Aakash

Medical | IIT-JEE | Foundations

(Divisions of Aakash Educational Services Pvt. Ltd.)

Regd. Office : **Aakash Tower, 8, Pusa Road, New Delhi-110005**
Ph.: 011-47623456 Fax : 011-47623472

Time : 3 Hour.

Answers & Solutions

Max. Marks : 200

for

NTSE (Stage-I) 2017-18

INSTRUCTIONS TO CANDIDATES

1. Use blue/black ball point pen only. There is no negative marking.

2. This test booklet contains 200 questions of one mark each. All the questions are compulsory.

3. Part-I : MAT : 1 - 50 questions

    Part-II : SAT : 51 - 150 questions

    Part-III : Language : 151 - 200 questions

4. Answer each question by darkening the one correct alternative among the four choices on the OMR Sheet with blue/black ball point pen.

    Example :

    Correct way :

Q. No.	Alternatives
1	① ② ● ④

    Wrong way :

Q. No.	Alternatives
1	⊗ ⊘ ③ ④

    Student must darkening the right oval only after ensuring correct answer on OMR Sheet.

5. Disparity in mentioning (SC, ST & PH) in application form and OMR Sheet can make your candidature invalid.

6. Students are not allowed to scratch/ alter/ change out an answer once marked on OMR Sheet, by using white fluid/ eraser/ blade/ tearing/ wearing or in any other form.

7. Separate Sheet has been provided for rough work in this test booklet.

8. Please handover the OMR Sheet to the invigilator before leaving the Examination Hall.

    *Take all your question booklets with you.

9. Darken completely the ovals of your answers on OMR Sheet in the time limit allotted for that particular paper.

10. Your OMR Sheet will be evaluated through electronic scanning process. Incomplete and incorrect entries may render your OMR Sheet invalid.

11. Use of electronic gadgets, calculator, mobile etc., is strictly prohibited.

PART-I : MENTAL ABILITY TEST (MAT)

1. 87, 56, 30, ...

   (1) 26　　　　　　　　(2) 20

   (3) 12　　　　　　　　(4) 0

Answer (4)

Sol. $8 \times 7 = 56$

　　$5 \times 6 = 30$

　　$3 \times 0 = 0$

2. 4, 5, 12, 39, 160, ...

   (1) 805　　　　　　　(2) 790

   (3) 695　　　　　　　(4) 225

Answer (1)

Sol. 4, 5, 12, 39, 160

　　$(4 + 1) \times 1 = 5$

　　$(5 + 1) \times 2 = 12$

　　$(12 + 1) \times 3 = 39$

　　$(39 + 1) \times 4 = 160$

　　$(160 + 1) \times 5 = 805$

3. 2, 12, 36, 80, 150, ...

   (1) 210　　　　　　　(2) 258

   (3) 252　　　　　　　(4) 194

Answer (3)

Sol.

```
2,   12   36,   80,   150,   252
  10    24    44    70    102
     14    20    26    32
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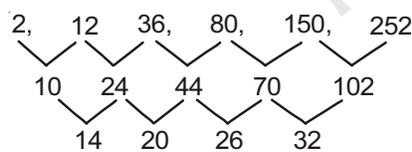
4. 124, 139, 127, 142, 130, 154, ...

   (1) 127　　　　　　　(2) 132

   (3) 133　　　　　　　(4) 149

Answer (3)

Sol.
```
124 139 127 142 130 145 133
      +3    +3    +3
```
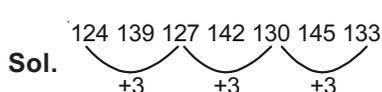
Direction Question (5-6) Find the missing term in place of question mark.

5.

38	22	69
34	23	27
28	14	?

   (1) 46　　　　　　　　(2) 29

   (3) 23　　　　　　　　(4) 99

Answer (1)

Sol. $(3 \times 8) \times (2 \times 2) = 24 \times 4 = 96$ —Reversed→ 69

　　$(3 \times 4) \times (2 \times 3) = 12 \times 6 = 72$ —Reversed→ 27

　　Similarly ans is 46

6.
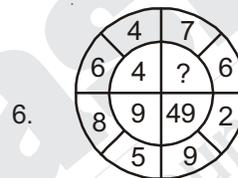
   (1) 121　　　　　　　(2) 64

   (3) 3　　　　　　　　(4) 1

Answer (4)

Sol. $(6 - 4)^2 = 4$

　　$(8 - 5)^2 = 9$

　　$(9 - 2)^2 = 49$

　　$(7 - 6)^2 = 1$

7. In a certain code language 'NAME' is written as 'OYPA' then how will 'TEAM' be coded in that language?

   (1) UCDF　　　　　　(2) UCDH

   (3) UCDN　　　　　　(4) UCDI

Answer (4)

Sol.

