AFCAT-II

Air Force Common Admission Test

(Solved Paper 2016)

Directions (Q.Nos. 1-5) *Which word or words explains the meaning of the following idioms.*

1. All Agog
   (a) Almighty
   (b) Unmoved
   (c) Praise someone
   (d) Full of interest and excitement

2. To the manner born
   (a) One of low birth
   (b) Naturally at ease
   (c) Place of one's birth
   (d) Caesarean birth

3. Lose one's marbles
   (a) Lose something dear to you
   (b) Suffer a setback
   (c) Become insane
   (d) Become drunk

4. Bolt from the blue
   (a) Sea swimming
   (b) Complete surprise
   (c) Reckless
   (d) Careless

5. Be like a bear with a sore head
   (a) Be in a foul mood
   (b) Have headache
   (c) Powerful and arrogant
   (d) Restless

Directions (Q.Nos. 6-9) *Choose the word which is nearly opposite in meaning to the given word.*

6. Beguile
   (a) Deceive   (b) Honest   (c) Charm   (d) Cheat

7. Ameliorate
   (a) Deteriorate   (b) Procrastinate
   (c) Stagnate   (d) Deviate

8. Feckless
   (a) Spotted   (b) Fatuous   (c) Strong   (d) Fawning

9. Cacophonous
   (a) Tamed   (b) Harmonious
   (c) Silent   (d) Domestic

Directions (Q.Nos. 10-14) *Select the most appropriate word from the options against each number.*

About sixty percent of the human body is water. If you could **(10)** out a human being like a **(11)** you would obtain about fifty litres of water. This water which is not like **(12)** water because of the substance it **(13)** is necessary to the life of the human being. About a gallon of it is in the blood vessels and is **(14)** circulation by temperature.

10. (a) work   (b) wrench
    (c) press   (d) squeeze

11. (a) mango   (b) lemon   (c) fruit   (d) banana
12. (a) usual   (b) ordinary   (c) common   (d) normal
13. (a) dissolves   (b) carries   (c) contains   (d) includes
14. (a) continued   (b) made   (c) got   (d) kept

Directions (Q.Nos. 15-18) *Choose the correctly spelt word.*

15. (a) Ascendancy   (b) Ascendncy
    (c) Ascandency   (d) Acsendancy

16. (a) Hegamony   (b) Hegemony
    (c) Hegemoney   (d) Hegamoney

17. (a) Parpetuate   (b) Perpetuete
    (c) Perpetuate   (d) Perpatuate

18. (a) Apocaleptic   (b) Apocalaptic
    (c) Apocalyptic   (d) Apacalyptic

Directions (Q.Nos. 19-22) *Choose the word which is nearest in meaning to the given word.*

19. Preposterous
    (a) Formal   (b) Judicious
    (c) Ridiculous   (d) Ceremonious

20. Dissemble
    (a) Disagree   (b) Shake   (c) Impeccable   (d) Conceal

21. Raucous
    (a) Flavourful   (b) Jarring   (c) Boisterous   (d) Evil

22. Abrogate
    (a) Put an end to   (b) Elope
    (c) Gatecrash   (d) Send away

Directions (Q. Nos. 23-25) *Read the following passage carefully and answer the questions given below it.*

The great Acharyas have said that having discovered a great goal, surrender yourself to that goal and act towards it, drawing your inspiration from that goal whereby you will get a new column of energy. Do not allow this energy to be dissipated in the futile memories of past regrets of failure, not in the excitement of the present and thus bring that entire energy focussed into activity. That is the highest creative action in the world outside. Thereby the individual who is, till now considered as most inefficient finds his way to the highest achievement and success. This is said very easily in a second. But in order to train our mind to this attitude needs considerable training because we have already trained the mind wrongly to such an extent that we have become perfect in imperfections. Not knowing the art of action, we have become master artist in

