# 7 Practice Set

## ARITHMETIC

**1.** How many numbers, between 1 and 300 are divisible by 3 and 5 together?
(a) 16 (b) 18
(c) 20 (d) 100

**2.** The value of
$3 \div \left[ (8-5) \div \left\{ (4-2) \left( 2 \frac{8}{13} \right) \right\} \right]$ is
(a) $\frac{15}{17}$ (b) $\frac{13}{17}$
(c) $\frac{15}{19}$ (d) $\frac{13}{19}$

**3.** Kamya purchased an item for ₹46,000 and sold it at a loss of 12 per cent. With that amount she purchased another item and sold it at a gain of 12 per cent. What was her overall gain/loss?
(a) Loss of ₹662.40 (b) Profit of ₹662.40
(c) Loss of ₹642.80 (d) Profit of ₹642.80

**4.** The call rate of a SIM of company A is one paisa for every three seconds. Another SIM of company B charges 45 paise per minute. A man talked for 591 seconds from the SIM of company A and 780 seconds from the SIM of company (b) What would be the total amount he spent?
(a) ₹7.80 (b) ₹7.40
(c) ₹7.46 (d) ₹7.82

**5.** An amount of money is to be divided among P, Q and R in the ratio of 3 : 5 : 7 respectively. If the amount received by R is ₹4,000 more than the amount received by O, what will be the total amount received by P and Q together?
(a) ₹8,000
(b) ₹12,000
(c) ₹16,000
(d) Cannot be determined

**6.** A 180 -metre long train crosses another 270-metre long train running in the opposite direction in 10.8 seconds. If the speed of the first train is 60 kmph, what is the speed of the second train in kmph?
(a) 80
(b) 90
(c) 150
(d) Cannot be determined

**7.** In what time will ₹300000 amount to ₹746496 at 20% compound interest?
(a) 3 yrs (b) 4 yrs
(c) 5 yrs (d) 6 yrs

**8.** Two person Ravi and Shyam can do a work in 60 days and 40 days respectively. They began the work together but Ravi left after some time and Shyam finished the remaining work in 10 days. After how many days did Ravi leave?
(a) 8 days (b) 12 days
(c) 15 days (d) 18 days

**9.** What is the number whose 20% is 30% of 40?
(a) 90 (b) 80
(c) 60 (d) 50

**10.** The largest and the second largest angles of a triangle are in the ratio of 4 : 3. The smallest angle is half the largest angle. What is the difference between the smallest and the largest angles of the triangle?
(a) 30° (b) 60°
(c) 40° (d) 20°

**11.** If $A$ is the area of a right angled triangle and $b$ is one of the sides containing the right angle, then what is the length of the altitude on the hypotenuse?
(a) $\frac{2Ab}{\sqrt{b^4 \quad 4A^2}}$ (b) $\frac{2A^2b}{\sqrt{b^4 \quad 4A^2}}$
(c) $\frac{2Ab^2}{\sqrt{b^4 \quad 4A^2}}$ (d) $\frac{2A^2b^2}{\sqrt{b^4 \quad A^2}}$

**12.** Bisectors of two adjacent angles $A$ and $B$ of a quadrilateral $ABCD$ intersect each other at a point $P$. Which one of the following is correct ?
(a) $2\angle APB = \angle C + \angle D$
(b) $\angle APB = \angle C + \angle D$
(c) $\angle APB = 180° - (\angle C + \angle B)$
(d) $\angle APB = 180° - (\angle C + \angle D)$

**13.** If $\frac{3}{x+y}+\frac{2}{x-y}=2$ and $\frac{9}{x+y}-\frac{4}{x-y}=1$, then what is the value of $\frac{x}{y}$?

(a) $\frac{3}{2}$ (b) 5

(c) $\frac{2}{3}$ (d) $\frac{1}{5}$

**14.** The mean of 100 values is 45. If 15 is added to each of the first forty values and 5 is subtracted from each of the remaining sixty values, the new mean becomes

(a) 45 (b) 48

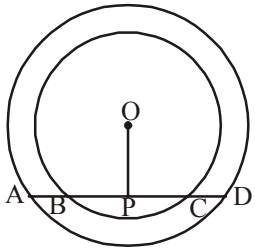
(c) 51 (d) 55

**15.** The sum of the square of a number and the square of the reciprocal of the number, is thrice the difference of the square of the number and the square of the reciprocal of the number. What is the number?

(a) 1 (b) $2^{1/4}$

(c) $3^{1/3}$ (d) $4^{1/4}$

**16.**




In the figure given above, *AD* is a straight line, *OP* perpendicular to *AD* and *O* is the centre of both circles. If *OA* = 20 cm, *OB* = 15 cm and *OP* = 12 cm, then what is *AB* equal to ?

(a) 7 cm (b) 8 cm

(c) 10 cm (d) 12 cm

**17.** Which one of the following is correct?

(a) $-\frac{7}{10}<-\frac{2}{3}<-\frac{5}{8}$

(b) $-\frac{5}{8}<-\frac{2}{3}<-\frac{7}{10}$

(c) $-\frac{5}{8}<-\frac{7}{10}<-\frac{2}{3}$

(d) $-\frac{7}{10}<-\frac{5}{8}<-\frac{2}{3}$

**18.** If $\tan\theta=1$, then find the value of $\frac{8\sin\theta+5\sin\theta}{\sin^3\theta-2\cos^3\theta+7\cos\theta}$

(a) 2 (b) $2\frac{1}{2}$

(c) 3 (d) $\frac{4}{5}$

**19.** If θ be a positive acute angle satisfying $\cos^2\theta+\cos^4\theta=1$, then the value of $\tan^2\theta+\tan^4\theta$ is

(a) $\frac{3}{2}$ (b) 1

(c) $\frac{1}{2}$ (d) 0

**20.** If $\tan 15^\circ=2-\sqrt{3}$, the value of $\tan 15^\circ.\cot 75^\circ+\tan 75^\circ.\cot 15^\circ$ is.

(a) 14 (b) 12

(c) 10 (d) 8

**DIRECTIONS (Q. 21-23):** *Study the following table carefully and answer the questions given below.*

**Percentage distribution of students in various disciplines in five different colleges**

| Discipline → / Colleges ↓ | Arts | Commerce | Science | Total number of students |
|---|---|---|---|---|
| A | 25 | 35 | 40 | 17500 |
| B | 15 | 45 | 40 | 25000 |
| C | 15 | 30 | 55 | 35300 |
| D | 28 | 48 | 24 | 23000 |
| E | 29 | 30 | 41 | 32400 |

**21.** What is the average number of students from the discipline of Commerce from all the colleges together?

(a) 9745 (b) 9735

(c) 9720 (d) 9750

**22.** Which college has the least number of students from the discipline of Science?

(a) A (b) C

(c) E (d) D

**23.** What is the difference between the total number of students from the discipline of Arts from all the colleges together and the total number of students from the discipline of Science from all the colleges together?