```
N    A    M    E       T    E    A    M
+1   -2   +3   -4      +1   -2   +3   -4
O    Y    P    A   ,   U    C    D    I
```
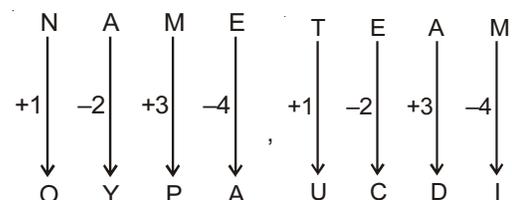
8. If MINERAL is written as QRSTUVW and SOUND is written as ABCSD, the how will READER be written in same code?

   (1) QDZCDQ   (2) SBFEFS

   (3) UTVDTU   (4) TUDVUT

Answer (3)

Sol.
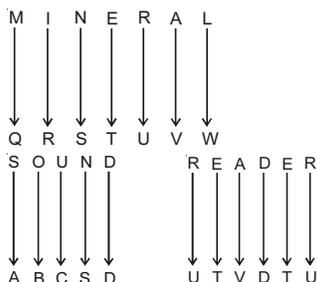
9. On 26 January, 1947 is SUNDAY, then which day on 2 September, 1947?

   (1) MONDAY   (2) TUESDAY

   (3) WEDNESDAY   (4) SUNDAY

Answer (2)

Sol. Extra days =

Jan(5) + Feb(1) + March(3) + April(2) + May(3) + June(2) + July(3) + August(3) + Sept(1) = 23

$$7\overline{)23(3}$$
$$21$$

Remainder= '2'

'2' is for Tuesday

10. What will be the angle between the minute hand and hour hand of a clock at 7:35?

   (1) $22\dfrac{1}{2}^\circ$ (2) $17\dfrac{1}{2}^\circ$

   (3) $12\dfrac{1}{2}^\circ$ (4) 0°

Answer (2)
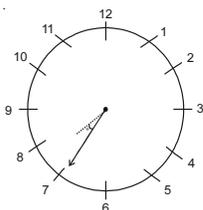
Sol. hr hand moves $\left(\dfrac{1}{2}\right)^\circ$ in 1 minute

so it will move $35 \times \left(\dfrac{1}{2}\right)^\circ = 17\dfrac{1}{2}^\circ$ in 35 minutes

$\theta = 17.5^\circ$

11. A is son of C, C and B are sister, D is the mother of B, E is the son of D, which one of the following is correct?

   (1) E is the maternal uncle of A

   (2) B is the grandfather of A

   (3) C and E are sister

   (4) E and A are brothers

Answer (1)
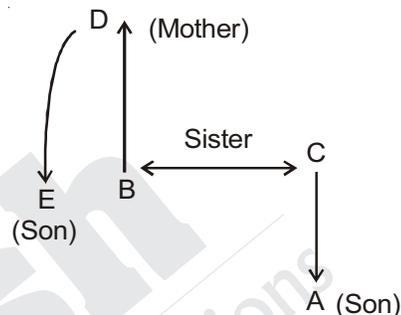
Sol. D is the mother of E & B.

E is the brother of B and C

Since A is son of C

E is maternal uncle of A.

12. In a row of children Teena is 5th from the left & Meena is 6th from the right. If they interchange their places then Teena becomes 13th from the left. Now what place will be occupied by Meena from the right.

   (1) 4   (2) 14

   (3) 15   (4) 18

Answer (2)
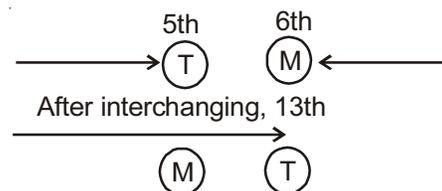
Sol. 6th from right = 13th from left

So total no. of children = (6 + 13) −1

$$= 18$$

8th from left = (18-5) + 1

$$= 14\text{th from right}$$

Direction Question (13-14) Study the letter series and answer the following questions.

13. ....bca..........cca..........ca..........b..........c

   (1) aaaaa   (2) aabaa

   (3) bbabb   (4) bbbab

Answer (4)

Sol.

14. ....cb..........ca..........bacb..........ca..........bac ....d

   (1) bddddb   (2) adddb

   (3) bbbddd   (4) addbbb

Answer (2)

**Sol.**
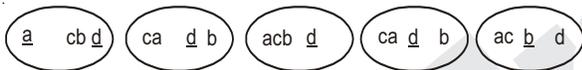
15. If a man facing east rotates in clockwise direction 45º & then, anti clockwise 270º then clockwise 180º which direction is he facing now.

   (1) South–East   (2) West

   (3) North–East   (4) South

Answer (3)

Sol.
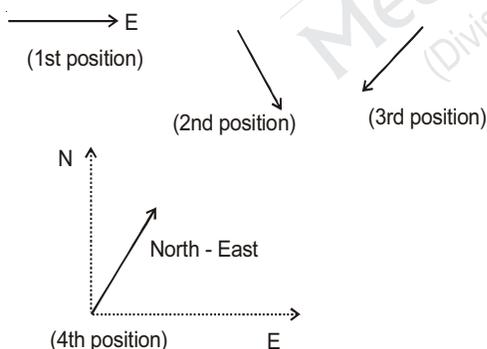
Direction Question (16-17) Question six faces of a cube are painted in such a way that no two adjacent faces are of same colour. The three colours used are Red, Blue & Green. The cube is then cut into 32 smaller and 4 big cubes in such a way that big cube has no red face. Answer the following Questions.

16. How many cubes are coloured on three faces?

   (1) 0   (2) 8

   (3) 16   (4) 32

Answer (2)

Sol.
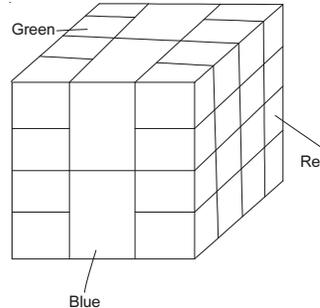
17. How many cubes have exactly two faces painted?

   (1) 16   (2) 20

   (3) 32   (4) 36

Answer (2)

Sol.

Direction Question (18-19) Question match the numbers in Column I with the Rules in Column II.

Column I	Column II
17	$2x^3 + 3$
18	$2x^2 - 1$
57	$x^2 + 2x$
28	$x^3 - 3x$
15	$3x^2 + 1$

18. Which rule the number 28 follows?

   (1) $2x^2 - 1$ (2) $3x^2 + 1$

   (3) $x^3 - 3x$ (4) $x^2 + 2x$

Answer (2)

Sol. Put x = 3

$2x^3 + 3 = 2(3)^3 + 3 = 57$

$2x^2 - 1 = 2(3)^2 - 1 = 17$

$x^2 + 2x = (3)^2 + 2(3) = 15$

$x^3 - 3x = (3)^3 - 3(3) = 18$

$3x^2 + 1 = 3(3)^2 + 1 = 28$

So 28 follows $3x^2+1$

19. Which number follows the rule $2x^3 + 3$?

   (1) 15   (2) 17

   (3) 18   (4) 57

Answer (4)

Sol. $2x^3 + 3 = 57$

20. Which of the following words cannot be made from the word "COMMUNICATION"

   (1) UNION   (2) ACTION

   (3) MUSIC   (4) CAUTION

Answer (3)

Sol. M U S I C can not be made from the given words as it does not have the letter 'S'.

21. Arrange the following words according to dictionary arrangement.

   (i) WOUND

   (ii) WRITER

   (iii) WHITER

   (iv) WORST

   (v) WORKED

   (1) caebd   (2) adceb

   (3) dcbae   (4) cedab

Answer (4)

Sol. Words are not assigned with correct letters.

   Even If we consider the question as:

   a) WOUND   b) WRITER

   c) WHITER   d) WORST

   e) WORKED

22. Select the combination of numbers so that the letters arranged accordingly will form a meaningful word.

   J   C   O   P   T   E   R

   1   2   3   4   5   6   7

   (1) 2645137

   (2) 1345672

   (3) 7645132

   (4) 4731625

Answer (4)

**Sol.** 4731625 = PROJECT

23. Who is to the Left of B

   (1) A   (2) C

   (3) D   (4) E

Answer (3)
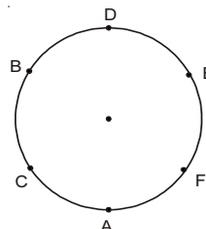
Sol. D is left to B

24. Who is the Right of C?

   (1) A   (2) B

   (3) E   (4) F

Answer (1)

Sol. A is right to C

25. A man is performing yoga with his head down and legs up. His face is towards the west. In which direction will his left hand be?

   (1) North   (2) South

   (3) East   (4) West

Answer (1)

Sol. His left hand will be in North

Direction Question (26-27) are based upon the sum of addition, Each letter has unique value and for unique value there is unique letter.

26. Find the value of O?

   (1) 3   (2) 1

   (3) 0   (4) 2

Answer (3)

$$\begin{array}{r} L\ 4\ T \\ T\ H\ 4 \\ \hline L\ O\ S\ S \end{array}$$

Sol. $T + 4 = 10 + S$

   $T - S = 6$ (1)

   $4 + H + 1 = 10 + S$

   $H - S = 5$ (2)

   $L + T + 1 = 10L + O$

   $1 + T = 9L + O$ (3)

   Put $L = 1$

   $1 + T = 9 + O$

   $T = 8 + O$

   $O = 0$

   from (1), (2) & (3)

   $T = 8$

   $S = 2$

   $H = 7$

   Value of $O = 0$

27. Find the value of S?

    (1) 8   (2) 6

    (3) 4   (4) 2

Answer (4)

Sol. Value of S = 2

28. A printer numbers the pages of a book starting with I and uses 3193 digits in all. How many pages does the book have?

    (1) 1074

    (2) 1075

    (3) 1076

    (4) 1077

Answer (2)

Sol. Digits used in one digit numbers = 9

Digits used in two digit numbers = 2 × 90

Digits used in three digit numbers = 3 × 900

9 + 180 + 2700

= 2889

Numbers with 4 digits

= 3193 − 2889 = 304

$\dfrac{304}{4}$ = 76

76th number with 4 digit

= 1075

Direction Question (29-30) Questions. A carpenter has the five wooden articles A, B, C, D, E having different weight.

   (i) A weight twice as B

   (ii) B weights four & half time as much as C

   (iii) C weights half as much as D

   (iv) D weights half as much as E

   (v) E weights less than A but more than C

29. Which of the following is lightest in weight?

    (1) D   (2) C

    (3) B   (4) A

Answer (2)

Sol. A = 28 .... (1)

$B = 4\dfrac{1}{2}C \Rightarrow B = \dfrac{9}{2}C$ .... (2)

$C = \dfrac{D}{2}$ .... (3)

$D = \dfrac{E}{2}$ .... (4)

C < E < A

from (1) & (2) $A = 2B \Rightarrow A = 2 \times \dfrac{9}{2}C$

$\Rightarrow$ A = 9C .... (5)

D = 2C .... (6)

E = 2D

E = 2 × 2C

E = 4C .... (7)

A = 9C

B = 4.5C

C = C

D = 2C

E = 4C

C is lightest in weight

30. Which of the following article is heaviest in weight?

    (1) E   (2) D

    (3) A   (4) C

Answer (3)

Sol. A is heaviest in weight

31. Find odd one out

    (1) SEPTEMBER   (2) JULY

    (3) MAY   (4) APRIL

Answer (4)

Sol.

Month	Rank in Calender
September	9
July	7
May	5
April	4

April has even rank.

32. Determine the relationship.

CLOSE : DNRWJ :: OPEN :

(1) RZWR   (2) RPJB

(3) PRHR   (4) PRJQ

Answer (3)

Sol.

```
 C    L    O    S    E
 |    |    |    |    |
+1   +2   +3   +4   +5
 |    |    |    |    |
 ↓    ↓    ↓    ↓    ↓
 D    N    R    W    J
```