doing wrong things. The totality of activity will bring the country to a wrong end, indeed. The point is, intellect is very powerful and everyone is driving but nobody seems to know how to control the mental energy and direct it properly, or guide it to the prooper destination.
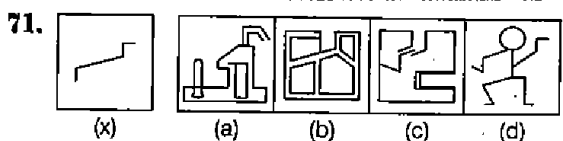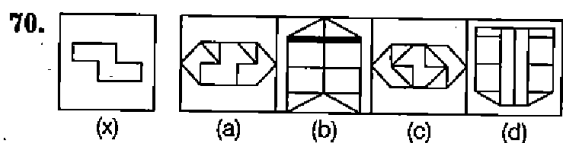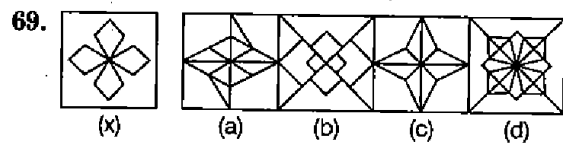
23. Which of the following is the source of energy?
(a) A column that supports a building
(b) Stimulation obtained from a set aim
(c) Highest creative action
(d) Proper training of the mind to achieve perfection

24. The author's chief concern is
(a) Establishment of socialistic pattern
(b) Discovery of great goal in the life
(c) Regulation of energy in the proper direction
(d) Training of the mind

25. What is the effect of training of the wrong mind?
(a) We have become perfect in all aspects
(b) Art of action is too much emphasized
(c) Each of us could become a master artist
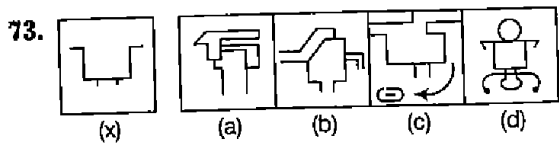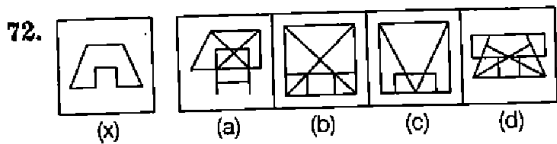(d) None of the above

Directions (Q.Nos. 26-68) *Choose the most appropriate answer.*

26. The book, On My Terms: From the Grassroots to the Corridors of Power; is the autobiography of
(a) Lal Thanhawla   (b) Ram Jethmalani
(c) Sharad Pawar   (d) Okram Ibobi Singh

27. 21st Conference of Parties (COP21) on Climate Change was held in Nov-Dec 2015 at
(a) London   (b) Singapore
(c) Paris   (d) New York

28. Artificial rain is produced by seeding clouds with
(a) Silver Iodide   (b) Potassium Nitrate
(c) Copper Sulphate   (d) Silver Nitrate

29. Which of the following parts of India receives rainfall from retreating monsoon?
(a) North East India   (b) Tamil Nadu Coast
(c) Mahanadi Delta   (d) Malabar Coast

30. Who was honoured with the Order of Australia, the highest civilian award in January this year?
(a) Yashwant Sinha   (b) Vashu Bhagnani
(c) Sajeev Koshy   (d) Sanjeev Kapoor

31. Who among the following was awarded India;s highest peacetime gallantry award, As Chakra posthumously on 26 January 2016?
(a) Lance Naik Mohan Nath Goswami
(b) Lance Niak Albert Ekka
(c) Lance Naik Hanamanthappa Koppad
(d) Lance Naik Hemraj

32. Which one of the following best explains the occurrence of the solar eclipse?
(a) Position of the Moon between Sun and Earth
(b) Position of the Moon between Sun and Earth on a new Moon
(c) Both (a) and (b)
(d) None of the above

33. Highest Civilian Award, Bharat Ratna was conferred in 2015 to
(a) Atal Bihari Vajpayee   (b) LK Advani
(c) Jai Prakash Narain   (d) Madan Mohan Malviya

34. The indigenously developed Navigational Satellite system is know as
(a) IRGPS   (b) Galileo
(c) IRNSS   (d) GLONASS

35. Bajirao was appointed as Peshwa at the age of 20 yrs under the reign of
(a) Sambhaji   (b) Chhatrapati Shahu
(c) Rajaram II of Satara   (d) Rajaram Chhatrapati

36. Which cricketer has been conferred with Col C K Naidu life time achievement award in 2015?
(a) Bishen Singh Bedi   (b) Kapil Dev
(c) Mohinder Amarnath   (d) Syed Kirmani

37. Besides the Qutab Mosque and Qutab Minar, Qutab-ud-din Aibak is said to have built
(a) Adhai-din ka Jhopra mosque at Ajmer
(b) Khirki masjid at Jahan-Panath
(c) Mausoleum of Khan-i-Jahan Tilangani
(d) Kila-i-Kuhna mosque at Delhi

38. Indian Ruler who defeated British in their early stage of rule in India was
(a) Maharaja Ranjit Singh   (b) Mahadaji Scindhia
(c) Hyder Al   (d) Tipu Sultan