(a) 22874 (b) 23863

(c) 22963 (d) 25963

**24.** If the number of square centimetres on the surface area of a sphere is three times the number of cubic centimetres in its volume, then what is its diameter?
(a) 1 cm (b) 2 cm
(c) 3 cm (d) 6 cm

**25.** For a plot of land of 100 m × 80 m, the length to be raised by spreading the earth from stack of a rectangular base 10 m × 8 m and vertical section being a trapezium of height 2 m. The top of the stack is 8 m × 5 m. How many centimeters can the level raised?
(a) 3 cm (b) 2.5 m
(c) 2 cm (d) 1.5 cm

**26.** If $17^{200}$ is divided by 18, the remainder is :
(a) 17 (b) 16
(c) 1 (d) 2

**27.** $\sqrt{86.49}$ $\sqrt{5}$ $(?)^2$ 12.3.
(a) $-2$ (b) 2
(c) $\sqrt{14}$ (d) $\sqrt{2}$

**28.** Find the greatest number of six digits which, number being divided by 6, 8, 9 and 10, leaves 4, 5, 6, 7 and 8 as remainder respectively.
(a) 997918 (b) 997919
(c) 997914 (d) 997916

**29.** The total of the ages of a class of 75 girls is 1050, the average age of 25 of them is 12 yrs and that of another 25 is 16 yr. Find the average age of the remaining girls.
(a) 12 yrs (b) 13 yrs
(c) 14 yrs (d) 15 yrs

**30.** A dealer sold a mixer for ₹ 420 at a loss of 12.5%. At what price should he have sold it to gain 12.5%.
(a) ₹ 620 (b) ₹ 540
(c) ₹ 650 (d) ₹ 750

**31.** A and B rent a pasture for 10 months. A puts in 100 cows for 8 months. How many cows can B put in for the remaining 2 months, if he pays half as much as A?
(a) 300 (b) 600
(c) 800 (d) 1000

**32.** A and B can finish a work in 10 days while B and C can do it in 18 days. A started the work, worked for 5 days, then B worked for 10 days and the remaining work was finished by C in 15 days. In how many days could C alone have finished the whole work ?
(a) 30 days (b) 15 days
(c) 45 days (d) 24 days

**33.** A man walks half of the journey at 4 km/h by cycle does one third of journey at 12 km/h and rides the remainder journey in a horse cart at 9 km/h, thus completing the whole journey in 6 hours and 12 minutes. The length of the journey is
(a) 36 km (b) $\frac{1332}{67}$ km
(c) 40 km (d) 28 km

**34.** The ratio between the length and the breadth of a rectangular park is 3 : 2. If a man cycling along the boundary of the park at the speed of 12km / hr completes one round in 8 minutes, then the area of the park (in sq. m) is:
(a) 15360 (b) 153600
(c) 30720 (d) 307200

**35.** John sold a fan at a loss of 7%. If he had sold it for Rs 48 more, he would have gained 5%. Find the cost price of the fan.
(a) ₹ 350 (b) ₹ 480
(c) ₹ 240 (d) ₹ 400

**36.** Pipes A and B can fill a tank in 5 and 6 hours respectively. Pipe C can empty it in 12 hours. If all the three pipes are opened together, then the tank will be filled in :
(a) $1\frac{13}{17}$ hours (b) $2\frac{8}{11}$ hours
(c) $3\frac{9}{17}$ hours (d) $4\frac{1}{2}$ hours

**37.** The jogging track in a sports complex is 726 metres in circumference. Pradeep and his wife start from the same point and walk in opposite directions at 4.5 km/h and 3.75 km/h, respectively. They will meet for the first time in :
(a) 5.5 min (b) 6.0 min
(c) 5.28 min (d) 4.9 min

**38.** If $\frac{2a \quad b}{a \quad 4b} \quad 3$, then find the value of $\frac{a \quad b}{a \quad 2b}$ ?
(a) $\frac{2}{7}$ (b) $\frac{5}{9}$
(c) $\frac{10}{7}$ (d) $\frac{10}{9}$

**39.** If $x - \frac{1}{x} = 5$, then $x^2 + \frac{1}{x^2}$ is :

(a) 5 (b) 25
(c) 27 (d) 23

**40.** If $P \sin\theta = \sqrt{3}$ and $P \cos\theta = 1$, then the value of P is

(a) $\frac{2}{\sqrt{3}}$ (b) $\frac{-1}{\sqrt{3}}$
(c) 2 (d) $\frac{1}{2}$

## GENERAL INTELLIGENCE & REASONING

**DIRECTIONS (Qs. 41-42) :** *In questions, select the related word letters numbers from the given alternatives.*

**41.** PETAL : FLOWER

(a) salt : pepper (b) tire : bicycle
(c) base : ball (d) sandals : shoes

**42.** 8 : 28 :: 27 : ?

(a) 28 (b) 8
(c) 64 (d) 65

**DIRECTIONS (Qs. 43-44) :** *In questions, find the odd word/letters/numbers from the given alternatives.*

**43.** (a) FIK (b) DGI
(c) MPR (d) KND

**44.** (a) Google (b) Firefox
(c) Internet Explorer (d) Chrome

**DIRECTIONS (Qs. 45-46) :** *Complete the given series.*

**45.** LXF, MTJ, NPN, OLR, ?

(a) PHV (b) PIU
(c) PKX (d) PJW

**46.** 5, 16, 51, 158, ..... ?

(a) 1452 (b) 483
(c) 481 (d) 1454

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

a_bbc_aab_cca_bbcc

(a) bacb (b) acba
(c) caba (d) abba

**48.** In the following question, a group of letters is given which are numbered 1, 2, 3, 4, 5 and 6. Below are given four alternatives containing combinations of these numbers. Select that combination of numbers so that letters arranged accordingly, form a meaningful wor(d)

**C E L S M U**
**1 2 3 4 5 6**

(a) 4, 6, 3, 5, 2, 1 (b) 5, 6, 4, 1, 3, 2
(c) 4, 6, 5, 2, 3, 1 (d) 5, 2, 3, 1, 6, 4

**49.** If in a code language, COULD is written as BNTKC and MARGIN is written as LZQFHM, how will MOULDING be written in that code ?

(a) CHMFINTK (b) LNKTCHMF
(c) LNTKCHMF (d) NITKHCMF

**50.** If FRIEND is coded as HUMJTK, how is CANDLE written in that code ?

(a) EDRIRL (b) DCQHQK
(c) ESJFME (d) FYOBOC

**51.** From the given alternatives select the word which cannot be formed using the letters of the given word :

INFLATIONARY

(a) FLAIR (b) FAULTY
(c) NATIONAL (d) RATION

**52.** Rahim and his uncle differ in their ages by 30 years. After 7 years, if the sum of their ages is 66, what will be the age of the uncle ?

(a) 39 (b) 41 (c) 51 (d) 49

**53.** A cyclist goes 30 km to North and then turning East he goes 40 km. Again he turns to his right and goes 20 km. After this, he turns to his right and goes 40 km. How far is he from his starting point ?

(a) 25km (b) 40km (c) 6km (d) 10km

**54.** If the positions of the first and the sixth digits of the group of digits 5904627813 are interchanged, similarly, the positions of the second and the seventh are interchanged, and so on, which of the following will be the fourth from the right end after the rearrangement?

(a) 4 (b) 9 (c) 1 (d) 0

**55.** Arrange the words given below in a meaningful order.

1. Protect 2. Pressure
3. Relief 4. Rain
5. Flood

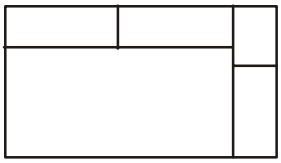
(a) 2, 4, 3, 1, 5 (b) 2, 5, 4, 1, 3
(c) 2, 4, 5, 1, 3 (d) 3, 2, 4, 5, 1

**56.** A man said to lady, "Your mother's husband's sister is my aunt." How is the lady related to the man?
(a) Daughter (b) Grand daughter
(c) Mother (d) Sister

**DIRECTION:** In question no. 57 one statement is given followed by some conclusions. You have to consider the statements to be true even if they seems to be at variance from commonly known facts. You are to decide which of the given conclusion, if any, follow from the given statements.

