cdot}0$$



∴ Reqd. ratio = Darjeeling Tea : Assam Tea

= 2 : 5

9. (D) Let the box contains number of coins of one rupee, 50 paisa and 20 paisa are x, y and z respectively. Then,

$$x + y + z = 420 \quad \ldots(1)$$

and ratio of their rupee value is—

$$x \times 1{\cdot}00 : y \times 0{\cdot}50 : z \times 0{\cdot}20 :: 13 : 11 : 7$$

$$\Rightarrow \quad 10x : 5y : 2z = 13 : 11 : 7 \quad \ldots(2)$$

$$\because \quad \frac{10x}{5y} = \frac{13}{11}$$

$$\Rightarrow \quad x = \frac{13}{22}y$$

and $$\frac{5y}{2z} = \frac{11}{7}$$

$$\Rightarrow \quad z = \frac{35}{22}y$$

Substitute the values of x and z in equation (2), we get—

$$\because \quad \frac{13}{22}y + y + \frac{35}{22}y = 420$$

$$\Rightarrow \quad y(13 + 22 + 35) = 420 \times 22$$

$$\therefore \text{ Number of 50 paisa coins} = y = \frac{420 \times 22}{70} = 132$$

10. (D) Let the two parts of 37 are x and $(37 - x)$ respectively. Then,

$$\because \quad x \times 5 + (37 - x) \times 11 = 227$$

$$\Rightarrow \quad (11 - 5)x = 407 - 227 = 180$$

$$\therefore \quad x = \frac{180}{6} = 30$$

∴ Required two parts are = 30 and (37 − 30)

= 30 and 7

11. (A) As per question—

∵ Total age of 4 boys (A + B + C + D)

= 4 × 5

= 20 years ...(1)

⇒ Total age of 4 boys (A + B + D + E)

= 4 × 6

= 24 years ...(2)

Subtract equation (1) from equation (2), we get

Difference of age of (E − C)

= 24 − 20

= 4 years

∴ Age of E = Age of C + 4 years

= 8 years + 4 years

= 12 years

12. (A) Required average

$$= \frac{(7 + 21 + 35 + 49 + 63 + 77)}{6}$$

$$= \frac{7(1 + 3 + 5 + 7 + 9 + 11)}{6}$$

$$= \frac{7 \times 36}{6} = 42$$

13. (C) Let the C.P. of the article = ₹x. Then

$$\text{S.P. of the article} = ₹\,\frac{(100 - 5)}{100} \times x$$

$$= \frac{95}{100}x$$

$$\because \quad \left(\frac{95}{100}x + 33\right) = \frac{(100 - 10)}{100} \cdot x \times \frac{(100 + 30)}{100}$$

$$\Rightarrow \quad \frac{95}{100}x + 33 = \frac{9}{10}x \times \frac{13}{10}$$

$$\Rightarrow \left(\frac{117}{100}x - \frac{95}{100}x\right) = 33$$

$$x = \frac{33 \times 100}{22} = ₹\,150$$

14. (A) $\because \quad \frac{1}{(3-\sqrt{8})} \times \frac{(3+\sqrt{8})}{(3+\sqrt{8})} = \frac{3+\sqrt{8}}{9-8}$

$= 3+\sqrt{8}$

similarly,

$\frac{1}{\sqrt{8}-\sqrt{7}} = \sqrt{8}+\sqrt{7}, \frac{1}{\sqrt{7}-\sqrt{6}} = \sqrt{7}+\sqrt{6},$

$\frac{1}{\sqrt{6}-\sqrt{5}} = \sqrt{6}+\sqrt{5}, \frac{1}{\sqrt{5}-2} = \sqrt{5}+2$

$\therefore$ Given Exp. =

$(3+\sqrt{8}) - (\sqrt{8}+\sqrt{7}) + (\sqrt{7}+\sqrt{6})$

$- (\sqrt{6}+\sqrt{5}) + (\sqrt{5}+2) = 3+2 = 5$

15. (A) $\because$ Work of C for 1 day

$= \frac{1}{2}\left(-\frac{1}{8}+\frac{1}{24}+\frac{7}{60}\right)$

$= \frac{1}{2}\left(\frac{-15+5+14}{120}\right)$

$= \frac{1}{2}\left(\frac{4}{120}\right)$

$= \frac{1}{60}$

$\therefore$ Reqd. No. of days to do work by C alone = 60 days.