```
 O    P    E    N
 |    |    |    |
+1   +2   +3   +4
 |    |    |    |
 ↓    ↓    ↓    ↓
 P    R    H    R
```
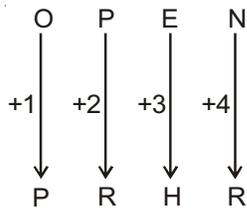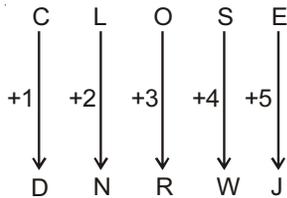
33. THEACHER, COLLEGE, STUDENT, which figure represented it?

1.   2.   3.   4.
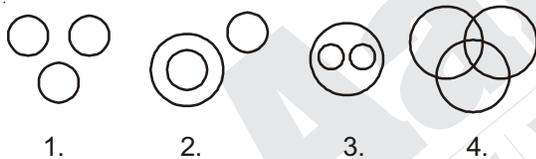
Answer (3)

Sol. TEACHER AND STUDENT are parts of COLLEGE
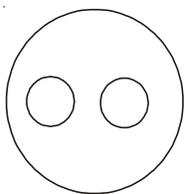
34. If 'green' is called 'red', 'red' is called 'blue', 'blue' is called 'white', is called 'yellow', 'yellow' is called 'violet' then what is the colour of grass.

(1) Green   (2) Red

(3) Yellow   (4) Violet

Answer (2)

Sol. Grass is of green colour and green is called 'red'.

35. In a certain code language "Sue Re NIK" means "She is brave" "Pi sor Re NIK' means "She is always smiling" and "Sor Re Zhi" means "is always cheerful." What is the code used for word "smiling"?

(1) Sor   (2) NIK

(3) Re   (4) Pi

Answer (4)

Sol. Sue Re NIK → She is brave .... (1)

Pi Sor NIK → She is always smiling .... (2)

Sor Re Zhi → is always cheerful .... (3)

Re → is , Pi → Smiling

NIK → She , Sor → always

Sue → Brave , Zhe → cheerful

'Pi' is for 'smiling'

36. In the following sequence of Instructions, 1 stands for RUN, 2 stands for STOP, 3 stands for GO, 4 stands for SIT and 5 stands for WAIT, If the sequence were to continue, which instruction with comenext?

4 4 5 4 5 3 4 5 5 3 1 4 5 3 1 2 4 5 4 5 3 4 5 3

(1) Wait   (2) Sit

(3) Run   (4) Stop

Answer (3)

Sol. Next term of the sequence will be 1 which stands for Run.

In the following figure, rectangle, square, circle and triangle represent the regions of wheat, gram, maize and rice cultivations, respectively. Give the answer.
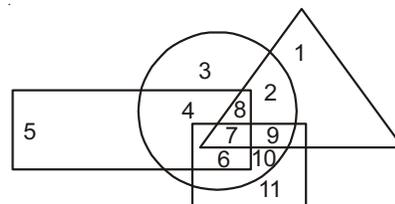
37. Which area is cultivated by rice and maize and nothing else?

(1) 9   (2) 8

(3) 7   (4) 2

Answer (4)

Sol. Only area 2 is the region which include triagle and circle only.

Triangle is for rice and circle is for maize.

Observe the colours and answer the following
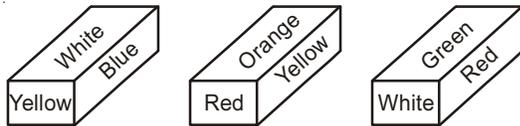
38. Which coloured surface is opposite to yellow colour.

(1) Green (2) Orange

(3) Red (4) White

Answer (1)

Sol. Yellow has 4 near by faces which are of White, Blue, Red & Orange colours.

So Green is remaining and it should be opposite to yellow.
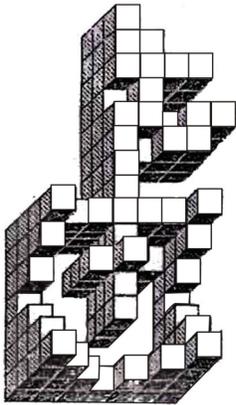
39.

(1) 132 (2) 138

(3) 140 (4) 142

Answer (3)

Sol. Just count the cubes & report the answer

Direction Question (40) Given four figure three figures are similar in a certain manner. Choose the different one. (Odd on out)
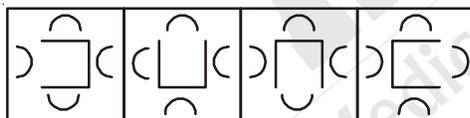
40.


1. 2. 3. 4.

Answer (1)

Sol. In the options 2,3 and 4 centrel figure is facing towards atleast one figure out of four figures surrounding it. It is not the same case with the option 1.

Direction Question (41) The following question consists of four problem fig. ABCD and four answer figures Marked (1.) (2.) (3.) (4.) select the fif. from amongst the answer figures which will continue the serial.

41. Problem Figure
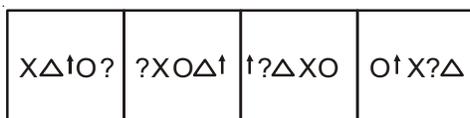
A   B   C   D

Answer Figure

1. 2. 3. 4.

Answer (4)

Sol.

A   B   C   D
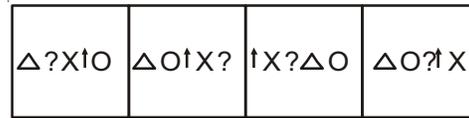
While moving form left to right 1st objects comes at 2nd and the last object comes at 1st.

$A\,to\,B \Rightarrow \triangle\uparrow O \to O\triangle\uparrow$

$B\,to\,C \Rightarrow \times O\triangle \to \triangle\times O$

$C\,to\,D \Rightarrow ?\triangle\times \to \times?\triangle$

$D\,to\,E \Rightarrow \uparrow\times? \to ?\uparrow\times$


D   E

42. Fig. A and B are related in some way. According to same relationship among C and D. Chose the correct alternate.

Problem Figure
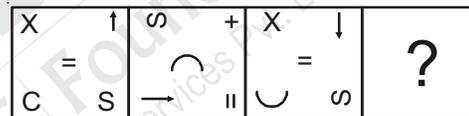
A   B   C   D

Answer Figure
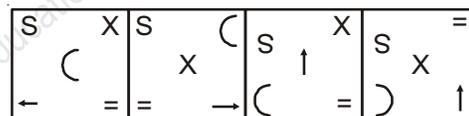
1. 2. 3. 4.

Answer (1)

Sol. Central '=' is replaced by 'C'

There is only one option

Which is option (1)

43. What is the minimum number of different colors required to paint the given fig. such that no. two adjacent regions have the same colour?
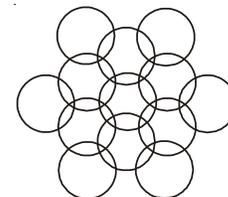

(1) 5 (2) 4

(3) 3 (4) 2

Answer (3)

Sol. minimum 3 colours are required.

44. How many triangles and parallelograms are there in the following figure?
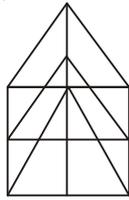

(1) 21, 17 (2) 19, 13

(3) 21, 15 (4) 19, 17

Answer (1)

Sol. Just count the triangles & parallelograms.

45. Find the water image of Figre 'X'

(X)
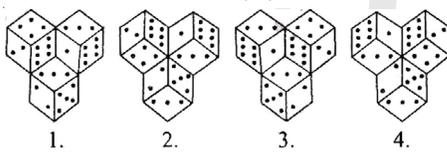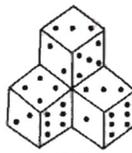
**Answer (2)**

Sol. Option (2) will be water image of X.

46. Find the mirror image of the following. NTSEscoLeR

(1) Я9Ɩoɔƨ∃ƧTͶ (2) ЯθⱢoɔƨ∃SͶT

(3) Я9Ɩoɔƨ∃ƧTͶ (4) Я9Ɩoɔƨ∃STͶ

Answer (4)

Sol. NTSEscoleR | Я9Ɩoɔƨ∃STͶ

47. Which three figure among five figure A, B, C, D & E will forms complete square.
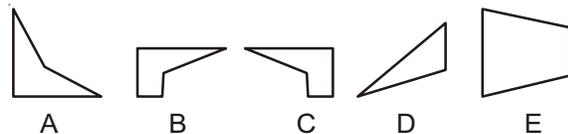


(1) ABC (2) BCD

(3) CDE (4) BCE

Answer (4)

Sol. B, C & E will from a square
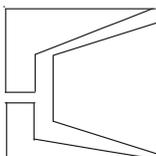
48. A square transparent sheet with a pattern is given. Fig. out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.

Transparent Sheet
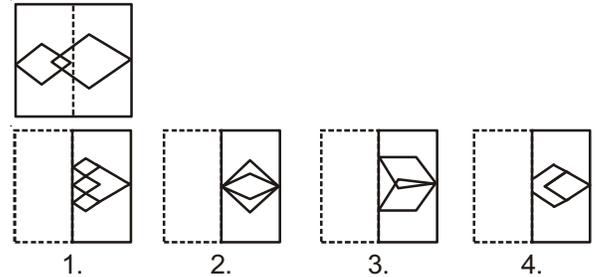
Answer (1)

Sol. Transparent sheet will look like figure (1)

Direction Question (49) Paper has been folded as shown with the dotted lines in the given fig. PXYZ & paper has been cut. How would the paper look like when unfolded.

49.

P   X   Y   Z

1.   2.   3.   4.
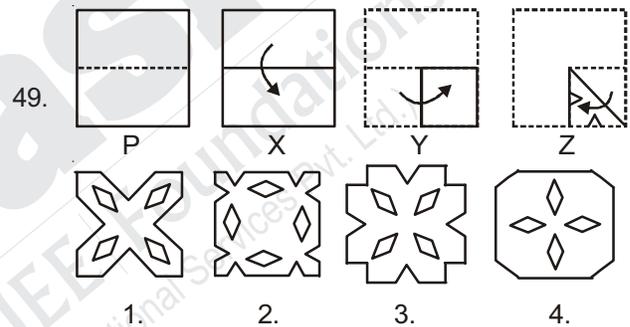
Answer (2)

Sol. Each side will have two cuts. Option (2) is the same figure

50. Select among four alternatives which complete the

1.   2.   3.   4.
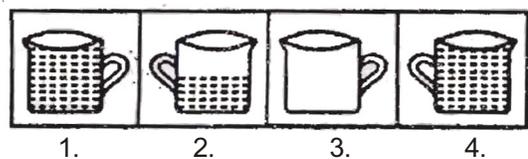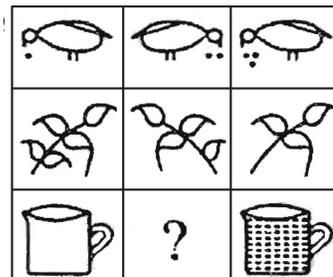
Answer (2)

Sol. In 3rd row

1st figure	2nd figure	3rd figure
Full Empty	Half Filled	Full

PART-II : SCHOLASTIC APTITUDE TEST (SAT)

51. A body of mass 1 kg initially at rest is moved by horizontal force of 0.5 N on a smooth frictionless table. The work done by force in 10 sec. is

    (1) 10.5 J
    (2) 12.5 J
    (3) 20 J
    (4) 22 J

Answer (2)

Sol. m = 1kg

u = 8

f= .5N

t = 10

w =?

$$V = 0 + \left(\frac{0.5}{1}\right)10$$

V= 5

$$W = \frac{1}{2} \times 1 \times 5^2 \text{ (By work energy theorm)}$$

= 12. 5J

52. A boy hears an echo of his own voice from a distant hill after 2 seconds. The speed of sound in air is 350 m/s. the distance of the hill from the boy is

    (1) 175 m
    (2) 200 m
    (3) 350 m
    (4) 250 m

Answer (3)

Sol. t = 2s

V= 350

for echo

$$5 = \frac{2d}{V} = \frac{2d}{350}$$

d = 350m

53. An electric heater consists of 20 m length of mangain wire of 0.23 m^2 cross-sectional area. Wattage of heater when potential difference across the heater is 200 v is

    (1) 10^6 W
    (2) 100 W
    (3) 10^9 W
    (4) 10^3 W

Answer (3)

Sol. l = 20 m

A = 0.23m^2

V = 200V

P = ?

$$R = \rho \frac{l}{A}$$

Resistivly of alloy is of order 10^{-8}

$$R = 10^{-8} \times \frac{20}{23}$$

$$P = \frac{V^2}{R} = 4.9 \times 10^9 \text{ W}$$

54. A beam of white light when passes through a glass prism, a spectrum is observed. But when same beam of light passes through hollow glass prism then

    (1) Spectrum is same
    (2) Spectrum becomes brighter
    (3) There will be no spectrum
    (4) Colours of spectrum reversed

Answer (3)
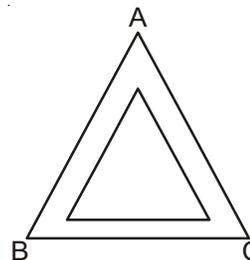
Sol. Light ray will pass through two glass slabs, effectively, AB and AC. So, white light will not disperse. There will be no spectrum.

55. when a current carrying conductor is placed in a direction parallel to the magnetic field, force on conductor is

    (1) Zero
    (2) 100 N
    (3) 10 N
    (4) 1000 N

Answer (1)

Sol.
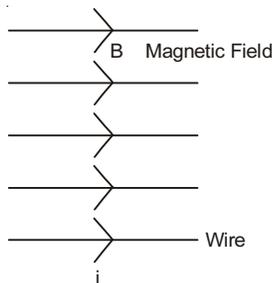
No force as wire is parallel to magnetic field

56. An object of size 4 cm placed perpendicular to the principal axis of concave mirror. The distance of the object from the mirror equals radius of curvature. The size the image will be:

(1) 1 m (2) 2 m

(3) 3.5 m (4) 4 cm

Answer (4)

Sol. h_o = 4cm

u = 2f {at C}

h_i = ?

Object is placed at centre of curvature. So image will be formed at same position and of same size. Therefore h_i = 4cm