39. Who among the following will head the Judicial Committee on 'One Rank One Pension (OROP)' scheme?
(a) Y V Reddy   (b) L Narasimha Reddy
(c) Sanjay Mishra   (d) N S Reddy

40. The mascot of the South Asian Games conducted in February 2016 was
(a) Chikor   (b) Shera   (c) Tikhor   (d) Appu

41. Who among the following shooters clinched the 50 m pistol gold at the ISSF World Cup in Bangkok in Mar 2016?
(a) Jitu Rai   (b) Pang Wei
(c) Wang Zhiwei   (d) Potent Warren

42. Which country will host Commonwealth Games in 2018?
(a) New Zealand (b) Australia (c) Scotland (d) Malaysia

43. The largest concentration of Harappan sites has been found along the
(a) Sutlej   (b) Ghaggar-Hakra
(c) Indus   (d) Ravi

44. Heavy water is called heavy because
(a) It is denser than ordinary water
(b) It is an oxide of deuteron
(c) It has a heavy (or bad) taste
(d) It has a heavier isotope of hydrogen

45. Which of the following soils is most conducive of the growth of cotton?
(a) Alluvial   (b) Red   (c) Laterite   (d) Black

46. India has inked a deal with France to acquire fighter aircraft, Dassault Rafale. Which is the other French fighter aircraft in the inventory of Indian Air Force?
(a) MIG 21   (b) Mirage 2000
(c) AJT Hawk   (d) Su-30 MkI

47. Resolution of Purna Swaraj was passed on 26 January 1930 at
(a) Haripur   (b) Lahore
(c) Karachi   (d) Calcutta

48. Deepika Padukone has received Filmfare award 2016 for the best actress for the movie
(a) Bajirao Mastani
(b) Happy New Year
(c) Tamasha
(d) Piku

49. The largest Oil Field of Gujarat is in
(a) Senand
(b) Kadi
(c) Ankleshwar
(d) Kalol

50. Fundamental Rights are enshrined in the Constitution of India in
(a) Part I
(b) Part III
(c) Part IV
(d) Part V

51. A worker may claim ₹ 1.5 for each km which he travels by taxi and 50 paise for each km he drives his own car. If in one week he claimed ₹ 50 for travelling 80 km, how many kms did he travel by taxi?
(a) 20 km
(b) 14 km
(c) 12 km
(d) 10 km

52. In an examination, a student was asked to find $\frac{3}{14}$ of a certain number. By mistake, he found $\frac{3}{4}$ of it. His answer was 150 more than the correct answer. Find the number.
(a) 180
(b) 280
(c) 380
(d) 480

53. An amount of ₹ 735 was divided between A, B and C. If each of them had received ₹ 25 less, their shares would have been in the ratio of 1 : 3 : 2. The money received by C was
(a) ₹ 195
(b) ₹ 200
(c) ₹ 225
(d) ₹ 245

54. 20 litres of a mixture contains milk and water in the ratio 5 : 3. If 4 litres of this mixture is replaced by 4 litres of milk, the ratio of milk to water in the new mixture would be
(a) 2 : 1
(b) 7 : 3
(c) 8 : 3
(d) 4 : 3

55. A man rows upstream a distance of 9 km or downstream a distance of 18 km taking 3 hours each time. The speed of the boat in still water is
(a) $7\frac{1}{2}$ km/h
(b) $6\frac{1}{2}$ km/h
(c) $5\frac{1}{2}$ km/h
(d) $4\frac{1}{2}$ km/h

56. A can do a piece of work in 10 days. He works at it for 4 days and then B finishes it in 9 days. In how many days can A and B together finish the work?
(a) 6 days
(b) 8 days
(c) $8\frac{1}{2}$ days
(d) $7\frac{1}{2}$ days

57. A crate of mangoes contains one bruised mango for every 30 mangoes in the crate. If 3 out of every 4 bruised mangoes are considered unsalable and there are 12 unsalable mangoes in the crate, how many mangoes are there in the crate?
(a) 480
(b) 500
(c) 420
(d) 520

58. A man can row 30 km upstream and 44 km downstream in 10 hours. He can also row 40 km upstream and 55 km downstream in 13 hours. Find the rate of current.
(a) 3 km/h
(b) 2 km/h
(c) 4 km/h
(d) 5 km/h