16. (D) Let B does the work in x days, then the same work can be done by A in $= \frac{x}{3}$ days.

$\because \quad x - \frac{x}{3} = 40$

$\Rightarrow \quad 2x = 120$

$\therefore \quad x = 60$

Required number of days to do work by both (A and B)

$= \frac{60 \times 20}{60+20}$

$= 15$ days

17. (C) $\therefore$ Required percentage error to measure the area

$= \left[+5-2-\frac{2\times 5}{100}\right]\%$

$= [5-2-0{\cdot}1]\%$

$= 2{\cdot}9$

18. (B) Let the sides of equilateral triangle and a regular hexagon are x and y respectively, then as per question—

$\because \quad 3x = 6y$

$\therefore \quad x = 2y$

$\Rightarrow$ Area of equilateral triangle

$= \frac{\sqrt{3}}{4}x^2$

$= \frac{\sqrt{3}}{4} \times 4y^2 = \sqrt{3}\,y^2$

$\Rightarrow$ Area of regular hexagon $= \frac{3\sqrt{3}}{2}y^2$

$\therefore$ Required ratio of areas

$= \frac{\text{Area of } \Delta}{\text{Area of Hexagon}}$

$= \frac{\sqrt{3}y^2 \times 2}{3\sqrt{3}\,y^2}$

$= \frac{2}{3} = 2:3$

19. (B) Let the radius is r of the sphere, then whole area of sphere $= 4\pi r^2$.

Let the side of cube is a, then whole area of cube $= 6a^2$.

$\because \quad a^2 = \frac{4}{6}\pi r^2$

$\Rightarrow \quad a = \sqrt{\frac{4}{6}\pi r^2}$

$\therefore$ Required ratio of volumes

$= \frac{\text{Vol. of sphere}}{\text{Vol. of cube}} = \frac{4/3\,\pi r^3}{a^3}$

$= \frac{4}{3}\pi r^3 \times \frac{6}{4\pi r^2} \times \sqrt{\frac{6}{4\pi r^2}}$

$= \frac{\sqrt{6}}{\sqrt{\pi}} = \sqrt{6}:\sqrt{\pi}$

20. (D) Let the bill amount was ₹ x, then

Equivalent discount of two successive discounts of 20%

$= \left[-20-20+\frac{400}{100}\right]\%$

$= -36\%$

$\because \quad 36x - 35x = 22 \times 100$

$\therefore \quad x =$ ₹ 2200.

21. (C) Let the monthly incomes of A and B are ₹ $9x$ and ₹ $8x$ respectively and their expenditures are ₹ $8y$ and ₹ $7y$, then as per question,

$$9x - 8y = 500 \quad \ldots(1)$$

and $$8x - 7y = 500 \quad \ldots(2)$$

To solve (1) and (2),

$$x = 500$$

$\therefore$ Monthly income of A $= ₹\,500 \times 9$

$= ₹\,4500$

22. (C) $\because x : y = 3 : 4$

$$\Rightarrow \quad \frac{x}{y} = \frac{3}{4}$$

$$\text{Given Exp.} = \frac{5x - 2y}{7x + 2y}$$

$$= \frac{5 \times \frac{3}{4} - 2}{7 \times \frac{3}{4} + 2}$$

$$= \frac{15 - 8}{21 + 8} = \frac{7}{29}$$

23. (B) Let the smallest number is x, then as per question,

$\because x + (x + 20) + 195 = 135 \times 3$

$\Rightarrow \quad 2x = 405 - 195 - 20 = 190$

$\therefore \quad x = 95$

24. (D) The cost price of one book

$$= ₹\,\frac{100}{11}$$

The selling price of one book

$$= ₹\,\frac{110}{10} = ₹\,11$$

$\therefore$ Required percentage profit

$$= \left(\frac{11 - \frac{100}{11}}{\frac{100}{11}}\right) \times 100\%$$

$$= \frac{121 - 100}{100} \times 100\%$$

$$= 21\%$$

25. (C) Let the total cost price is ₹ 100, then as per question.