57. The most important safety method used for protecting home appliances from short circuiting or overloading is

(1) Earthing (2) Use of fuse

(3) Use of stabilizer (4) use of electric meter

Answer (2)

58. The equivalent resistance between the points A and B in the circuit as shown in the figure given below is
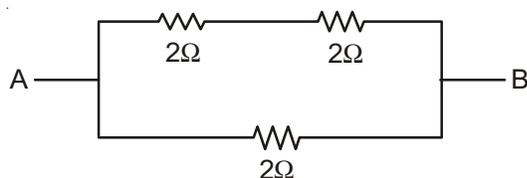
(1) 1 ohm (2) less than 1 ohm

(3) more than 1 ohm (4) 8 ohm

Answer (3)

Sol. $\dfrac{1}{Req} = \dfrac{1}{R_1} + \dfrac{1}{R_2}$

R_1 = 4 Ω

R_2 = 2 Ω
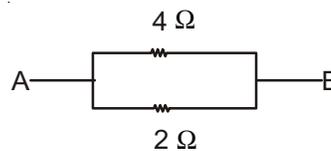
Req = $\dfrac{8}{6}$ Ω

59. The masses of 10 kg and 20 kg respectively are connected by massless spring. A force of 200 N acts on the 20 kg mass. At the instant shown, the 10 kg mass has an acceleration of 12 m/s². What is the acceleration of 20 kg mass?
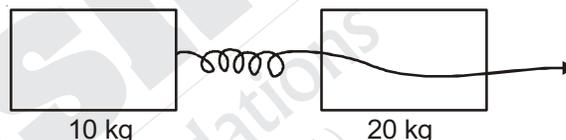
(1) 12 m/sec² (2) 4 m/sec²

(3) 20 m/sec² (4) 5 m/sec²

Answer (2)

Sol. a_1 = 12 m/s²
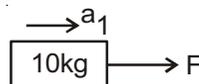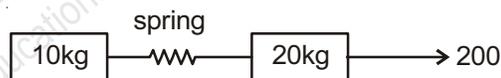
F = 10 × 12

= 120 N
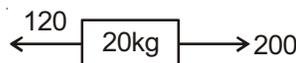
$a_2 = \dfrac{200 - 120}{20}$

= 4m/s²

60. A bullet of mass 0.1 g is fired with a speed of 100 m/sec., the mass of gun is 50 kg. The velocity of recoil is

(1) 0.2 m/sec (2) 0.2 m/sec

(3) 20 m/sec (4) 0.05 m/sec

Answer (1)

Sol. m = 0.1 kg   u = 100m/s

M_{gun} = 50 kg

$$V_{recoil} = \frac{mu}{M} = \frac{.1 \times 100}{50}$$

= 0.2 m/s

61. Which of the following frequency of sound can be generated by a vibrating simple pendulum as well as by the vibrating vocal cords of Rhinoceros?

    (1) 8 Hz   (2) 25 Hz

    (3) 10 Hz   (4) 15000 Hz

Answer (1) & (3)

Sol. Rhinoceros produces infrasonic sound.

So, frequency of its sound will be below 20 Hertz.

Possible answers are $8H_z$ and $10H_z$

62. Which of the following is not an example of biomass energy source?

    (1) Wood   (2) Garbage

    (3) Atomic energy (4) Coal

Answer (3)

Sol. Atomic Energy

63. A needle placed 45 cm from a lens forms an image on a screen placed 90 cm on the other side of lens, focal length and type of lens is

    (1) + 10 cm, Convex lens

    (2) + 30 cm, Convex lens

    (3) + 30 cm, Concave lens

    (4) + 10 cm, Concave lens

Answer (2)

Sol. u = –45 cm

v = 90 cm

f = ?

$$\frac{1}{f} = \frac{1}{90} - \frac{1}{45}$$

$$\frac{1}{f} = \frac{1}{90} + \frac{1}{45}$$

f = 30 cm

convex

64. If 1.5 moles of oxygen gas combines with solid Aluminium to form Al_2O_3. What is the mass of Aluminium used in the reaction?

    (1) 27 gm   (2) 54 gm

    (3) 40.5 gm   (4) 81 gm

Answer (2)

Sol. $2Al + \frac{3}{2}O_2 \rightarrow Al_2O_3$
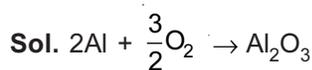
for 1.5 mole of O_2

Mole of Al required = 2

   wt = mole × mol.wt

      = 2 × 27 = 54 gm.

65. A student test the pH of distilled water and found that the colour of pH paper changed to green. He checked the pH again after dissolving a pinch of common salt in water. The colour of pH paper this time will be:

    (1) Green   (2) Yellow

    (3) Red   (4) Blue

Answer (1)

Sol. Salt of strong acid and strong base i.e NaCl is neutral. So, pH will remain the same.

66. On electrolysis of brine solution the products formed are:

    (1) Na and Cl_2 (2) H_2O_2 and Cl_2

    (3) H_2, Cl_2, and NaOH   (4) NaOH, Cl_2 and O_2

Answer (3)

Sol. At Cathode - $2H^+ + 2e^- \rightarrow H_2$

At Anode - $2Cl^- \rightarrow Cl_2 + 2e^-$

NaOH remains in solution and products formed are H_2, Cl_2, NaOH

67. What is the valency of an element having atomic number 18.

    (1) 2   (2) 8

    (3) Zero   (4) 6

Answer (3)

Sol. Zero because Octet is complete.

68. Number of molecules present in 18 g and 18 U of water respectively

    (1) 6.023×10^{23} and 1   (2) 6.023×10^{23} and 18

    (3) 18 and 6.023×10^{23} (4) 1 and 6.023×10^{23}

Answer (1)

Sol. No. of molecules present is 18 gm

$$= \frac{Wt}{mol.wt} \times N_A$$

$$= \frac{18}{18} \times N_A = N_A = 6.023 \times 10^{23}$$

No. of molecules present in 18 U $= \frac{18}{18} = 1$

69. By adding acetic acid to solid "X" a colorless and odorless gas "Y" is evolved. The gas "Y" turns lime water milky. What are X and Y

    (1) X is Sodium carbonate and Y is CO_2.

    (2) X is Sodium hydro-oxide and Y is CO_2.

    (3) X is Sodium acetate and Y is CO_2.

    (4) X is Sodium bicarbonate and Y is SO_2.

Answer (1)

Sol. $Na_2CO_3 + 2CH_3COOH \rightarrow 2CH_3COONa + CO_2 + H_2O$
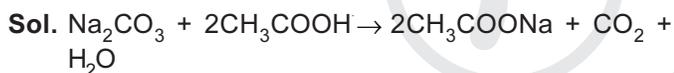
70. High melting point of a compound indicates

    (1) Strong Intermolecular forces.

    (2) Kinetic Energy of molecules is more.

    (3) Speed of molecules is more.

    (4) Compound can diffuse easily.

Answer (1)

Sol. (Fact)

71. A metal on heating in presence of air gives compound which is soluble in water and have high melting point. The metal is:

    (1) Calcium   (2) Carbon

    (3) Silicon   (4) Iron

Answer (1)

Sol. Ca because CaO is soluble in water

72. An element which is essential constituent of all organic compounds belongs to which group in Periodic Table.

    (1) Group 2

    (2) Group 14

    (3) Group 16

    (4) Group 17

Answer (2)

Sol. Carbon belongs to group 14

73. How many covalent bonds are present in Pentane?

    (1) 8   (2) 10

    (3) 16   (4) 14

Answer (3)

Sol. C_5H_{12}

74. Which one of the following is not an isoelectronic with Neon atom

    (1) $_8O^2$ (2) $_{11}Na^{+1}$

    (3) $_9F^{-1}$ (4) $_{12}Mg^{+1}$

Answer (4)

Sol. Isoelectronic means same no. of electrons

Mg+ has 11 e^-

Ne has 10e^-

Hence not isoelectronic

75. The formula of sulphate of element X is $X_2(SO_4)_3$. The formula of nitride of element X is.

    (1) X_2N

    (2) XN_2

    (3) XN

    (4) X_2N_3

Answer (3)

Sol. Valency of X is 3

Valency of Nitride is 3

   X   N

   3   3

   <u>XN</u>

76. Three test tubes containing:

    Test Tube X: 5 ml of HCl

    Test Tube Y; 5 ml of HNO_3

    Test Tube Z: 15 ml of HCl + 5 ml of HNO_3

    A small piece of metal was added in all the three test tubes. It dissolves only in Test Tube Z.

    (1) Al   (2) Au

    (3) Cu   (4) Ag

Answer (2)

Sol. Because Gold dissolves in Aqua Regia.

77. Match the column I with the column II.

Column I		Column II	
i.	Renal artery	a.	It stores the urine until it is released through the urethra
ii.	Kidney	b.	It passes urine from kidney to urinary bladder
iii.	Ureter	c.	It filters the blood and forms urine.
iv.	Urinary bladder	d.	It bring blood to the kidney for filtering waste.

   (1) i-d   ii-c   iii-b   iv-a

   (2) i-a   ii-b   iiic   iv-d

   (3) i-b   ii-a   iii-d   iv-c

   (4) i-c   ii-b   iii-a   iv-d

Answer (1)

Sol.

78. Which one of the following is the function of the enzymes of Pancreatic Juice?

   (1) trypsin digests protein and lipase digests carbohydrates

   (2) trypsin digests proteins

   (3) trypsin digests proteins and lipase digests emulsified fats.

   (4) trypsin digests proteins and lipase digests emulsified fats.

Answer (4)

Sol. Trypsinogen is present in pancreatic juice, it is converted into active form trypsin in the presence of enterokinase and digest the protein. After the bile juice emulsify the fat then it is digested by pancreatic lipase.

79. Which of the following is not a correct pair:

   (1) Adrenaline   :   Pituitary gland

   (2) Testosterone   :   Testes

   (3) Estrogen   :   Ovary

   (4) Thyroxine   :   Thyroid gland

Answer (1)

Sol. Adrenaline is called emergency hormone and it is secreted by emergency gland called adrenal gland.

80. Pine and Deodar are the example of

   (1) Gymnosperms   (2) Pteridophyte

   (3) Thallophyta   (4) Bryophyte

Answer (1)

Sol. Pine = *Pinus*

Deodar = *Cedrus*

Both plants are examples of gymnosperms.

81. Khadins, Bundhis and Ahars are ancient structures that are example of

   (1) Grain storage   (2) Wood storage

   (3) Water harvesting   (4) Soil conservation

Answer (3)

Sol. Khadins, Bundhis and Ahars are ancient structures that are examples of water harvesting whereby,

   a. Khadins are used in Thar desert.

   b. Ahars are used in Indo - Gangetic plains.

   c. Bandhis are used in Central Highlands