**57.** Statements :
Students are influenced more by their teachers.
Conclusions :
I. Students consider their teachers as their role models.
II. Much time of students is spent at school.
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Both conclusions I and II follows
(d) Neither conclusion I nor II follows

**58.** How many rectangles are there in the question figure ?
**Question figure :**



(a) 6 (b) 7
(c) 8 (d) 9

**59.** Find out the two signs to be interchanged for making following equation correct.
$5 + 3 \times 8 - 12 \div 4 = 3$
(a) + and – (b) – and ÷
(c) + and × (d) + and ÷

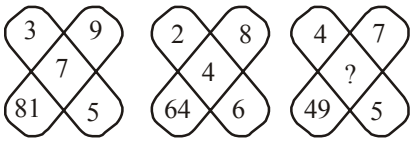
**DIRECTIONS (Qs. 60-61) :** *In questions below, select the missing number from the given responses.*

**60.**

| | | |
|---|---|---|
| 7 | 9 | 8 |
| 2 | 4 | 3 |
| 5 | 7 | 6 |
| 16 | 32 | ? |

(a) 17 (b) 23
(c) 47 (d) 73

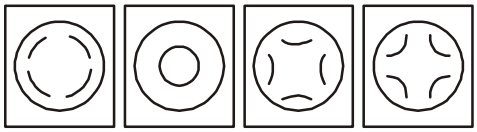
**61.**




(a) 1 (b) 8
(c) 6 (d) 16

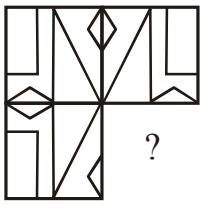
**62.** A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opene(d)
**Question figures :**

**Answer figures :**



(a) (b) (c) (d)

**63.** Complete the given figure.

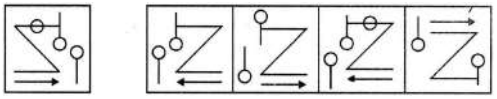



(a)  (b) 

(c)  (d) 

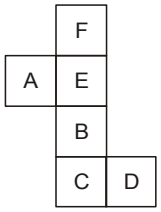
**DIRECTION (Q. 64) :** *In the following question, choose the correct mirror-image of the Fig. (X) from amongst the four alternatives (a), (b), (c) and (d) given along with it.*

**64.**

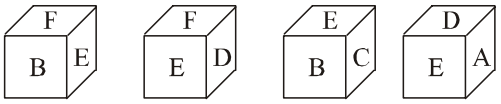


(X) (a) (b) (c) (d)

**65.** Select from the alternative, the box that can be formed by folding the sheet shown in figure (X) :




(X)




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

(a) A only (b) B only
(c) A and C only (d) A, B, C and D

**66.** Veena walked 5m towards north, took a left turn and walked 7 m. She took a left turn again and walked 8m before taking a left turn and walking 7 m. She then took a final left turn and walked 1 m before stopping. How far is Veena from the starting point ?

(a) 3m (b) 6m
(c) 4m (d) 2m

**67.** In a certain code IDEAS is written as HEDBR and WOULD is written as VPTM(c) How will RIGHT be written in the same code ?

(a) QJHIS (b) QJFGS
(c) SHHGU (d) QJFIS

**DIRECTIONS (Qs. 68-70):** *Study the given information carefully and answer the given questions.*

Eight people - J, K, L, M, N, O, P and Q are sitting around a circular table facing the centre, not necessarily in the same order. O is sitting third to the right of M. There is only one person sitting between M and J. There are only three people between J and K. P is an immediate neighbour of J. There are only three people between P and L. N is second to the right of P.

**68.** Which of the following is **true** regarding the given arrangement?

(a) M is an immediate neighbour of K
(b) N is an immediate neighbour of J
(c) P is second to the left of O
(d) There are four people between N and O.

**69.** Who is sitting second to the left of the one who is sitting second to the left of Q?

(a) M (b) K
(c) N (d) L

**70.** 'Four of the following five are alike in a certain way based on their seating positions in the above arrangement and so form a group. Which one does **not** belong to the group?

(a) PQ (b) KL
(c) MN (d) KO

**DIRECTIONS (Qs. 71-73) :** *Study the following arrangement carefully and answer the questions given below :*

B U B D C E D B D E U B **A D C B E**
A C D A E B A U A C D B C A C

**71.** How many such pairs of alphabets are there in the series of alphabets given in BOLD (A to E) in the above arrangement each of which has as many letters between them (in both forward and backward directions) as they have between them in the English alphabetical series ?

(a) None (b) One
(c) Two (d) More than three

**72.** Which of the following is the eighth to the left of the twentieth from the left end of the above arrangement ?

(a) C (b) E
(c) U (d) B

**73.** How many meaningful words can be formed with the alphabets which are first, second, fifth and sixth from the left end of the above arrangement ?

(a) None (b) One
(c) Two (d) Three

**74.** In a certain code GRANT is written as UOBSH and PRIDE is written as FEJSQ, How is SOLD written in that code?

(a) EPMT (b) TPME
(c) EMPT (d) CKNR

**75.** Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
(a) 19 (b) 17
(c) 13 (d) 27

**76.** How many meaningful English words can be made with the second, the fourth, the sixth and the seventh letters of the word STUMBLE using each letter only once in each word?
(a) None (b) One
(c) Two (d) Three

**77.** What should come in place of the question mark (?) in the following letter series based on the English alphabetical order?
BE GJ LO QT ?
(a) UX (b) VY
(c) SV (d) RU

**78.** How many such pairs of letters are there in the word GOVERNMENT each of which has as many letters between them in the word (in both forward and backward directions) as in the English alphabet?
(a) None (b) One
(c) Two (d) More than three

**79.** Four of the following five are alike in a certain way and hence from a group. Which of the following **does not** belong to that group ?
(a) Walk (b) Cry
(c) Play (d) Alive

**80** How many such pairs of letters are there in the word 'VIRTUAL', each of which has as many letters between them in the word (in both forward and backward direction) as they have between them in the English alphabetical series ?
(a) None (b) One
(c) Two (d) Three

## GENERAL AWARENESS

**81.** The Four Varnas are described in which Mandal of Rigveda?
(a) First Mandal (b) Third Mandal
(c) Tenth Mandal (d) Ninth Mandal

**82.** The Chief of State Election Commission is appointed by –
(a) The President
(b) The Governor
(c) The committee of elected members of State Legislative Assembly
(d) Election Commission of India

**83.** Which of the following is not an algae?
(a) Blue Algae (b) Green Algae
(c) Red Algae (d) Brown Algae

**84.** 'Defence Expenditure' forms part of which of the component of Union Budget?
(a) Plan Revenue Expenditure
(b) Non-Plan Revenue Expenditure
(c) Plan Capital Expenditure
(d) None of these

**85.** Any session of State Legislature is prorogated by –
(a) Presiding officer of the house
(b) The Chief Minister of the State
(c) The Governor
(d) None of the above

**86.** The 'official reserve transactions' are seen as which items in Balance of Payment?
(a) Autonomous (b) Accommodating
(c) Above the line (d) None of these

**87.** Where "Hathigumpha" inscription of Kharwel is located?
(a) Uttar Pradesh (b) Bihar
(c) Bengal (d) Odisha

**88.** The right to 'equality before the law' contained in Article 14 of the Constitution of India is available to —
(a) natural persons only
(b) legal persons only
(c) citizens of India
(d) all persons whether natural or legal

**89.** The purpose of an Adjournment Motion is to —
(a) Propose a reduction in the budget
(b) Seek the approval of the House on a proposal
(c) Draw the attention of the House to a matter of urgent public importance
(d) Seek the permission of the House to introduce a Government Bill

**90.** The book 'The man who Divided India' was written by —
(a) Maulana Abul Kalam Azad
(b) Dr. Rajendra Prasad
(c) Rafiq Zakaria
(d) None of these

**91.** The capital of Emperor Kanishka was situated in which city of modern Pakistan?
(a) Lahore (b) Karachi
(c) Peshawar (d) Rawalpindi

**92.** Name the Viceroy who was killed in Andaman & Nicobar Island?
(a) Lord Mayo (b) Lord Elgin
(c) Lord Hastings (d) Lord Dalhousie

**93.** What is erythroblastosis fetalis?
(a) It is Haemolytic disease of the fetus and newborn.
(b) It is a type of Leukemia in the new born.
(c) It happens typically when father is $Rh^{-}$ve and mother is $Rh^{+}$ve.
(d) It is seen only in human beings.