59. How long will it take for a sum of money invested at 5% p.a. at simple interest to increase its value by 40%?
(a) 5 years
(b) 6 years
(c) 7 years
(d) 8 years

60. The mean of 50 observations was 36. It was found later that an observation 48 was wrongly taken 23. The corrected new mean is
(a) 35.2
(b) 34.1
(c) 36.5
(d) 39.1

61. The average score of a cricketer for ten matches is 38.9 runs. If the average for the first six matches is 42, the average for the last four matches is
(a) 33.25
(b) 33.5
(c) 34.25
(d) 35

62. On a certain sum, the simple interest at the end of $6\frac{1}{4}$ years becomes $\frac{3}{8}$ th of the sum. The rate percent is
(a) 7%
(b) 6%
(c) 5%
(d) $5\frac{1}{2}$%

63. A horse is sold at a profit of 25%. If both the cost price and selling price are ₹ 200 less, the profit will be 5% more. The cost price is
(a) ₹ 1100
(b) ₹ 1200
(c) ₹ 1000
(d) ₹ 900

64. Two trains travel in opposite directions at 36 km/h and 45 km/h respectively. A man sitting in slower train passes the faster train in 8 seconds. The length of the faster train is
(a) 80 m
(b) 120 m
(c) 160 m
(d) 180 m

65. By selling a chair for ₹ 368, a man lost 8%. For how much should he have sold it to gain 15%?
(a) ₹ 450
(b) ₹ 475
(c) ₹ 460
(d) ₹ 500

66. A train 110 metres long is running with a speed of 60 km/h. In what time will it pass a man who is running at 6 km/h in the direction opposite to that of train?
(a) 5 s
(b) 6 s
(c) 7 s
(d) 10 s

67. If 3 men or 4 women can plough a field in 43 days, in how many days 7 men and 5 women can plough the same field?
(a) 18 days
(b) 10 days
(c) 12 days
(d) 15 days

68. A man sold two watches for ₹ 3750 each, on one he gained 5% and on the other he lost 5%. What was his total gain or loss as a percentage?
(a) 0.25% loss
(b) 2.5% loss
(c) 25% gain
(d) 12.5 gain

Directions (Q.Nos. 69-73) *In each of the following questions, figure (X) is given followed by four alternative figures (a), (b), (c) and (d). Figure (X) is embedded in one of the alternative figures. Trace out the alternative which contains figure (X) as its part.*

69.

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

70.

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

71.

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

72.

(x)　(a)　(b)　(c)　(d)

73.

(x)　(a)　(b)　(c)　(d)

Directions (Q.Nos. 74-77) *Each of these questions given below contains three elements. These elements may or may not have some inter-linkage. Each group of elements may fit into one of these diagram at (a), (b), (c) or (d). You have to indicate the group of elements which correctly fits into the diagrams.*
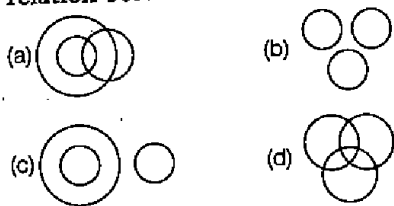
**74.** Which of the following diagrams indicates the best relation between Mountains, Earth and Forests?
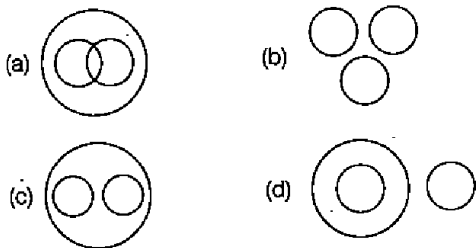
75. Which of the following diagrams indicates the best relation between Sun, Planets and Earth?
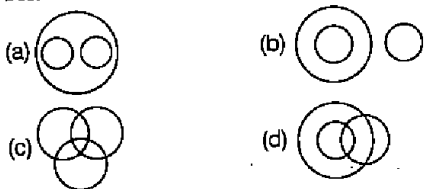

76. Which of the following diagrams indicates the best relation between Graduate, Teacher and Player?

77. Which of the following diagrams indicates the best relation between Leaf, Seed and Root?
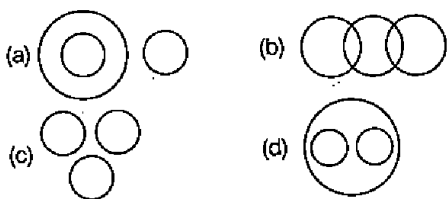
Directions (Q.Nos. 78-80) *In each problem, out of the four figures marked (a), (b), (c) and (d), three are similar in a certain manner. However, one figure is not like the other three. Choose the figure which is different from the rest.*

78.