82. Read the following statements and select the correct option

Statement I: Snails and Mussels are Molluscans.

Statement II: Sea Urchins and Scorpions are echinodermates

   (1) only statement I is true

   (2) only statement II is true

   (3) Both statements I & II are true

   (4) Both statements I & II are false

Answer (1)

Sol. Sea urchins belong to Echinodermata but scorpions belong to Arthropoda.

83. .... in Eukaryotes is separated from the cytoplasm by double layered membrane and it directs the life process of the cell.

   (1) Golgi Apparatus   (2) Nucleus

   (3) Lysosome   (4) Ribosome

Answer (2)

Sol. Nucleus is the double membrane bound structure that directs life process of eukaryotic cells.

Golgi complex is single membrane bound, Lysosome is again single membrane bound and ribosome is membrane less.

84. A feature that is common in yeast, Amoeba, Paramecium is

    (1) They all are multi cellular

    (2) They all reproduce by budding

    (3) They all reproduce by binary fission

    (4) They all are unicellular

Answer (4)

Sol. Yeast, *Amoeba* and *Paramecium* are similar in being unicellular. Yeast reproduce by budding also.

85. Which blood constituent makes up more of the volume of blood

    (1) Red blood cells   (2) Plasma

    (3) Blood protein   (4) White blood cells

Answer (2)

Sol.

Blood

(55%) Blood ╱╲ (45%) Blood Cell

86. Homologous organs are ....

    (1) Dissimilar in origin, similar in function.

    (2) Dissimilar in origin and dissimilar in function.

    (3) Similar in origin and similar in function

    (4) Similar in origin and dissimilar in function.

Answer (4)

Sol. e.g the forelimb of man, whale, cheetah, horse having same structural plan but used for different functions like running, grasping, swimming etc.

87. What is the correct direction of flow of electrical impulses in nerve cells.
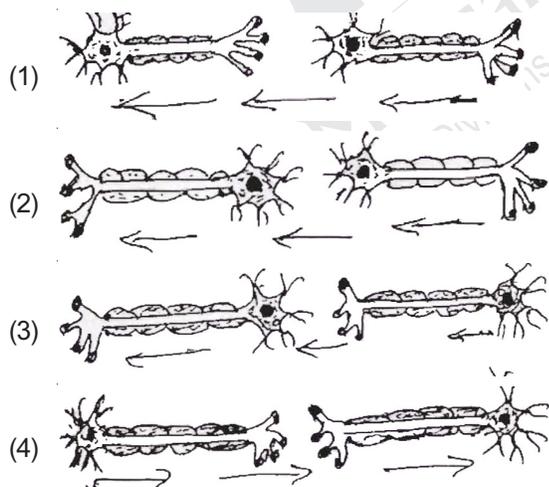
Answer (3)

Sol. Dendrites catch the stimulus pass it to cell body stimulus then enter into axon and reach at axon terminal The axon terminal synapses with dendrite of next neuron so pass the impulse to next one.

88. You observed a slide of animal tissue and observed (i) long cylindrical and unbranched cells (ii) they had dark and light bands. The tissue could be of

    (1) Unstriated muscle fibres

    (2) Neurons

    (3) Striated muscle fibres

    (4) Cardiac muscle fibres

Answer (3)

Sol. Striated muscles are also called as skeletal muscles. These muscles are unbranched, syncytial (multinucleated) and having alternate arrangement of dark and light bands.

89. Which organ is infected when a person suffers from jaundice?

    (1) Bones

    (2) Liver

    (3) Lungs

    (4) Nervous system

Answer (2)

Sol. Jaundice is due to abnormal functioning of liver that cause deposition of bile pigments in blood. Colour of the skin and eyes appear yellow.

90. The animals is having jointed legs belongs to phylum

    (1) Annelida

    (2) Arthropoda

    (3) Mollusca

    (4) Nematoda

Answer (2)

Sol. Athropoda → Arthro – joints

    Poda – Leg / appendages

91. If p+q+r = 0 then the value of

$$\frac{2p^2(q+r)+2q^2(p+r)+2r^2(p+q)}{pqr}$$ will be

    (1) 3pqr   (2) $\dfrac{1}{pqr}$

    (3) 6   (4) –6

Answer (4)

Sol. $p + q = -r$

squaring both sides

$p^2 + q^2 + 2pq = r^2$

$$\boxed{r(p^2 + q^2) + 2pqr = r^3} \quad (1)$$

similarly

$$\boxed{p(q^2 + r^2) + 2pqr = p^3} \quad (2)$$

&

$$\boxed{q(p^2 + r^2) + 2pqr = q^3} \quad (3)$$

adding 1, 2 and 3

$$\boxed{p^2(q+r)+q^2(p+r)+r^2(p+q)+6pqr = p^3+q^3+r^3} \quad (4)$$

also if $p+q+r = 0$

then $\boxed{p^3 + q^3 + r^3 = 3pqr}$ (5)

from (4) and (5)

$p^2(q+r)+q^2(p+r)+r^2(p+q) = -3pqr$

$$\frac{2p^2(q+r) + 2q^2(p+r) + 2r^2(p+q)}{pqr} = -6$$

92. A circle is inscribed in a square of side 2.5cm. Another circle is circumscribing this square. The ratio of areas of outer circle and inner circle is

(1) $1 : \sqrt{2}$ (2) $\sqrt{2} : 1$

(3) $2 : 1$ (4) $\sqrt{3} : 1$

Answer (3)
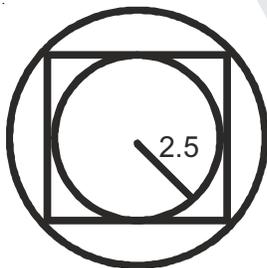
Sol.

Diameter of inner circle = side of square

radius of inner circle $(r_1) = \dfrac{2.5}{2}$

Diameter of outercircle = diagonal of square

radius of outer circle $(r_2) = \dfrac{2.5 \times \sqrt{2}}{2}$

Hence ratio $= \dfrac{\pi r_2^2}{\pi r_1^2} = \dfrac{\pi \left(\dfrac{2.5 \times \sqrt{2}}{2}\right)^2}{\pi \left(\dfrac{2.5}{2}\right)^2} = 2:1$

93. If $x = \dfrac{1}{\sqrt{3}-1}$ then find the value of $4x^2+2x^2-8x-3$.

(1) 0   (2) 2

(3) –2   (4) $\sqrt{2}$

Answer (1)

Sol. $x = \dfrac{1}{\sqrt{3}-1} \times \dfrac{\sqrt{3}+1}{\sqrt{3}-1} = \dfrac{\sqrt{3}+1}{2}$

$2x - 1 = \sqrt{3}$

squaring

$4x^2 - 4x + 1 = 3$

$2x^2 - 2x - 1 = 0$

$4x^3 + 2x^2 - 8x - 3$

$= 4x^3 - 4x^2 - 2x + 6x^2 - 6x - 3$

$= 2x(2x^2 - 2x - 1) + 3(2x^2 - 2x - 1)$

$= 2x \times 0 + 3 \times 0 = 0$

94. How many revolutions will a circular wheel of radius r units will make to cover a distance of 100 times its diameter?

(1) $\dfrac{100}{\pi}$ (2) 100π

(3) $\dfrac{\pi}{100}$ (4) $\dfrac{50}{\pi}$

Answer (1)

Sol. Distance covered in 1 revolution = $2\pi r$

let number of revolutions be k

Distance covered in k revolutions = $2\pi rk$

Distance covered in 100 times diameter = $100 \times 2r$

Hence $2\pi rk = 100 \times 2r$

$k = \dfrac{100}{\pi}$

95. If $\tan\phi + \cot\phi = 1$ then the value of $\sin\phi + \cos\phi$ will be equal to (where ϕ is an acute angle)

(1) 0   (2) $\sqrt{2}$

(3) $\sqrt{3}$ (4) 1

Answer (3)

Sol. Question is wrong as,

Data given is incorrect because $\tan\phi + \dfrac{1}{\tan\phi}$ for acute angle can only be value belonging to the set $[2, \infty)$

Still if we consider data to the correct.

$$\frac{\text{Sin}\phi}{\text{Cos}\phi} + \frac{\text{Cos}\phi}{\text{Sin}\phi} = 1$$

$$\frac{\text{Sin}^2\phi + \text{Cos}^2\phi}{\text{Cos}\phi\text{Sin}\phi} = 1$$

$$\boxed{\sin\phi\cos\phi = 1} \quad (1)$$

But we know.

$(\text{Sin}\phi + \cos\phi)^2 = \text{Sin}^2\phi + \cos^2\phi + 2\sin\phi\cos\phi$

$= 1 + 2\sin\phi\cos\phi$

$$\boxed{\sin\phi\cos\phi = \frac{(\sin\phi + \cos\phi)^2 - 1}{2}} \quad (2)$$

From (1) and (2)

$$\frac{(\sin\phi + \cos\phi)^2 - 1}{2} = 1$$

$(\sin\phi + \cos\phi)^2 = 3$

$\sin\phi + \cos\phi = \sqrt{3}$

96. If pth term of an AP is q and qth term is p then mth term of this AP will be:

(1) p+q+m   (2) p+q−m

(3) p−q−m   (4) p−q+m

Answer (2)

Sol. $a+(p-1)d = q$ (1)

$a+(q-1)d = p$ (2)

(1) − (2)

$(p-q)d = q - p$

Hence $\boxed{d = -1}$

$a+(p-1) -1 = q$

$\boxed{a = p+q-1}$

m^{th} term is $a+(m-1)d = (p+q-1) + -1(m-1)$

$= p+q-m$

97. Two dice are thrown. Find the probability that sum of numbers of both up sides of both dice is a perfect square.

(1) $\dfrac{1}{6}$ (2) $\dfrac{7}{36}$

(3) $\dfrac{5}{36}$ (4) 0

Answer (2)

Sol. Sum of numbers possible are 2,3,4,......,12 perfect square are 4, 9

Cases for 4 → (1,3), (3,1), (2, 2)

Cases for 9 → (3,6), (6,3), (4,5), (5,4)

Total cases → 36

Hence probablitiy = $\dfrac{7}{36}$

98. From the top of a tower of h m high, the angles of depression of two objects, which are in line with the foot of the tower are α and β ($\beta > \alpha$). Find the distance between two objects.

(1) $h(\tan\alpha - \tan\beta)$ (2) $h(\cot\alpha - \tan\beta)$

(3) $h(\cot\alpha - \cot\beta)$ (4) $h(\cot\alpha + \cot\beta)$

Answer (3)

Sol.
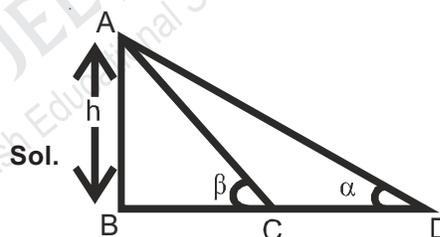
$BC = h\cot\beta$

$BD = h\cot\alpha$

Distance between objects = $h\cot\alpha - h\cot\beta$

$= h(\cot\alpha - \cot\beta)$

99. If the distance between the points (4,q) and (1,0) is 5 units then the value of q is:-

(1) 4   (2) −4

(3) ± 4 (4) 0

Answer (3)

Sol. Using distance formula.

$(4-1)^2 + (q-0)^2 = 5^2$

$3^2 + q^2 = 5^2$

$q^2 = 16$

$q = \pm 4$

100. The area of an equilateral triangle is $49\sqrt{3}$ cm². Taking each vertex as centre, circles are described with radius equal to half the length of the side of the triangle. Find the area to the triangle. find the area of the part of the triangle which is not included in these circles.

($\sqrt{3}$ =1.73, $\pi = \dfrac{22}{7}$)

(1) 84cm²   (2) 77.7cm²

(3) 7.77cm²   (4) 70.7cm²

Answer (3)
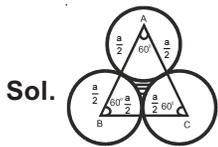
Sol.