**94.** 'Effective Revenue Deficit' refers to –
(a) Revenue Deficit-Grants from Centre to State for capital asset generation
(b) Revenue Deficit-Expenditure on capital generation from the Centres grant to State
(c) Revenue Deficit-Net interest liability
(d) Fiscal Deficit-Grants to state for capital asset generation

**95.** 'Red Ink' is prepared from –
(a) Phenol (b) Aniline
(c) Congo red (d) Eosin

**96.** When did India become a member of the International Monetary Fund?
(a) 1952 (b) 1950
(c) 1947 (d) 1945

**97.** Which one is not micro nutrient?
(a) Iron (b) Zinc
(c) Sulphur (d) Manganese

**98.** An air bubble inside water behave as an:
(a) bifocal lens / (b) convergent lens /
(c) divergent lens / (d) cylindrical lens

**99.** ICAO stands for
(a) International Civil Aviation Organization
(b) Indian Corporation of Agriculture Organization
(c) Institute of Company of Accounts Organization
(d) None of the above

**100.** At which of the following places is the College of Defence Management located?
(a) Dehradun (b) Pune
(c) Secunderabad (d) Chennai

**101.** "Hopman cup" is related to which sports?
(a) Football (b) Lawn Tennis
(c) Badminton (d) Cricket

**102.** Which of the following memories is an optical memory?
(a) Floppy Disk (b) Bubble Memories
(c) CD-ROM (d) Core Memories

**103.** Which among the following blood protein regulates the amount of water in plasma?
(a) Globulin (b) Albumin
(c) Fibrin (d) Fibulin

**104.** Who headed the 7th Pay Commission whose recommendations were approved by the Union Cabinet?
(a) Vivek Rae (b) Ratin Roy
(c) Meena Agarwal (d) AK Mathur

**105.** This Central Asian city hosted the 2016 Shanghai Cooperation Organisation Summit.
(a) Tashkent (b) Astana
(c) Bishkek (d) Dushanbe

**106.** Which of these keys is not on the number keypad?
(a) Ctrl (b) Delete
(c) Enter (d) Num Lock

**107.** A program that converts a high-level language source file into a machine-language file is called a .....
(a) translator (b) assembler
(c) compiler (d) linker

**108.** A CD - ROM disk
(a) cannot be erased and rewritten
(b) has more storage capacity than a CD-R
(c) holds less data than a floppy disk
(d) can be written to only once

**109.** The smallest unit of information, a computer can understand and process is known as a .....
(a) digit (b) kilobyte
(c) bit (d) byte

**110.** For creating a document, you use ..... command at File Menu.
(a) Open (b) Close
(c) New (d) Save

**111.** The famous national song 'Vande Mataram' was written by
(a) Bankim Chandra Chatterji
(b) Rabindrantha Tagore
(c) Kamala Das
(d) Sarojini Naidu

**112.** Viruses are made up of
(a) Protein and lipids
(b) Nucleic and protein
(c) Lipids and carbohydrate
(d) Carbohydrate and Nucleic acid

**113.** Light year is the unit of
(a) Frequency (b) Distance
(c) Energy (d) Time

**114.** The first telegraph line between Calcutta and Agra was opened in
(a) 1852 (b) 1853
(c) 1854 (d) 1855

**115.** Which of the following physical quantities has no dimension?
(a) Force (b) Momentum
(c) Impulse (d) Angle

**116.** Which state government has launched an emergency police service system in the state for 24 hours public safety?
(a) Madhya Pradesh (b) Rajasthan
(c) Uttar Pradesh (d) Haryana

**117.** Who has been awarded the 2016 Tata Literature Live! Lifetime Achievement Award?
(a) Anil K Gupta
(b) Amitav Ghosh
(c) Siddhartha Mukherjee
(d) Srinath Raghavan

**118.** Which player bagged the super series title in the china open badminton tournament 2016?
(a) PV Sindhu
(b) Parupalli Kashyap
(c) Jwala Gutta
(d) Saina Nehwal

**119.** Which state has emerged as hub of drug manufacturing?
(a) Jammu & Kashmir (b) Goa
(c) Himachal Pradesh (d) Kerala

**120.** Who has won Gold Medal in men's Trap event in National Shooting Championship?
(a) Ronjan Sodh
(b) Abhinav Bindra
(c) Rajyavardhan Singh Rathore
(d) Manavjit Singh Sandhu

# Hints & Explanations

1. (c) LCM of 3 and 5 = 15
Number divisible by 15 are 15, 30, 45 .....300.
Let total numbers are n
$300 = 15 + (n-1) \times 15$
$300 = 15 + 15n - 15$
$\Rightarrow n = 20$

2. (b) $3 \div \left[ 8 - 5 \div \left\{ (4-2) \div \left( 2 \quad \frac{8}{13} \right) \right\} \right]$

$\Rightarrow 3 \div \left[ 3 \div \left( 2 \div \frac{34}{13} \right) \right]$

$\Rightarrow 3 \div \left[ 3 \div \left( 2 \times \frac{13}{34} \right) \right]$

$\Rightarrow 3 \div \left[ \frac{3 \times 34}{13 \times 2} \right]$

$\Rightarrow \frac{3 \times 13 \times 2}{3 \times 34} \quad \frac{13}{17}$

3. (a) First S.P. $= \frac{46000 \times 88}{100} = ₹\ 40480$

Second S.P. $= \frac{40480 \times 112}{100} = ₹\ 45337.6$

$\therefore$ Loss $= ₹(46000 - 45337.6) = ₹\ 662.4$

4. (d) Total amount spent

$= \left( \frac{591}{3} + \frac{45}{60} \times 780 \right)$ paise

$= (197 + 585)$ paise

$= 782$ paise $= ₹\ 7.82$

5. (c) (a)mount received by R $= ₹\ 7x$
(a)mount received by Q $= ₹\ 5x$
So difference $= 7x - 5x$
$7x - 5x = 4000$
$\therefore x = 2000$
(a)mount received by
P $= 2000 \times 3 = ₹ 6000$
Q $= 2000 \times 5 = ₹ 10{,}000$
Total amount $= 6{,}000 \times 10{,}000 = 16{,}000$

6. (b) Relative speed of two trains

$= \frac{180 \quad 270}{10.8} \frac{\text{m}}{\text{s}} \quad \frac{4500}{108} \frac{\text{m}}{\text{s}}$

$= \frac{4500}{108} \times \frac{18}{5} \frac{\text{km}}{\text{h}} \quad 150$ km/hr

Speed of second train $= 150 - 60 = 90$ km/h.

7. (c) $300000 \left[ 1 \quad \frac{20}{100} \right]^{t} \quad 746496$

$\therefore \left[ \frac{6}{5} \right]^{t} \quad \frac{746496}{300000} \quad \frac{7776}{3135} \quad \left( \frac{6}{5} \right)^{5}$

$t = 5$

8. (d) Shyam alone worked for 10 days. So work done by him $= \frac{10}{40} \quad \frac{1}{4}$

$\therefore$ (Ravi + Shyam) have done

$1 - \frac{1}{4} \quad \frac{3}{4}$ of the work.

(Ravi + Shyam) do $\frac{3}{4}$ of the work in

$24 \times \frac{3}{4} \quad 18$ days

9. (c) Let the number be $x$
(a)ccording to question 20% of $x$ = 30% of 40

$\Rightarrow \quad \frac{x \times 20}{100} \quad \frac{40 \times 30}{100}$

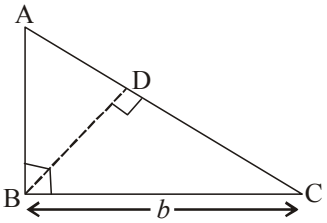
$\Rightarrow \quad x \quad \frac{40 \times 30}{20} \quad 60$

10. (c) The smallest angle of the triangle is half of the largest angle.
$\therefore$ Ratio of the three angle = 4 : 3 : 2
$\therefore 4x + 3x + 2x = 180°$
$\therefore 9x = 180°$
$\therefore x = 20°$
$\therefore$ required difference $= 4x - 2x$
$= 2x = 2 \times 20° = 40°$