$$\therefore \quad \text{Total S.P.} = \frac{50 \times 140}{100} + \frac{25 \times 60}{100} + \frac{25 \times 100}{100}$$

$= ₹\,70 + 15 + 25$

$= ₹\,110$

Hence, 10% gain in the total transaction.

26. (D) No. of failed boys in the examination

$$= \frac{1100 \times 50}{100} = 550$$

No. of failed girls in the examination

$$= \frac{900 \times 60}{100} = 540$$

$\therefore$ Failed candidates percentage

$$= \frac{(550 + 540)}{2000} \times 100\%$$

$$= 54{\cdot}5\%$$

27. (D) Effect on gross receipt

$$= \left(20 - 25 - \frac{500}{100}\right)\%$$

$$= -10\%$$

Hence, 10% decrease.

28. (B) The distance covered by person

$$= \text{speed} \times \text{time}$$

$$= 4 \times 3{\cdot}75 \text{ km}$$

$$= 15 \text{ km}$$

The time taken to cover this distance

$$= \frac{\text{Distance}}{\text{Speed}}$$

$$= \frac{15}{16{\cdot}5} \times 60 \text{ minutes}$$

$$= 54{\cdot}55 \text{ minutes.}$$

29. (B) Let the principal sum and simple interest are ₹ $10x$ and ₹ $3x$ respectively, then as per question,

Hence, required number of years

$$= \frac{3x \times 100}{10x \times 10} = 3 \text{ years.}$$

30. (C) Average production of salt

$$= \frac{40 + 30 + 70 + 25 + 55 + 50 + 80 + 90}{8}$$

$$= \frac{440}{8} = 55 \text{ (1000 tonnes)}$$

Hence, the number of years for more than the average production *i.e.*, 2003, 2007, 2008 = 3.

31. (C) The average production of the years 2004 and 2005

$$= \frac{25 + 55}{2}$$

$$= 40 \text{ (1000 tonnes)}$$

The average production of the years 2002 and 2006

$$= \frac{30 + 50}{2}$$

$$= 40 \text{ (1000 tonnes)}$$

32. (A) Hence, required percentage decline

$$= \frac{70 - 25}{70} \times 100\%$$

$$= \frac{4500}{70}\%$$

$$= 64{\cdot}2\%$$

33. (B) ∴ Required percentage increased

$$= \frac{90 - 40}{40} \times 100\%$$

$$= \frac{5000}{40}\%$$

$$= 125\%$$

34. (E) Total number of first class managers in 1995

$$= \frac{23 \times 18000}{100}$$

$$= 4140$$

and the number of first class managers who left = 300

∴ Remaining number of first class managers

$$= 4140 - 300 = 3840$$

Total number of first class managers in 1996

$$= \frac{26 \times 20000}{100}$$

$$= 5200$$

∴ No. of those who entered in 1996

$$= 5200 - 3840$$

$$= 1360$$

35. (E) Since the percentage of second class and third class managers in 1996 is same

∴ The numbers of both classes of managers in 1996 will be same

Since 500 second class managers are on duty

∴ The number of third class manager on duty in 1996 = 500.