Area of equilateral triangle = $\dfrac{\sqrt{3}}{4}a^2$

$\dfrac{\sqrt{3}}{4}a^2 = 49\sqrt{3}$

$\boxed{a = 14cm}$

radius of circles = 7cm

area of each sector = $\pi r^2 \times \dfrac{60°}{360°} = \pi \times 7^2 \times \dfrac{1}{6}$

$= \dfrac{22}{7} \times 7^2 \times \dfrac{1}{6}$

$= \dfrac{11 \times 7}{3} = \dfrac{77}{3}$

Area of all 3 circular sectors = $3 \times \dfrac{77}{3}$ = 77

Shaded area = $49\sqrt{3} - 77$

= 49×1.73–77 = 7.77 cm²

101. If $\sqrt{(0.04 \times 0.4x)}$ =0.4x 0.04. Then the vlaue of $\dfrac{x}{y}$ is

(1) 0.0016   (2) 0.16

(3) 0.016   (4) 1.6

Answer (3)

Sol. $\sqrt{0.04 \times 0.4x}$ = 0.4 × 0.04 $\sqrt{y}$

Squaring both sides

0.04×0.4x = (0.4)²×(0.04)²×y

$\dfrac{x}{y} = 0.4 \times 0.04 = 0.016$

102. One litre of water weights 1 kg. How many cubic millimeter of water weigh 0.1 gm?

(1) 100   (2) 10

(3) 1   (4) 0.1

Answer (1)

Sol. 1 litre water = 1000 cm³

1 kg water = 1000 cm³

1gm water = 1 cm³

0.1 gm water = 0.1 cm³

=0.1 ×10³ mm³ = 100 mm³

103. If $x = \sqrt[3]{2\dfrac{93}{125}}$, then the value of x is

(1) $2\dfrac{1}{5}$ (2) $1\dfrac{2}{5}$

(3) $3\dfrac{4}{5}$ (4) $4\dfrac{1}{5}$

Answer (2)

Sol. $x = \sqrt[3]{2\dfrac{93}{125}} = \sqrt[3]{2 + \dfrac{93}{125}} = \sqrt[3]{\dfrac{343}{125}}$

$x = \sqrt[3]{\dfrac{7^3}{5^3}} = \dfrac{7}{5} = 1\dfrac{2}{5}$

104. If x men can do a piece of work in 8 days and (x+4) men can do the same work in 6 days then x is equl to:

(1) 10   (2) 6

(3) 12   (4) 24

Answer (3)

Sol. Total work = 8×x = 6(x+4)

4x = 3(x+4)

x = 12

105. If $x^2+y^2+z^2 = r^2$ where $x = r\sin A \cos B$, $y = r\sin A \sin B$ then Z ahs one of the following values:

(1) rsinB
(2) rcosA
(3) rtanACosB
(4) rtanAtanB

Answer (2)

Sol. $x^2 +y^2 +z^2 = r^2$

$(r\sin A\cos B)^2 +(r\sin A\sin B)^2 +Z^2 = r^2$

$r^2\sin^2 A\cos^2 B +r^2\sin^2 A\sin^2 B + Z^2 = r^2$

$r^2\sin^2 A(\cos^2 B + \sin^2 B)+ Z^2 = r^2$

$Z^2 = r^2 - r^2\sin^2 A = r^2\cos^2 A$

$z = r\cos A$

106. Find the solutions for 'x' in eqn.

$\dfrac{1}{a+b+x} = \dfrac{1}{a}+\dfrac{1}{b}+\dfrac{1}{x}$ is:

(1) $-a$, b
(2) $-a$, $-b$
(3) a, $-b$
(4) a, b

Answer (2)

Sol. $\dfrac{1}{a+b+x} = \dfrac{1}{a}+\dfrac{1}{b}+\dfrac{1}{x}$

$\dfrac{1}{a+b+x} - \dfrac{1}{x} = \dfrac{1}{a}+\dfrac{1}{b}$

$\dfrac{x-(a+b+x)}{(a+b+x)x} = \dfrac{1}{a}+\dfrac{1}{b}$

$\dfrac{-(a+b)}{x(a+b+x)} = \dfrac{a+b}{ab}$

$-ab = (a+b)x + x^2$

$x^2 + (a+b)x +ab =0$

$x = -a$, $-b$

107. In the given figure ABCD is a cyclic quadrilatical . If $\angle BAC = 60°$, $\angle BCA = 20°$ then find the value of $\angle ADC$
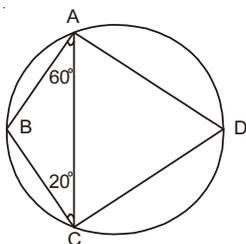
(1) 15°
(2) 50°
(3) 80°
(4) 40°

Answer (3)
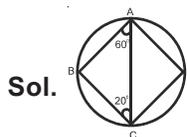
Sol.

From triangle ABC $\angle B = 100°$

$\angle B+\angle D = 180°$

Hence $\angle D = 80°$

108. A copper wire when bent in the form of a square encloses and area of $484 cm^2$. If the same wire is bent in the form of circle, the area enclosed by it is:

(1) 210 cm²
(2) 616 cm²
(3) 512 cm²
(4) 54 cm²

Answer (2)

Sol. Let side of square = a

$a^2 = 484$

a = 22cm

Hence length of wire = 4×22 = 88cm

Perimeter of circle = $2\pi r$

$2\pi r = 88$

$2\times\dfrac{22}{7}r =88$

r = 14 cm

109. The mean temperature of Monday to Wednesday was 37°C and of Tuesday to Thursday was 34°C. If the temperature on Thursday was 4/5th the of Monday. Then the temperature of Thursday was.

(1) 35.5° C
(2) 34° C
(3) 36.5° C
(4) 36° C

Answer (4)

Sol. Let temperatures be

Monday $\rightarrow a°$

Tuesday $\rightarrow b°$

Wednesday $\rightarrow c°$

Thursday $\rightarrow \dfrac{4}{5}a°$

$\dfrac{a+b+c}{3}=37 \Rightarrow \boxed{a+b+c=111}$ (i)

$\boxed{\dfrac{4}{5}a+b+c=102}$ (2)

from (1) and (2)

$\dfrac{a}{5}=9 \Rightarrow a=45$

Hence on thurday $\Rightarrow \dfrac{4}{5}\times 45 = 36°$

110. In a box containing 100 bulbs, 10 are defective. What is the probability that out of a sample of 5 bulbs none is defective.

(1) 10^{-5}

(2) $\left(\dfrac{1}{2}\right)^5$

(3) $\left(\dfrac{9}{10}\right)^{-5}$

(4) $\left(\dfrac{9}{10}\right)^5$

Answer (4)

Sol. Since trials are not independent probability of no defective items in a lot of 5 items is =

$$\frac{{}^{90}C_5}{{}^{100}C_5} = \frac{\dfrac{90!}{85!\,5!}}{\dfrac{100!}{95!\,5!}} = \frac{90 \times 89 \times 88 \times 87 \times 86}{100 \times 99 \times 98 \times 97 \times 96}$$

But the answers has been given independent trials

Probability of non- defective item = $\dfrac{90}{100} = \dfrac{9}{10}$

Probability that 5 items are non - defective = $\left(\dfrac{9}{10}\right)^5$

111. In IMF and World Bank, the decisions are taken by-
    (1) developing nations
    (2) a joint council of developed and developing countries
    (3) Western industrial powers
    (4) Least developed nations

Answer (3)

112. What led to town planning of the city of Bombay in 1880?
    (1) The social tension
    (2) Poverty
    (3) Fear of plague epidemics
    (4) Riots

Answer (3)

113. Which of the following novel deals with caste oppression?
    (1) Sultana's Dream
    (2) Indulekha
    (3) Saraswati Vijayam
    (4) Padmarag

Answer (3)

114. Who described Mazzini as the most dangerous enemy of our social order?
    (1) Victor Emmanuel II
    (2) Duke Metterinich
    (3) Johann Gottfried
    (4) Lord Byron

Answer (2)

115. Why was the Vietnam war called the first television war?
    (1) Brought home, stories from soldiers
    (2) Led to increased sale of television sets
    (3) Battle scenes were shown on daily news
    (4) Television was invented

Answer (3)

116. Who said, " printing is the ultimate gift of God and the greatest one?
    (1) Charles Dickens
    (2) J.V. Schely
    (3) Mahatma Gandhi
    (4) Martin Luther

Answer (4)

117. Which of the following combination correctly indicates the three flows of international economic ex change-
    (1) Capital, goods, raw material
    (2) Goods, metal, labour
    (3) Goods, labour, capital
    (4) Labour, capital, food grains

Answer (3)

118. The slogan ' Jai Hind' was given by-
    (1) Lal Bahadur Shastri
    (2) Subhash Chandra Bose
    (3) Jawahar Lal Nehru
    (4) Ras Behari Bose

Answer (2)

119. What was the relationship of Guru Amardas ji with Guru Ramdas Ji?
    (1) Father
    (2) Son
    (3) Brother
    (4) Father-in-Law

Answer (4)

120. Name the treaty signed on 26th December, 1846 after First Anglo Sikh War?
    (1) Treaty of Paris
    (2) Treaty of Lahore
    (3) Treaty of Bhayrowal
    (4) Tripartite Treaty

Answer (3)

121. Who established Dal Khalsa?

    (1) Nawab Kapoor Singh

    (2) Banda Bahadur

    (3) Ranjit singh

    (4) Guru Gobind Singh Ji

Answer (1)

122. 'Relief', 'Cyclonic' and 'Convectional' are types of which of the following?

    (1) Soil   (2) Water

    (3) Rainfall   (4) Forests

Answer (3)

123. To which of the following, the study of 'Seismology' is related?

    (1) Atmosphere   (2) Floods

    (3) Tides   (4) Earthquakes

Answer (4)

124. What is the area of Chandigarh?

    (1) 114 sq kilometre

    (2) 1014 sq kilometre

    (3) 10140 sq kilometre

    (4) 50362 sq kilometre

Answer (1)

125. Which latitude passes approximately through the middle of India?

    (1) Equator

    (2) Tropic of cancer

    (3) Tropic of Capricorn

    (4) Prime Meridian

Answer (2)

126. With which agent the features like 'Stalactite' and 'Stalagmite' are related?

    (1) Air   (2) Sea

    (3) underground water   (4) Galcier (River of Ice)

Answer (3)

127. In which state of India the 'Kandla Port' is situated?

    (1) Punjab   (2) West Bengal

    (3) Andhra Pradesh (4) Gujarat

Answer (4)

128. Which of the following states has the least 'population density'?

    (1) Bihar   (2) Uttar Pradesh

    (3) Himachal Pradesh (4) Arunachal Pradesh

Answer (4)

129. Which state of of india has the maximum area under forests?

    (1) Haryana   (2) Tripura

    (3) Rajasthan   (4) Karnataka

Answer (2)

130. From which language the word 'Monsoon' has been derived?

    (1) Hindi   (2) Arabic

    (3) German   (4) English

Answer (2)

131. For what mineral, the mining region of 'Kolar' and 'Ramgiri' in Indian are famous for?

    (1) Gold   (2) Silver

    (3) Copper   (4) Bauxite

Answer (1)