11. (a) (a)rea of $\Delta$ *(a)(b)(c), (a)*

$= \frac{1}{2} \times b \times AB$

$$(a)(b) = \frac{2A}{b} \quad \text{... (i)}$$




(b)y Phthagoras theorem, $(a)(^{c})^2 = (a)(^{b})^2 + (b)(^{c})^2$

$$(a)(c) = \sqrt{\frac{4A^2}{b^2} \quad b^2}$$

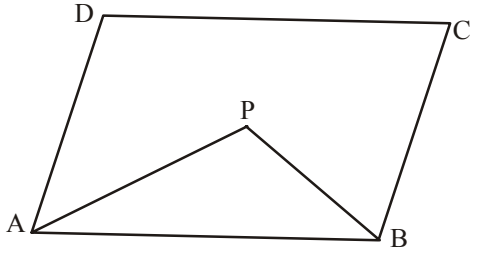
(a)gain in $\Delta$ $(a)(b)(c)$

$$(a) = \frac{1}{2} \times AC \times BD$$

$$(b)D = \frac{2A}{\sqrt{\frac{4A^2}{b^2} \quad \frac{b^2}{1}}} \quad \frac{2A}{\sqrt{\frac{4A^2 \quad b^4}{b^2}}}$$

$$= \frac{2Ab}{\sqrt{4A^2 \quad b^4}}$$

12. (a) *(a)* quadrilateral *ABCD*, *AP* and *BP* are bisectors of $\angle(A)$ and $\angle(B)$, respectively.




$$\therefore \quad \angle APB = 180° - \left(\frac{1}{2}\angle A + \frac{1}{2}\angle B\right)$$

We know that sum of all angles of a quadrilateral
$= 360°$

$$\Rightarrow \quad \angle(A) + \angle(B) + \angle(C) + \angle D = 360°$$

$$\therefore \quad \frac{1}{2}\angle A + \frac{1}{2}\angle B + \frac{1}{2}\angle C + \frac{1}{2}\angle D \quad \frac{360}{2}$$

$$\Rightarrow \quad \frac{1}{2}\angle C + \frac{1}{2}\angle D \quad 180 - \left(\frac{1}{2}\angle A \quad \frac{1}{2}B\right)$$

$$\Rightarrow \quad \frac{1}{2}(\angle C + \angle D) = \angle APB \qquad \text{[from eq. (i)]}$$

$$\Rightarrow \quad \angle(c) + \angle D = 2\angle APB$$

13. (b) Given,

$$\frac{3}{x+y} + \frac{2}{x-y} = 2 \quad \text{... (i)}$$

and $$\frac{9}{x+y} - \frac{4}{x-y} = 1 \quad \text{... (ii)}$$

Let $\frac{1}{x+y} = a$ and $\frac{1}{x-y} = b$

$\therefore$ $3a + 2b = 2$ ... (iii)
$9a - 4b = 1$ ... (iv)

On multiplying equation (iii) by 2 and addition of equation (iv) and new one, then we get

$6a + 4b = 4$
$9a - 4b = 1$
$15a \quad = 5$

$$\Rightarrow \quad a = \frac{5}{15} = \frac{1}{3}$$

$$\therefore \quad \frac{1}{x+y} = \frac{1}{3}$$

$$\Rightarrow \quad x + y = 3 \quad \text{... (v)}$$

On putting the value of (a) in equation (iii), we get

$$3 \times \frac{1}{3} + 2b = 2$$

$$\Rightarrow \quad 2b = 2 - 1 = 1$$

$$\Rightarrow \quad b = \frac{1}{2} \Rightarrow \frac{1}{x-y} = \frac{1}{2}$$

$$\Rightarrow \quad x - y = 2 \text{... (vi)}$$

$\therefore$ $x + y = 3$
$x - y = 2$
$2x \quad = 5$

$\Rightarrow \quad x = \frac{5}{2}$

From equation (v),

$y = 3 - \frac{5}{2} = \frac{1}{2}$

$\therefore \quad \frac{x}{y} = \frac{\frac{5}{2}}{\frac{1}{2}} = 5$

14. (b) Given that, mean of 100 values is 45

$\therefore$ Sum of 100 values, i.e. $\sum_{i=1}^{100} x = 45 \times 100$

$= 4500$

(a)ccording to condition,

$$\sum_{i=1}^{40} (x_i + 15) + \sum_{i=41}^{100} (x_i - 5)$$

$$= \sum_{i=1}^{40} x_i + 15 \times 40 + \sum_{i=41}^{100} x_i - 5 \times 60$$

$$= \left( \sum_{i=1}^{40} x_i + \sum_{i=41}^{100} x_i \right) + 600 - 300$$

$$= \sum_{i=1}^{100} x_i + 300$$

$= 4500 + 300 = 4800$ [from equation (i)]

$\therefore$ New mean $= \frac{4800}{100} = 48$

15. (b) Let number be $x$, then its reciprocal be $\frac{1}{x}$.

(a)ccording to question,

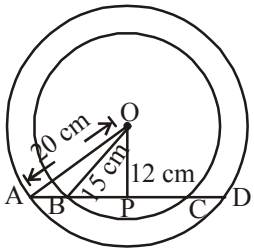
$x^2 \quad \frac{1}{x^2} \quad 3\left(x^2 - \frac{1}{x^2}\right)$

$\therefore \; x^2 \quad \frac{1}{x^2} \quad 3x^2 - \frac{3}{x^2} \quad \Rightarrow \quad 2x^2 \quad \frac{4}{x^2}$

$\Rightarrow \qquad x^4 = 2 \quad \Rightarrow \quad x \quad 2^{1/4}$

16. (a) Given O(a) $= 20$ cm

O(b) $= 15$ cm and OP $= 12$ cm




(a)P $= \sqrt{AO^2 - OP^2}$

$= \sqrt{20^2 - 12^2}$

$= \sqrt{400 - 144}$

$= \sqrt{256} = 16$ cm

(b)P $= \sqrt{15^2 - 12^2}$

$= \sqrt{225 - 144} = \sqrt{81} = 9$ cm

$\therefore$ (a)(b) = (a)P – (b)P = 16 – 9 = 7 cm

17. (a) By option (a),

$\frac{-7}{10} \quad \frac{-2}{3} \quad \frac{-5}{8}$

Here LCM of (3, 8, 10) = 120

$\frac{-7}{10} \times 120 < \frac{-2}{3} \times 120 < \frac{-5}{8} \times 120$

$-84 < -80 < -75$

So this is correct.

18. (a) $\tan\theta = 1$

$\sec\theta \quad \sqrt{1 \quad \tan^2\theta} = \sqrt{1 \quad 1} = \sqrt{2}$

$\cos\theta \quad \frac{1}{\sqrt{2}}$

$\sin\theta = \sqrt{1 - \cos^2\theta}$

$= \sqrt{1 - \left(\frac{1}{\sqrt{2}}\right)^2} \quad \frac{1}{\sqrt{2}}$

Now, $\frac{8\sin\theta + 5\sin\theta}{\sin^3\theta - 2\cos^3\theta + 7\cos\theta}$

$$= \frac{8\times\frac{1}{\sqrt{2}}+5\times\frac{1}{\sqrt{2}}}{\left(\frac{1}{\sqrt{2}}\right)^3-2\times\left(\frac{1}{\sqrt{2}}\right)^3+7\times\frac{1}{\sqrt{2}}}$$

$$= \frac{\frac{8\quad 5}{\sqrt{2}}}{\frac{1}{2\sqrt{2}}-\frac{2}{2\sqrt{2}}\quad\frac{7}{\sqrt{2}}} = \frac{\frac{(8\quad 5)}{\sqrt{2}}}{\frac{1-2\quad 14}{2\sqrt{2}}}$$