36. (C) Total number of executives in 1996

$$= \frac{10 \times 20000}{100} = 2000$$

and total number of executives in 1995

$$= \frac{8 \times 18000}{100}$$

$$= 1440$$

∴ No. of executives who left

$$= 1440 + 1000 - 2000$$

$$= 440.$$

37. (C) Deviation in award staff

$$= \frac{24 \times 20000 - 22 \times 18000}{100}$$

$$= 840$$

Deviation in first class managers

$$= \frac{26 \times 20000 - 23 \times 1800}{100}$$

$$= 1060$$

Deviation in second class managers

$$= \frac{20 \times 20000 - 18 \times 18000}{100}$$

$$= 760$$

Deviation in third class managers

$$= \frac{20 \times 20000 - 29 \times 18000}{100}$$

$$= 1220$$

Deviation in Executives

$$= \frac{10 \times 20000 - 8 \times 18000}{100}$$

$$= 560$$

Hence it is clear that maximum deviation is in the number of third class managers.

38. (A) Reqd. difference

$$= \frac{24 \times 20000 - 22 \times 18000}{100}$$

$$= 840.$$

39. (A) Reqd. percentage increase

$$= \frac{(38 - 30) \times 100}{30} - 26{\cdot}6$$

$$= 25 \text{ (App.)}.$$

40. (D) Reqd. percentage in 1989 $= \frac{15 \times 100}{135}$

$$= 11{\cdot}11$$

Reqd. percentage in 1991 $= \frac{25 \times 100}{155}$

$$= 16{\cdot}13$$

Reqd. percentage in 1992 $= \frac{30 \times 100}{170}$

$$= 17{\cdot}65$$

Reqd. percentage in 1993 $= \frac{38 \times 100}{175}$

$= 21{\cdot}71$

Reqd. percentage in 1994 $= \frac{42 \times 100}{176}$

$= 23{\cdot}86$

Reqd. percentage in 1995 $= \frac{48 \times 100}{181}$

$= 26{\cdot}51$

Hence it was maximum in 1995.

41. (B) $\left(\sqrt{4^3 + 15^2}\right)^3 = \left(\sqrt{64 + 225}\right)^3$

$= \left(\sqrt{289}\right)^3$

$= (17)^3$

$= 4913$

42. (C) Let the C. P. of one article be ₹ x. Then—

$\because \quad x \times \frac{96}{100} = \frac{1}{4}$

$\Rightarrow \quad x = ₹\frac{25}{96}$

$\therefore$ Reqd. profit percentage

$= \left(\frac{1}{3} - \frac{25}{96}\right) \times \frac{96}{25} \times 100\%$

$= \frac{(96 - 75)}{3 \times 96} \times \frac{96}{25} \times 100\%$

$= (7 \times 4)\%$

$= 28\%$

43. (D) $\because \quad a \times 5{\cdot}5 = b \times 0{\cdot}65$

$\Rightarrow \quad \frac{a}{b} = \frac{0{\cdot}65}{5{\cdot}50} = \frac{65}{550}$

$\therefore \quad a : b = \frac{13}{110}$

$= 13 : 110$

44. (C) Let the original sale price of the article be ₹ x, then,

$\because \quad x \times \frac{90}{100} + 90 = x \times \frac{105}{100}$

$\Rightarrow \quad 9x + 900 = 10{\cdot}5\,x$

$\Rightarrow \quad 1{\cdot}5\,x = 900$

$\therefore \quad x = ₹\,600$

45. (A) As per question, let the number of men be x, who can finish the remaining work

$= \left(1 - \frac{3}{5}\right)$ in 44 days. Then,

$\because \quad \frac{x \times 44}{2/5} = \frac{110 \times 48}{3/5}$

$\Rightarrow \quad 22x = 110 \times 16$

$\therefore \quad x = 80$ men

$\therefore$ Reqd. number of men withdrawn by the countractor

$= 30$ men

46. (C) Let the original average age

$= x$ months and age of the newcomer

$= y$ months. Then, as per question—

$\frac{42 \times x - 10 \times 12 + y}{42} = x + 2$

$\Rightarrow \quad 42x - 120 + y = 42x + 84$

$\Rightarrow \quad y = 120 + 84$

$= 204$ months

$= 17$ years

47. (A) $\because \quad 160 \times \frac{15}{100} + x = 240 \times \frac{25}{100}$

$\Rightarrow \quad 24 + x = 60$

$\therefore$ Reqd. number $(x) = 36$

48. (B) Let both the trains meet after t hours. Then as per question—

$16 \times t + 60 = 21 \times t$

$\Rightarrow \quad 5t = 60$

$\therefore \quad t = 12$ hours.