132. Which state of India is connected to china (Tibet Region) through Nathula pass?

    (1) Meghalaya   (2) Assam

    (3) Sikkim   (4) Arunachal Pradesh

Answer (3)

133. Who was the chairman of Drafting committee of Indian constitution?

    (1) Moti Lal Nehru

    (2) Jawahar Lal Nehru

    (3) B.R Ambedkar

    (4) Rajender Prasad

Answer (3)

134. Which of the following is a big challenge to democracy?

    (1) Leaders

    (2) Political Parties

    (3) Elections

    (4) Illiterate Citizens

Answer (4)

135. Which of the following is not the quality of ideal citizens?

    (1) Good health

    (2) Patriotism

    (3) Tolerance

    (4) Illiteracy

Answer (4)

136. Seats are reserved for women in:-

    (1) Parliament

    (2) Panchayati Raj Institutions

    (3) State Legislature

    (4) Rajya Sabha

Answer (2)

137. Which type of goverment is a federal goverments:

    (1) Centre and State Goverment

    (2) Govt of two States

    (3) Centre and two state Goverment

    (4) Centre and three State Goverment

Answer (1)

138. How many state governments are functioning in India:-

    (1) 7   (2) 28

    (3) 13   (4) 29

Answer (4)

139. An ordinary bill is represented in:-

    (1) Rajya Sabha

    (2) Lok Sabha

    (3) Any house of Parliament

    (4) Rajya Vidhan Sabha

Answer (3)

140. Who is the constitutional head of India?

    (1) King   (2) Queen

    (3) Prime Minister   (4) President

Answer (4)

141. Which of the following is not the National Flag:-

    (1) Shiromany Akali Dal

    (2) Bhartiya Janta Party

    (3) Indian National Congress

    (4) Bahujan Samaj Party

Answer (1)

142. India is a federal state because:-

    (1) Dual Judiciary

    (2) Written constitution

    (3) Dual Citizenship

    (4) Share of power between centre and state

Answer (4)

143. GDP can be written as...............................

    (1) General Domestic Product

    (2) Gross Domestic Product

    (3) Gross Development Product

    (4) General Development Product

Answer (2)

144. Foreign Trade...............

    (1) Increases choice of goods

    (2) Decreases price of goods

    (3) Increases competition in the market

    (4) Decreases earnings.

Answer (3)

145. COPRA full form is

    (1) Co-ordiantion Protection Act

    (2) Co-education Protection Act

    (3) Co-operative Protection Act

    (4) Consumer Protection Act

Answer (4)

146. Which of these notes are issued by finance department of Govt. of India?

    (1) Rs. 500

    (2) Rs. 100

    (3) Rs. 2000

    (4) Rs. 1

Answer (4)

147. What is the impact of Green Revolution.

    (1) Forest area increased

    (2) Air Pollution decreased

    (3) Wheat Production Increased

    (4) Milk Production Increased

Answer (3)

148. Globalisation was stimulated by:-

    (1) Money   (2) Transportation

    (3) Population   (4) Computers

Answer (2)

149. A consumer..........................

    (1) Sells goods and services

    (2) Buy goods and services

    (3) Produces goods and services

    (4) Delivers goods and services

Answer (2)

150. What is the time period of 12th five year plan?

    (1) 2002-07

    (2) 2007-12

    (3) 2012-17

    (4) 2017-22

Answer (3)

SECTION-III : LANGUAGE

Q. (151-153.) Read the following passage carefully and answer the question that follow:

Some people think you need a kitchen to cook dinner. But you can make easy, delicious meals outside over a campfire.

One easy campfire meal is a baked potato. You wrap the potato in the foil and put it under the flames in the hot ashes. After an hour, the heat from the fire will cook the potato. Open up the tin foil package and you have a baked potato!

It is also easy to roast food over a campfire. You can put hot dogs or sausages on sticks and hold them in the fire. The flames will cook the meat. For dessert, you can roast marshmallows on sticks. Hold them near the fire until they turn golden and begin to melt. But do not leave anything in the fire too long, or it will turn completely black and like ashes.

There are many nice things about campfire meals. To make these meals, you do not even need to know anything about cooking. Some people also say that food tastes better when cooked and eaten outside. But the best part of these campfire meals is there are no dishes to wash afterwards.

151. As used in paragraph 2, which is an example of a package?

    (1) French fries are served on a tray in the cafeteria

    (2) A new toy comes wrapped up in a plastic box

    (3) Cookies are easy to remove when there is tin foil on the cookie sheet.

    (4) You can use a knife to cut open an orange instead of peeling it.

Answer (2)

152. The author warns that if you leave anything in the fire too long, it

    (1) can get burned

    (2) can be dangerous

    (3) will melt

    (4) will fall off the stick

Answer (1)

153. Which sentence from the passage best describes why campfire meals are easy to make?

    (1) "But you can make easy, delicious meals outside over a campfire

    (2) "You wrap the potato in tin foil and put it under the flames in the hot ashes."

    (3) "It is also easy to roast food over a campfire."

    (4) "To make these meals, You do not even need to know anything about cooking."

Answer (4)

154. After reading the passage, we can conclude that

    (1) you do not need much to cook a campfire meal

    (2) cooking over a campfire is more fun than in a kitchen

    (3) roasting food on a stick or wrapping it in tin foil is the only way to cook a campfire meal

    (4) If you do not cook in a kitchen, you do not have any dishes to wash

Answer (1)

155. According to the author, the best part of these campfire meals is that they

    (1) arc easy   (2) are delicious

    (3) taste better outside   (4) use no dishes

Answer (4)

Q. (156-160) Read the comprehension passage carefully and answer the following question :-

What need to be set right is our approach to work. It is a common sight in our country of employees reporting for duty on time and at the same time doing little work. If an assessment is made of time they spend in gossiping, drinking tea, eating "pan" and smoking cigarettes, it will be shocking to know that the time devoted to actual work is negligible. The problem is the standard which the leadership in administration sets for the staff. The ministers mix politics and administration. What do top bureaucrats do? What do the below down officials do ? The administration set up remains weak mainly because the employees do not have the right example to follow and they are more concerned about being in the good books of the bosses than doing work.

156. The employees in our country

    (1) are quite puncutal but not duty conscious

    (2) Are not punctual but somehow manage to complete their work.

    (3) Are somewhat lazy but good natured

    (4) Are not highly qualified

Answer (1)

157. According to the writer, the administration in India

(1) Is by and large effective

(2) Is strict and firm

(3) Is effective by red tape

(4) Is more or less ineffective

Answer (4)

158. The word assessment means:

(1) Enquiry   (2) Report

(3) Evaluation   (4) Summary

Answer (3)

159. The leadership in an administration

(1) Sets a fine example to the employees

(2) Is of a reasonably high standard

(3) Is composed of idealists

(4) Is of a very poor standard

Answer (4)

160. The central idea of the passage could be best expressed by the following:

(1) The employer's outlook towards work is justified

(2) The employee must change their outlook towards work

(3) The employees would never change their work culture

(4) The employer employee relation is far from healthy

Answer (2)

Q. (161-164) The 1st and the last parts of the sentence are numbered 1 and 6. The rest of the sentence is split into four parts and named P, Q, R, & S. These four parts are not given in their proper order, Read the sentence and find out which of the four combination is correct.

161. 1. : A dictionary

P. : arranged words

Q. : about which information

R. : containing alphabetically

S. : Is a book

6. : is given

(1) RPQS   (2) QRPS