$$= \frac{13\times 2}{13}\quad 2$$

19. (b) Given, $\cos^2\theta + \cos^4\theta = 1$

or, $\cos^4\theta = 1 - \cos^2\theta$

$[\because \sin^2\theta + \cos^2\theta = 1]$

$\cos^4\theta = \sin^2\theta.$

or, $1 = \frac{\sin^2\theta}{\cos^2\theta}.\frac{1}{\cos^2\theta}$

$\Rightarrow \tan^2\theta.\sec^2\theta = 1$

or, $\tan^2\theta.(1+\tan^2\theta) = 1$

$[\because \sec^2\theta - \tan^2\theta = 1]$

or, $\boxed{\tan^2\theta + \tan^4\theta \quad 1}$

20. (a) $\tan 15^\circ . \cot 75^\circ + \tan 75^\circ . \cot 15^\circ$

$= \tan 15 . \cot(90^\circ - 15^\circ) + \tan(90^\circ - 15^\circ)\cot 15^\circ$

$= \tan 15^\circ . \tan 15^\circ + \cot 15^\circ . \cot 15^\circ$

$= (\tan 15)^2 + (\cot 15)^2$

$= (\tan 15^\circ)^2 + \frac{1}{\tan 15^{\ 2}}$

Putting the value of $\tan 15^\circ = 2-\sqrt{3}$

$= (2-\sqrt{3})^2 \quad \left(\frac{1}{2-\sqrt{3}}\right)^2$

$= (2-\sqrt{3})^2 + \left[\frac{1}{2-\sqrt{3}}\times\frac{2\quad\sqrt{3}}{2\quad\sqrt{3}}\right]^2$

$= (2-\sqrt{3})^2 \quad \left(\frac{2\quad\sqrt{3}}{4-3}\right)^2$

$= (2-\sqrt{3})^2 \quad (2\quad\sqrt{3})^2$

$= 2\left[2^2 \quad (\sqrt{3})^2\right]$

$[\because (a+b)^2 + (a-b)^2 = 2(a^2+b^2)]$

$= 2(4+3) = 2\times 7 = 14$

21. (a) Required average number of students

$= \frac{1}{5\times 100}[35\times 17500 + 45\times 25000 + 30\times 35300 + 48\times 23000 + 30\times 32400]$

$= \frac{1}{5}[6125 + 11250 + 10590 + 11040 + 9720]$

$= \frac{1}{5}\times 48725 = 9745$

22. (d) D = 5520

23. (d) To calculate faster, instead of finding all the students of (a)rts and Science stream first and then subtracting, let's assume that in each college Science students are more and keep substracting the number of (a)rts students from the number of Science students collegewise.

Difference = (40% of 17500 – 25% of 17500) + (40% of 25000 – 15% of 25000) + (55% of 35300 – 15% of 35300) + (24% of 23000 – 28% of 23000) + (41% of 32400 – 29% of 32400)

$= (15\times 175) + (25\times 250) + (40\times 353) + (-4\times 230) + (12\times 324)$

$= 2625 + 6250 + 14120 - 920 + 3888$

$= 25963$

24. (b) (a)ccording to question

Surface area of sphere = 3 (Volume of sphere)

$\Rightarrow 4\pi r^2 = 3\times\frac{4}{3}\pi r^3 \Rightarrow r \quad 1$

$\therefore$ Diameter $= 2r = 2$ cm

25. (d) The stack is in the form having vertical cross section of trapezium.

$\therefore$ Volume of Earth in the stack = (a)rea of cross section of trapezium × Height

$\therefore$ Volume $= \frac{1}{2}\times(10+5)\times 2\times 8$

$= 15\times 8\ m^2$

(a)ccording to the question,

Volume of Earth to be spread = ((a)rea of field) × Level raised

$\therefore$ Level raised $= \frac{15\times 8}{100\times 80}\quad\frac{15}{1000}$ m

$= 1.5$ cm

26. (c) $(17)^{200} = (18-1)^{200}$

We know that

$(x+a)^n$

$= x^n + nx^{n-1}a$

$\frac{n(n-1)}{1\times 2}x^{n-2}a^2 \quad \frac{n(n-1)(n-2)}{1\times 2\times 3}x^{n-3}a^3 \quad ..... \quad a^n$

We see that all the terms on the R.H.S. except $a^n$ has x as one of its factor and hence are divisible by x. So, $(x + a)^n$ is divisible by x or not will be decided by $a^n$.
Let x = 18, a = –1 and n = 200
$\therefore (18 - 1)^{200}$ is divisible by 18 or not will depend on $(-1)^{200}$ as all other terms in its expansion will be divisible by 18 because each of them will have 18 as one of their factors.
$(-1)^{200} = 1$ ($\because$ 200 is even) 1 is not divisible by 18 and is also less than 18.
$\therefore$ 1 is the remainder.

27. (b) Let $\sqrt{86.49}$ $\sqrt{5}$ $x^2$ 12.3.
Then,
9.3 $\sqrt{5}$ $x^2$ = 12.3 $\Leftrightarrow$ $\sqrt{5}$ $x^2$ = 12.3 – 9.3 = 3
$\Leftrightarrow 5 + x^2 = 9 \Leftrightarrow x^2 = 9 - 5 = 4 \Leftrightarrow x = \sqrt{4}$ = 2.

28. (a) The LCM of 6, 7, 8 , 9 and 10 = 2520
The greatest number of 6 digits = 999999
Dividing 999999 by 2520, we get 2079 as remainder. Hence, the 6-digit number divisible by 2520, is (999999 – 2079), or 997920.
Since 6 – 4 = 2, 7 – 5 = 2, 8 – 6 = 2, 9 – 7 = 2, 10 – 8 = 2, the remainder in each case is less than the divisor by 2.
$\therefore$ the required number = 997920 – 2 = 997918

29. (c) Average age of the remaining girls.
$$= \frac{1050 - 25 \times 12 + 25 \times 16}{25}$$
$$= \frac{1050 - 300 \quad 400}{25}$$
$$= \frac{1050 - 700}{25} = 14 \text{ years}$$

30. (b) (100 – loss) : $S_1$ : : (100 + gain) : $S_2$
$\therefore$ (100 – 12.5) : 420 : : (100 + 12.5) : $S_2$
87.5 : 420 : : 112.5 : $S_2$
$\Rightarrow 87.5 \times S_2 = 420 \times 112.5$
$\Rightarrow S_2 \quad \frac{420 \times 1125}{875} \quad 540$

31. (b) Suppose B puts in x cows. The ratio of (a)'s and B's rents
$= 1 : 1 \quad \frac{1}{2} \quad 1 : \frac{3}{2} \quad 2 : 3$
Then, $\frac{100 \times 8}{x \times 2} \quad \frac{2}{3}$ or, $x = \frac{100 \times 8 \times 3}{2 \times 2} = 600$ cows.

32. (c) Let (c) completes the work in x days.
Work done by ((a) + (b)) in 1 day = $\frac{1}{10}$
Work done by ((b) +(c)) in 1 day = $\frac{1}{18}$
(a)'s 5 days' work + (b)'s 10 days' work + (c)'s 15 days' work = 1
or ((a) + (b))'s 5 days' work + ((b) + (c))'s 5 days' work
+ (c)'s 10 days' work = 1
or $\frac{5}{10} \quad \frac{5}{18} \quad \frac{10}{x} \quad 1$ or $x = 45$ days

33. (a) Let the length of the journey = x km.
$\therefore$ Journey rides by horse cart
$= x\left(1 - \frac{1}{2} - \frac{1}{3}\right) \quad \frac{1}{6}x$ km.
Then, total time taken to complete journey
$\frac{31}{5}$ hr
$\Rightarrow t_1 \quad t_2 \quad t_3 \quad \frac{31}{5}$
$\Rightarrow \frac{x}{2} \times \frac{1}{4} + \frac{x}{3} \times \frac{1}{12} \quad \frac{x}{6 \times 9} \quad \frac{31}{5}$
$\Rightarrow x = \frac{31}{5} \times \frac{216}{37} = 36.2\text{km} \approx 36\text{km}$

34. (b) Perimeter = Distance covered in 8 min.
$$= \left(\frac{12000}{60} \times 8\right) \text{m} \quad 1600 \text{ m.}$$
Let length = 3x metres and breadth = 2x metres.
Then, 2 (3x + 2x) = 1600 or x = 160.
$\therefore$ Length = 480 m and (b)readth = 320 m.
$\therefore$ (a)rea = $(480 \times 320)\ m^2 = 153600\ m^2$.