The distance between A and B (in miles)

$= 16 \times 12 + 21 \times 12$

$= 192 + 252$

$= 444$ miles

49. (D) Average production during this period

$= \frac{1244 + 1085 + 720 + 1640 + 1240 + 1345 + 1560}{7}$

$= \frac{8834}{7}$

$= 1262$ Quintals

$\therefore$ Required the number of years

$= (2003, 2005, 2006)$

$= 3$ years

50. (D) Reqd. highest rate of decline in production

$= \frac{(1085 - 720) \times 100}{1085}\%$

$= \frac{365}{1085} \times 100\%$

$= 33{\cdot}64\%$

Part—IV
General Awareness

1. Which one of the following is not a benefit of Saliva ?
   (A) It facilitates swallowing
   (B) It increases RBCs in the body
   (C) It keeps the mouth and teeth clean
   (D) It aids speech by facilitating movements of lips and tongue

2. Match List-I with List-II and select the correct answer using its codes given below the lists—

	List-I	List-II
(a)	Pulicat Lake	(1) Orissa
(b)	Chilka Lake	(2) Rajasthan
(c)	Wular Lake	(3) Tamil Nadu
(d)	Sambhar Lake	(4) Kashmir

Codes :

	(a)	(b)	(c)	(d)
(A)	(3)	(1)	(4)	(2)
(B)	(3)	(4)	(2)	(1)
(C)	(4)	(1)	(3)	(2)
(D)	(1)	(2)	(4)	(3)

3. In West Bengal, Raniganj is associated with—
   (A) Coalfields (B) Iron ore
   (C) Manganese ore (D) Copper

4. Who expounded "The Theory of Drain" ?
   (A) Tilak
   (B) Dadabhai Nauroji
   (C) Gokhale
   (D) Govinda Ranade

5. The best Index of Economic Development is provided by—
   (A) Growth in Per capita Real Income from year to year
   (B) Growth in National Income at Current Prices
   (C) Growth in savings ratio
   (D) Improvement in the Balance of Payments Position

6. The part of the eye having the largest refractive index is—
   (A) Cornea (B) Aqueous humor
   (C) Lens (D) Vitreous humor

7. On May 17, 2010, India successfully test fired surface to surface ballistic missile (Agni II) from the wheeler island off—
   (A) Orissa coast
   (B) Gujarat coast
   (C) Andhra Pradesh coast
   (D) None of the above

8. Name the food crop which gives highest output in India—
   (A) Wheat (B) Jowar
   (C) Maize (D) Rice

9. The Zoji-La pass connects—
   (A) Srinagar and Leh
   (B) Arunachal Pradesh and Tibet
   (C) Chamba and Spiti
   (D) Kalimpong and Lhasa

10. Enzymes are—
    (A) Micro organisms
    (B) Proteins
    (C) Inorganic compounds
    (D) Moulds

11. Which one of the following appointments is not within the purview of the President of India ?
    (A) Chief Justice of India
    (B) Chairman, Finance Commission
    (C) Chief of Army Staff
    (D) Speaker of Lok Sabha

12. Match the following—

	List - I	List - II
(a)	Aquaculture	(1) Silk
(b)	Floriculture	(2) Grapes
(c)	Sericulture	(3) Flower
(d)	Viticulture	(4) Fisheries

Codes :

	(a)	(b)	(c)	(d)
(A)	(4)	(3)	(2)	(1)
(B)	(3)	(4)	(1)	(2)
(C)	(3)	(4)	(2)	(1)
(D)	(4)	(3)	(1)	(2)

13. In which region does rainfall occur throughout the year ?
    (A) Mediterranean (B) Equatorial
    (C) Tropical (D) Temperate