(a)　(b)　(c)　(d)

79.

(a)　(b)　(c)　(d)

80.

(a)　(b)　(c)　(d)
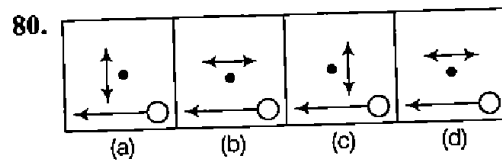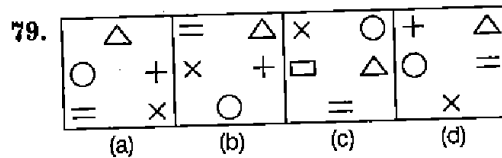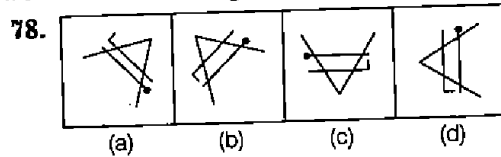
Directions (Q.Nos. 81-85) *In each of the following questions four words have been given out of which three are alike in some manner, while the fourth one is different. Choose the word which is different from the rest.*

**81.** (a) Bogota　(b) Sydney　(c) Doha　(d) Brussels

82. (a) Retina　(b) Pupil　(c) Vision　(d) Cornea

83. (a) Udayagiri and Khandagiri　(b) Badami
(c) Elephanta　(d) Doddabetta

84. (a) Tibia　(b) Cortex　(c) Cranium　(d) Cerebellum

85. (a) Saltoro Kangri　(b) Kongka
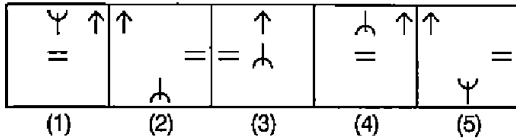(c) Zoji La　(d) Kumbharli Ghat

Directions (Q.Nos. 86-90) *In each of the following questions, select a figure from amongst the four alternatives, which satisfies the same conditions of placement of the dots as in figure (X).*
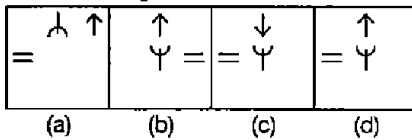
86.

(x)　(a)　(b)　(c)　(d)

87.

(x)　(a)　(b)　(c)　(d)

88.

(x)　(a)　(b)　(c)　(d)

89.

(x)　(a)　(b)　(c)　(d)

90.

(x)   (a)   (b)   (c)   (d)
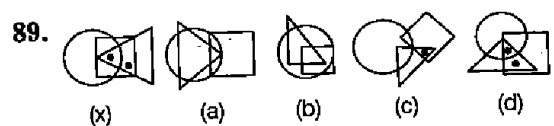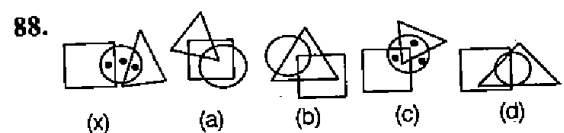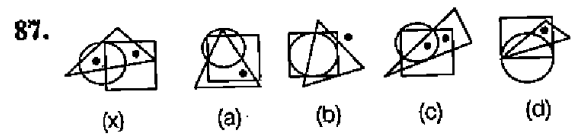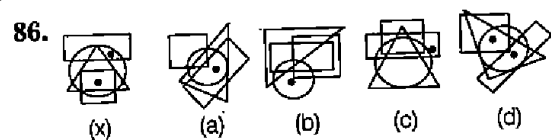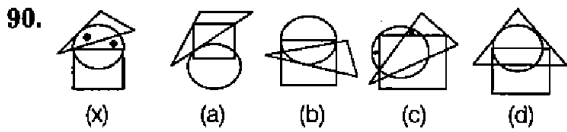
Directions (Q.Nos. 91-95) *Each of the following questions consists of five figures marked 1, 2, 3, 4 and 5 called Problem Figures followed by four other figures marked (a), (b) (c) and (d) called the answer figure. Select a figure from amongst the answer figures which will continue the same series as establish by the five Problem Figures.*
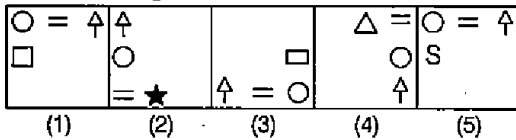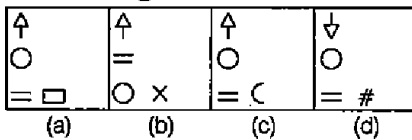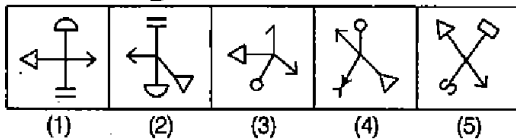
91. Problem Figures