35. (d) Let C.P. = ₹ x. Then,
S.P. $= \frac{(100 - 7)}{100} \times x \quad \frac{93}{100}x$
(a)lso, $\left(\frac{93}{100}x \quad 48\right) \frac{100}{(100 \quad 5)} \quad x$
$\Rightarrow 93x + 4800 = 105x$
$\Rightarrow 12x = 4800 \Rightarrow x = \text{Rs } 400$

36. (c) Net part filled in 1 hour
$= \left(\frac{1}{5} \quad \frac{1}{6} - \frac{1}{12}\right) \quad \frac{17}{60}$.
$\therefore$ The tank will be full in $\frac{60}{17}$ hrs i.e., $3\frac{9}{17}$ hrs.

37. (c) Let the husband and the wife meet after x minutes. 4500 metres are covered by Pradeep in 60 minutes.

In x minutes, he will cover $\frac{4500}{60}$x metres.

Similarily,

In x minutes, his wife will cover $\frac{3750}{60}$x m.

Now, $\frac{4500}{60}$x $\frac{3750}{60}$x 726

$\Rightarrow$ x $\frac{726\times60}{8250}$ 5.28min

38. (d) $\frac{2a\ \ b}{a\ \ 4b}=3\Rightarrow 2a\ \ b\ \ 3(a\ \ 4b)\Rightarrow a=-11b$

$\therefore$ $\frac{a+b}{a+2b}$ $\frac{-11b+b}{-11b+2b}$ $\frac{-10b}{-9b}$ $\frac{10}{9}$

39. (c) $x-\frac{1}{x}=5$

On squaring both sides,

$x^2+\frac{1}{x^2}-2=25\ \Rightarrow x^2+\frac{1}{x^2}=27$

40. (c) $P\sin\theta=\sqrt{3}$ ...(i)

$P\cos\theta=1$ ...(ii)

From Eqs. (i) and (ii),

$\frac{P\sin\theta}{P\cos\theta}$ $\sqrt{3}$

$\Rightarrow\tan\theta=\sqrt{3}$

$\tan\theta=\tan60°$

$\therefore\theta=60°$

From Eq. (i),

$P\sin\theta=\sqrt{3}\Rightarrow P\sin60°=\sqrt{3}$

$\Rightarrow$ P.$\frac{\sqrt{3}}{2}$ $\sqrt{3}$

$\therefore$ P = 2

41. (b) (A) petal is a part of a flower; a tire is a part of a bicycle.

42. (d) First number = 8 and the sum of the digits of the second number is 2 + 8 = 10.

Thus, the difference of the first number and the sum of the digits of second number is 10 - 8 = 2.

Similarly, the sum of the digits of third number is 2 + 7 = 9.

Hence, the sum of digits of fourth number should be 2 more than 9 i.e. 11 and 6 + 5 = 11

Hence, (d) 65 is the correct option.

43. (d) First letter move 3 step forward and second letter move 2 step forward.

44. (a) Google is a search engine while others are internet browsers.

45. (a) Ist Letter:

$L\xrightarrow{1}M\xrightarrow{1}N\xrightarrow{1}O\xrightarrow{1}\boxed{P}$

2nd Letter :

$X\xrightarrow{-4}T\xrightarrow{-4}P\xrightarrow{-4}L\xrightarrow{-4}\boxed{H}$

3rd Letter :

$F\xrightarrow{4}J\xrightarrow{4}N\xrightarrow{4}R\xrightarrow{4}\boxed{V}$

46. (c) 16 = 5 × 3 + 1, 51 = 16 × 3 + 3,

158 = 51 × 3 + 5

$\therefore$ Next term = 158 × 3 + 7 = 481

47. (b) The pattern is, aabbcc/aabbcc/aabbcc.

The pattern aabbcc is repeated.

48. (b) MUS(c)LE

49. (c) Each letter in the word is moved one step backward to obtain the corresponding letter of the code.

50. (a) The first, second, third, fourth, fifth and sixth letters of th word are respectively moved two, three, four, five, six and seven steps forward to obtain the corresponding letters of the code.

51. (b) There is no 'U' in the word INFL(a)TION(a)RY.

52. (b) Let uncle's present age = $x$

Rahim's present age = $y$

$y-x=30$ ...(i)

(a)fter 7 year

$(x+7)+(y+7)=66$

$x+y+14=66$

$x+y=52$ ...(ii)

combining (i) and (ii) we get

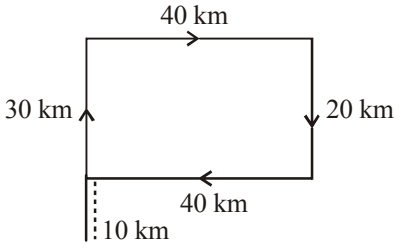
$(x+y=52)+(x-y=30)$

$2x=82$

$x=41$

Uncle's age is 41

53. (d)



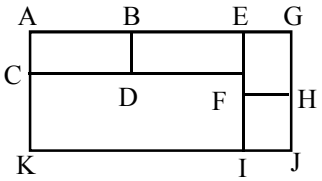
54. (b) In the original group of digits '7' is fourth from the right, which is interchanged with '9'. The new series is 2781359046. 9 will be 4th from the night end.

55. (c) The correct order is:

| Pressure | Rain | Flood | Protect | Relief |
|---|---|---|---|---|
| 2 | 4 | 5 | 1 | 3 |

56. (d) Lady's mother's husband → Lady's father
Lady's father's sister → Lady's (a)unt.
So, Lady's aunt is man's aunt and therefore lady is man's sister.

57. (a)

58. (d) 

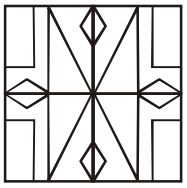
□(a)(b)(c)D, □(b)EDF, □ EGFH, □ FHIJ,
□ (a)E(c)F, □ EGJI, □ (c)FIK, □ (a)GJK, □ (a)EIK

59. (d) On interchanging – and ÷,
We get the equation as
$5 + 3 \times 8 \div 12 - 4 = 3$
or $5 + 3 \times 2/3 - 4 = 3$
or $3 = 3$, which is true

60. (b) $7 + 2^2 + 5 = 16$
$9 + 4^2 + 7 = 32$
$8 + 3^2 + 6 = (23)$

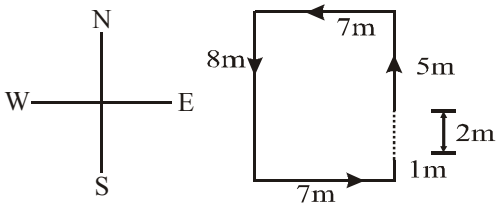
61. (c) $3 + 9 - 5 = 7$
$2 + 8 - 6 = 4$
$4 + 7 - 5 = (6)$

62. (d)

63. (c) 

64. (c)

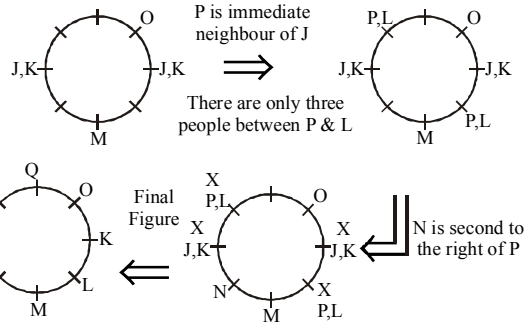
65. (b) When the sheet in fig. (X) is folded to form a cube , then 'F' appears opposite '(c)' and '(a)' appears opposite 'D'. Therefore, the cube in fig. (a) which shows 'F' adjacent to '(b)', the cube in fig.(c) which shows 'E' adjacent to '(c)' and the cube in fig. (D) which shows '(a)' adjacent to 'D' cannot be formed.