14. The place Sabarimala is situated in which of the following States ?
(A) Andhra Pradesh (B) Tamil Nadu
(C) Kerala (D) Karnataka

15. Which Himalayan Peak is also called 'Sagar Matha' ?
(A) Nanga Parbat (B) Dhaulagiri
(C) Mt. Everest (D) Kanchenjunga

16. The term 'Kraal' is used for—
(A) House of Masai herder
(B) Fenced villages of Masai herder
(C) Cattle shed of the Kikuyus
(D) Tent of the Kirghiz

17. Who among the following have venous heart ?
(A) Mammals (B) Reptilians
(C) Fishes (D) Amphibians

18. One of the following excretes uric acid as its excretory product—
(A) Amoeba (B) Tilapia
(C) Sparrow (D) Camel

19. Loose Smut of wheat is caused by—
(A) Ustilago maydis
(B) Puccinia graminis
(C) Ustilago tritici
(D) Colletotrichum falcatum

20. Which base in place of thymine is present in RNA ?
(A) Adenine (B) Guanine
(C) Uracil (D) Cytosine

21. Protein part of enzyme is known as—
(A) Isoenzyme (B) Holoenzyme
(C) Apoenzyme (D) All the above

22. The hydraulic press utilizes—
(A) Pascal's law
(B) Bernoulli's principle
(C) Archimedes principle
(D) Boyle's law

23. The unit of electrical conductance is—
(A) Ohm (B) Ohm-cu
(C) mho (D) mho-cu^{-1}

24. The oil in the wick of lamp rises due to—
(A) Pressure difference
(B) Phenomenon of capillarity
(C) Low viscosity of oil
(D) Force of cohesion

25. Kepler's law of planetary motion states that the square of the time period is proportional to the—
(A) semi-major axis
(B) square of the semi-major axis
(C) cube of the semi-major axis
(D) fourth power of the semi-major axis

26. Arithmetic & Logic Unit
I. Perform Arithmetic operations
II. Store Data
III. Perform comparisons
IV. Communicate with input devices
Which of the above is true ?
(A) I only (B) III only
(C) I & II (D) I & III

27. In Word Processing, moving text from one place to another within a document is called as .....
(A) Clip Art
(B) Search & Replace
(C) Cut and Paste
(D) Block Operation

28. What MS-DOS command is used to create a subdirectory ?
(A) DIR/MK (B) MKDIR
(C) CHDIR (D) RMDIR

29. Suspension particles have the size between—
(A) 10^{-2} and 10^{-4} cm
(B) 10^{-5} and 10^{-7} cm
(C) 10^{-8} and 10^{-10} cm
(D) 10^{-1} and 10^{-2} cm

30. Iodine value is used to estimate—
(A) Hydroxyl groups in oil
(B) Alkali content in oil
(C) Unsaturation in oil
(D) Carboxylic groups in oil

31. Element 106 was discovered by—
(A) Rutherford (B) Seaborg
(C) Lawrence (D) Kurchatove

32. What is meant by a 'pir' in the Sufi tradition ?
(A) The Supreme God
(B) The Guru of the Sufis
(C) The greatest of all Sufi saints
(D) The orthodox teacher who contests the Sufi beliefs

33. Khalsa Panth was created by Guru Gobind Singh in which year ?
(A) 1599 (B) 1699
(C) 1707 (D) 1657

34. Who propounded the Panchsheel Principles ?
(A) Mahatma Gandhi
(B) Lord Buddha
(C) Pandit Jawahar Lal Nehru
(D) Swami Dayanand Saraswati

35. On April 12, 1944 Subhash Chandra Bose hoisted the INA Flag in a town. In which State/Union Territory is that town now ?
(A) Andaman and Nicobar Islands
(B) Tripura
(C) Manipur
(D) Mizoram

36. Which one of the following is known as the 'immovable property' in the cell ?
(A) Carbohydrate (B) Fat
(C) Protein (D) Nucleic acid