(3) SRPQ   (4) SPRQ

Answer (3)

162. 1. : The pigeons were used

P. : as messengers

Q. : which were tied

R. : in the olden days

S. : to carry messages

6. : to their feet

(1) PQRS   (2) SPRQ

(3) PRSQ   (4) PRQS

Answer (3)

163. 1. : Socrates

P. : never to make

Q. : a great Greek Philosopher

R. : and had resolved

S. : tried hard to control himself

6. : a show of his temper

(1) SRPQ   (2) QSRP

(3) QSPR   (4) PQRS

Answer (2)

164. 1. : The important thing

P. : winning

Q. : is not

R. : but

S. : taking part

6. : in the Olympic games

(1) PQRS   (2) QPRS

(3) SRPQ   (4) QSPR

Answer (2)

Q. (165-168) The following questions have the second sentence missing. Choose the appropriate sentence from the given options to complete it.

165. A. A gentleman who lived alone always had two plates placed on the table at dinner time.

B. _____

C. He used to give the cat a piece of meat from his own plate.

(1) One plate was for himself and other was for his cat.

(2) She dropped a mouse into her own plate and another into her master plate.

(3) In this way the cat showed her gratitude to her master

(4) The cat was nice to the master

Answer (1)

166. A. Satyajit Ray made many films for children.

    B. _____

    C. Ray, was a pioneer in this field

    (1) Later, film makers have followed his lead.

    (2) Today, other nations are making children's films in a big way.

    (3) This was at a time when no director considered children as potential audience.

    (4) But today few think of Ray as a maker of children's films.

Answer (3)

167. A Villages are usually thought as the places of peace and solitude.

    B. _____

    C. Life in a village is not as fast as in the city.

    (1) There are fewer distractions for the villagers.

    (2) A common bond of brotherhood exists in the villagers for one another.

    (3) Just like life in a city, a village has its own attraction and revulsions.

    (4) _____ villagers are a home away from the busy life in cities.

Answer (3)

168. A. A computer in an electric device.

    B. _____

    C. The computer helps us create programmes, communicate and help us to earn.

    (1) Information is stored and managed by computers

    (2) We have really arrived into an era of global world.

    (3) The internet is complicated web of satellites.

    (4) That helps in boosting our efficiency.

Answer (4)

Q. (169-170) Choose the word which best fills the blank from the four options given : -

169. The President of India called upon the people to _____ their religious differences and strengthen secularism in the country.

    (1) abolish   (2) exhort

    (3) sink   (4) condemn

Answer (3)

170. My father _____ of severe pain in his chest.

    (1) questioned   (2) complained

    (3) afraid   (4) expressed

Answer (2)

Q. (171-173) In the questions below, out of four alternatives, choose the one which can be substituted for the given words:

171. Government by a king or queen.

    (1) Theocracy   (2) Monarchy

    (3) Democracy   (4) Republic

Answer (2)

172. Child of unusual or remarkable talent.

    (1) Talented   (2) Distinguished

    (3) Reputed   (4) Prodigy

Answer (4)

173. Scarcity of rain or water

    (1) Drought   (2) Draught

    (3) Tide   (4) Barren

Answer (1)

Q. (174-181) Select the meaning of the given phrases/idioms.

174. She was remarkably _____ in singing and dancing.

    (1) Conducive   (2) Reluctant

    (3) Arrogant   (4) Accomplished

Answer (4)

175. A technology starved customer would only be _____ to be presented with a new project.

    (1) Thriving   (2) Declarative

    (3) Imitable   (4) Thrilled

Answer (4)

176. The song in the play cannot be deleted as it is _____ to the story.

    (1) Intervened   (2) Innate

    (3) Intergral   (4) Exact

Answer (3)

177. She remained a _____ all her life.

    (1) Spinster   (2) Bachelor

    (3) Unmarried   (4) Single

Answer (1)

178. Do not stay in grasslands after dark as some animals become _____ when they see humans.

    (1) Provoked   (2) Alerted

    (3) Aggressive   (4) Juvenile

Answer (3)

179. Out and out

    (1) Complaining   (2) out of game

    (3) thoroughly   (4) decline

Answer (3)

180. Odds and ends

    (1) needless   (2) watchful

    (3) stray articles   (4) declining

Answer (3)

181. Fire and sword:-

    (1) energy   (2) destruction

    (3) shining   (4) brave

Answer (2)

Q.(182-185.) change the voice:-

182. Who beat you?

    (1) By whom were you beaten?

    (2) Whom were you beaten?

    (3) Why were you beaten?

    (4) Whom do you beaten?

Answer (1)

183. This news alarmed me.

    (1) I have been alarmed at this news

    (2) I was alarmed at this news

    (3) I was alarmed by him.

    (4) I had been alarmed at this news.

Answer (2)

184. Sit down

    (1) you were ordered to sit down

    (2) you had ordered to sit down.

    (3) you are ordered to sit down.

    (4) you have been ordered to sit down.

Answer (3)

185. May I see you pen?

    (1) May you pen will be seen by me?

    (2) May pen be seen by me?

    (3) May your pen be seen by me?

    (4) May I See my pen through you?

Answer (3)

Q.(186-188.) Change the narration of the following:-

186. "Call the police," said someone.

    (1) Some one suggested that police must be called

    (2) Some one suggested that police will be called by me.

    (3) Some one told that the police will be called

    (4) Some one suggested that the police should be called.

Answer (4)

187. She said to Tom," open your mouth,"

    (1) She warned Tom to open mouth

    (2) She ordered Tom to open his mouth

    (3) She asked Tom to open mouth

    (4) She told Tom to open mouth.

Answer (2)

188. He said to me," Where do you live?"

    (1) He told to me where I should live

    (2) He told to me where I live.

    (3) He asked to where I was lived

    (4) He asked me where I lived.

Answer (4)

Q.(189-196.) In the following passage, there are some numbered blanks. Fill in the blanks by selecting the most appropriate word for each blank from the given options:-

Animals have played a major role in human's lives throughout history. Today, Scientific research is trying to (189) _____ the positive aspects of living with companion animals. Animals have been used as an (190) _____ form of treatment for many years. More recently it has been discovered that owing a pet can help lower people's blood pressure, (191) ___the chances of living after a heart attack, keep people more active and provide more (192) _____with life. It is (193) _____ that this happens beacuse pets help people become more (194)_____ provide a means to give and receive (195) _____, and help connect us with the (196) ____world.

189. (1) evolve   (2) discover

     (3) provide   (4) impart

Answer (2)

190. (1) alternative   (2) secondary

     (3) mandatory   (4) obligatory

Answer (1)

191. (1) Elaborate   (2) elucidate

     (3) enhance   (4) eradicate

Answer (3)

192. (1) Satisfaction   (2) lethargy

     (3) discomfort   (4) energy

Answer (1)

193. (1) Practiced   (2) supposed

     (3) accepted   (4) theorized

Answer (4)

194. (1) Boring   (2) Workaholic

     (3) social   (4) rechuse

Answer (3)

195. (1) Affection   (2) hatred

     (3) isolation   (4) precision

Answer (1)

196. (1) Articial   (2) Amiable

     (3) Natural   (4) Political

Answer (3)

Q.(197-200.) Select the word which means the opposite of the underlined word:-

197. On these tablets, they have inscribed writing which they wished to <u>preserve.</u>

     (1) Ruin   (2) conceal

     (3) hide   (4) protect

Answer (1)

198. The earliest books were not books in the <u>modern</u> sense of the word.

     (1) new   (2) ancient

     (3) current   (4) latest

Answer (2)

199. The soldier was reprimanded for ruining his <u>immaculate</u> uniform.

     (1) Shining

     (2) Dirty

     (3) Useless

     (4) Worthy

Answer (2)

200. We should have <u>cordial</u> relations with our neighbor.

     (1) Smooth

     (2) Friendly

     (3) Sophisticated

     (4) Reserved

Answer (4)

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