66. (d) 


67. (d)

| | | | | | |
|---|---|---|---|---|---|
| (c)oding for: | I | D | E | (a) | S |
| | –1↓ | +1↓ | –1↓ | +1↓ | –1↓ |
| | H | E | D | (b) | R |
| (c)oding for: | W | O | U | L | D |
| | –1↓ | +1↓ | –1↓ | +1↓ | –1↓ |
| | V | P | T | M | (c) |
| Similarly, | R | I | G | H | T |
| | –1↓ | +1↓ | –1↓ | +1↓ | –1↓ |
| | Q | J | F | I | S |

**(Qs. 68-70).**
Formation of fig according to information given



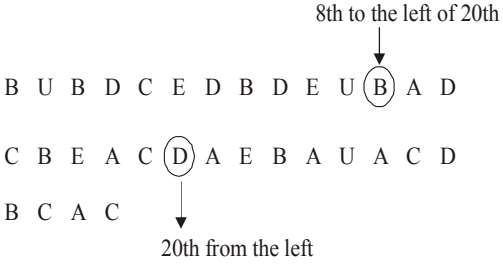

68. (b) N is immediate neighbour of J.

69. (a) 'K' is second to the left of 'Q' and 'M' is second to the left of 'K'.

70. (d) PQ, KL, MN, QO are in clockwise way and KO in anticlockwise way.

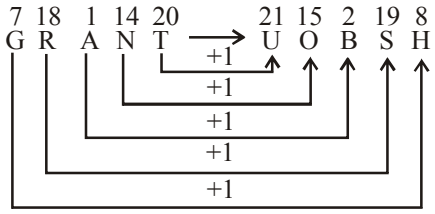
71. (d)

72. (d) The given arrangement is:

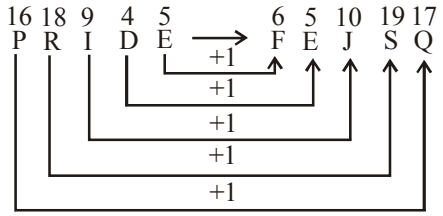


73. (b) B U C E
C U B E

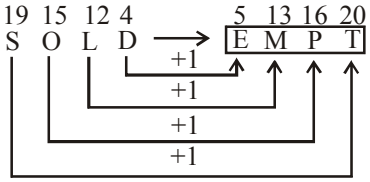
74. (c) Given that




and




Similarly,

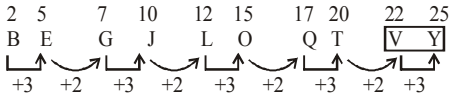



$\therefore$ SOLD $\Rightarrow$ EMPT

75. (d) (a)ll others are prime number Except 27.

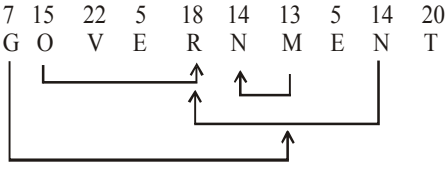
76. (b) Second, Fourth, sixth and seventh letters of word "STUM(b)LE" are T, M, L & E respectively
and meaningful word made by then letter is 'MELT'

77. (b) Given letter series:-




$\Rightarrow$ ? = V Y

78. (d) (a)ccording to question.



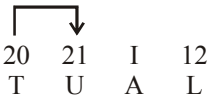

Such couple are G - M, O - R, M - N and N - R and is more than three.

**Solution : 78**

P \$ Q $\Rightarrow$ P $\geq$ Q
P @ Q $\Rightarrow$ P $\leq$ Q
P $\delta$ Q $\Rightarrow$ P > Q
P # Q $\Rightarrow$ P < Q
P % Q $\Rightarrow$ P = Qs

79. (d) (a) live is different from the other four words. Walk, (c)ry, Play and Study are various actions of human being. (a)live means 'living', 'not dead', 'in existence', 'continuing' etc.

80. (b)




81. (c) The four classes were mentioned in Purush Sukta in 10th mandal of Rigveda.

82. (b) According to the Article 243 K (1), the chief of the State Election Commission is appointed by the Governor.

83. (a) Blue-green algae or Cyanobacteria are microscopic cells that grow naturally in Australian fresh and salt waters. They are a type of bacteria, but in some ways act like plants by using sunlight to manufacture carbohydrates from carbon dioxide and water, a process known as photosynthesis. In doing so, they release oxygen. They grow in dams, rivers, creeks, reservoirs, lakes and even hot springs.

84. (b) Non- plan expenditure is largely the revenue expenditure of the government, although it also includes capital expenditure. It covers all expenditure not included in the Plan Expenditure. Non-Plan Expenditure constitutes the biggest proportion of the government's total expenditure. The biggest items of Non-Plan Expenditure are interest payments and debt servicing, defence expenditure and subsidies. For defence services, both revenue and capital expenditure are incurred.

85. (c) Any session of the state legislation is prorogated by the Governor.

86. (b)

87. (d) Hathigumpha inscription was built by Kharvel in Odisha, near Bhuvneshwar.

88. (d) The right to equality before the law contained in article 14 of the Constitution of India is available to all persons whether natural or legal.

89. (c) The adjournment motion is thus an extraordinary procedure which, if admitted, leads to setting aside the normal business of the House for discussing a definite matter of urgent public importance.
90. (c) "The Man who Divided India" was written by Rafiq Zakaria.
91. (c) Peshawar was known as Purushpur in ancient times. It was the capital of Kushana ruler Kanishka.
92. (a) Mayo came in India in 1869. He founded Mayo College in Ajmer. He was killed by an Afghan in 1872.
93. (a) Erythroblastosis fetalis is hemolytic anemia in the fetus (or neonate, as erythroblastosis neonatorum) caused by transplacental transmission of maternal antibodies to fetal RBCs. The disorder usually results from incompatibility between maternal and fetal blood groups, often Rh0(D) antigens. Diagnosis begins with prenatal maternal antigenic and antibody screening and may require paternal screening, serial measurement of maternal antibody titers, and fetal testing. Treatment may involve intrauterine fetal transfusion or neonatal exchange transfusion. Prevention is Rh0(D) immune globulin injection for women at risk.
94. (a) Effective Revenue Deficit is the difference between revenue deficit and grants for creation of capital assets. In other words, the Effective Revenue Deficit excludes those revenue expenditures which were done in the form of grants for creation of capital assets aka GoCA.
Such grants include the grants given under:
Pradhan Mantri Gram Sadak Yojana
Accelerated I rrigation Benefit Programme
Jawaharlal Nehru National Urban Renewal Mission
MGNREGA etc.
95. (d) Eosin is a dye used to prepare red ink.
96. (d) India joined the IMF on December 27, 1945, as one of the IMF's original members. India accepted the obligations of Article VIII of the IMF Articles of Agreement on current account convertibility on August 20, 1994.
97. (c)
98. (c) The air bubble will behave as a diverging lens due to its bulging curvature.
99. (a) 100. (c) 101. (b) 102. (c)
103. (b) 104. (d) 105. (a) 106. (a)
107. (c) 108. (d) 109. (c) 110. (c)
111. (a) 112. (b) 113. (b) 114. (b)
115. (d)
116. (c) Chief Minister of Uttar Pradesh, Akhilesh Yadav launched a state-wide integrated emergency service UP-100 in Lucknow on November 19, 2016. The UP-100 is the official name for Uttar Pradesh Police Emergency Management System which was previously called dial 100 project to provide emergency services relating to public safety across the state round the clock.
117. (b) Indian-American author Amitav Ghosh has been named for the 2016 Tata Literature Live! Lifetime Achievement Award in recognition of his outstanding contribution to the Indian literary space.
118. (a)
119. (c) Himachal Pradesh State Industries Minister Mukesh Agnihotri announced that Himachal Pradesh has emerged as a hub of drug manufacturing units and meets 35 % of Pharma products demands in Asia.
120. (d) Former World No.1 Trap shooting champion Manavjit Singh Sandhu clinched the gold medal in men's trap event at the 60th National Shooting Championship for Shotgun in Jaipur on Saturday.