37. Water from soil enters into the root hairs owing to—
(A) Atmospheric pressure
(B) Capillary pressure
(C) Root pressure
(D) Osmotic pressure

38. Breeding and management of bees is known as—
(A) Sericulture (B) Silviculture
(C) Pisciculture (D) Apiculture

39. The vitamin necessary for coagulation of blood is—
(A) Vitamin B (B) Vitamin C
(C) Vitamin K (D) Vitamin E

40. The average life span of red blood corpuscles is about—
(A) 100 – 200 days (B) 100 – 120 days
(C) 160 – 180 days (D) 150 – 200 days

41. Dormancy period of animals during winter season is called—
(A) Aestivation (B) Regeneration
(C) Hibernation (D) Mutation

42. The angle in which a cricket ball should be hit to travel maximum horizontal distance is—
(A) 60° with horizontal
(B) 45° with horizontal
(C) 30° with horizontal
(D) 15° with horizontal

43. The minimum number of geostationary satellites needed for uninterrupted global coverage is—
(A) 3 (B) 4
(C) 2 (D) 1

44. The best conductor of electricity among the following is—
(A) Copper (B) Iron
(C) Aluminium (D) Silver

45. Flight Recorder is technically called—
(A) Dark box (B) Blind box
(C) Black box (D) Altitude meter

46. Which of the following is **not** a computer network ?
(A) Wide area network
(B) Local area network
(C) Personal network
(D) Metropolitan area network

47. When a group of computers is connected together in a small area without the help of telephone lines, it is called—
(A) Remote Communication Network (RCN)
(B) Local Area Network (LAN)
(C) Wide Area Network (WAN)
(D) Value Added Network (VAN)

48. Which one of the following elements is used in the manufacture of fertilizers ?
(A) Fluorine (B) Potassium
(C) Lead (D) Aluminium

49. Natural rubber is the polymer of—
(A) Isoprene (B) Styrene
(C) Butadiene (D) Ethylene

50. In addition to hydrogen, the other abundant element present on Sun's surface is—
(A) Helium (B) Neon
(C) Argon (D) Oxygen

Answers with Explanations

1. (B) 2. (A) 3. (A) 4. (B) 5. (A)
6. (C) 7. (A) 8. (D) 9. (A) 10. (B)
11. (D) 12. (D) 13. (B) 14. (C)

15. (C) SagarMatha is the Nepali name of Mt. Everest.

16. (B) 17. (C)

18. (C) Birds excrete their nitrogenous waste as uric acid in the form of paste.

19. (C) Loose Smut of wheat is caused by **Ustilago tritici**, where as Flag Smut is caused by **Urocystis tritici** in wheat.

20. (C) 21. (C)

22. (A) Hydraulic Press is based on the following Pascal's law :

"In a confined fluid, externally applied pressure is transmitted uniformly in all directions."

23. (C) Electrical conductance is quite opposite to electrical resistance. Electrical conduc-tance of some material encourages the flow of current in that material. Its unit is 'mho', which is quite opposite to 'ohm'.

24. (B) Due to phenomenon of capillarity, the oil in the wick of the lamp rises from bottom to the flame.

25. (C) Kepler's third law : "The square of the period of a planet's orbit around the sun is proportional to the cube of the semi-major axis of the ellipse."

If 'a' is the semi-major axis and 'T' is the time period of one rotation around the sun, then $T^2 \propto a^3$.

26. (D) 27. (C) 28. (B) 29. (A)

30. (C) Iodine value is the measure of the iodine absorbed in a given time by a chemically unsaturated material, such as a vegetable oil or a rubber. It is also used to measure the unsaturation of a compound or a mixture.

31. (B) Element 106 was discovered by in June 1974 and is known as Seaborgium.

32. (B) 33. (B) 34. (C) 35. (C) 36. (D)
37. (D) 38. (D) 39. (C) 40. (B) 41. (C)
42. (B) 43. (A) 44. (D) 45. (C) 46. (C)
47. (B) 48. (B) 49. (A) 50. (A)