(1)   (2)   (3)   (4)   (5)

Answer Figures

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

92. Problem Figures

(1)   (2)   (3)   (4)   (5)

Answer Figures

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

93. Problem Figures

(1)   (2)   (3)   (4)   (5)

Answer Figures

(a)   (b)   (c)   (d)
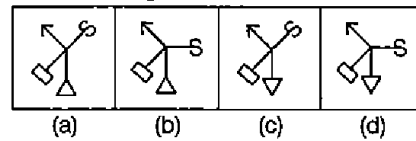
94. Problem Figures

(1)   (2)   (3)   (4)   (5)

Answer Figures

(a)   (b)   (c)   (d)
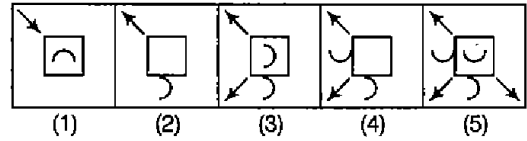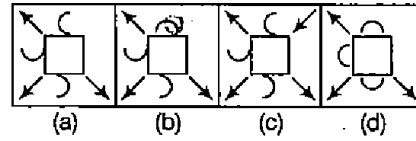
95. Problem Figures

(1)   (2)   (3)   (4)   (5)

Answer Figures

(a)   (b)   (c)   (d)
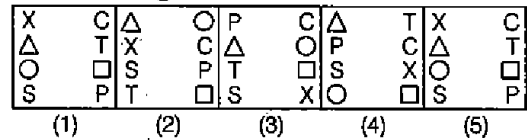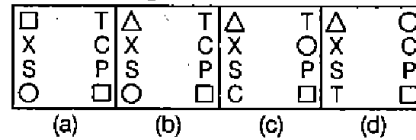
Directions (Q.Nos. 96-100) *In each of the following questions find out the alternative which will replace the question mark.*

96. Anatomy : Zoology :: Paediatrics :?
(a) Chemistry   (b) Medicine
(c) Palaeontology   (d) Mechanics

97. Eccrinology : Secretions :: Selenography : ?
(a) Sun   (b) Mantle   (c) Crust   (d) Moon

98. Virology : Virus :: Semantics : ?
(a) Amoeba   (b) Language   (c) Nature   (d) Society

99. Tectonics : Building :: Taxidermy: ?
(a) Classification(b) Conserving (c) Stuffing   (d) Collecting

100. Annihilation : Fire :: Cataclysm : ?
(a) Emergency (b) Tribulation (c) Anxiety   (d) Flood

Answers

1. (d)	2. (b)	3. (c)	4. (b)	5. (a)	6. (b)	7. (a)	8. (c)	9. (b)	10. (d)
11. (b)	12. (d)	13. (c)	14. (d)	15. (a)	16. (b)	17. (c)	18. (c)	19. (c)	20. (d)
21. (c)	22. (a)	23. (b)	24. (b)	25. (d)	26. (c)	27. (c)	28. (a)	29. (b)	30. (c)
31. (a)	32. (b)	33. (*)	34. (c)	35. (b)	36. (d)	37. (a)	38. (c)	39. (b)	40. (c)
41. (a)	42. (b)	43. (c)	44. (d)	45. (d)	46. (b)	47. (b)	48. (d)	49. (c)	50. (b)
51. (d)	52. (b)	53. (d)	54. (b)	55. (d)	56. (a)	57. (a)	58. (a)	59. (d)	60. (c)
61. (c)	62. (b)	63. (b)	64. (d)	65. (c)	66. (b)	67. (c)	68. (a)	69. (d)	70. (c)
71. (d)	72. (d)	73. (b)	74. (c)	75. (b)	76. (a)	77. (c)	78. (a)	79. (c)	80. (d)
81. (b)	82. (c)	83. (b)	84. (a)	85. (a)	86. (d)	87. (c)	88. (c)	89. (d)	90. (c)
91. (d)	92. (c)	93. (a)	94. (a)	95. (d)	96. (b)	97. (d)	98. (b)	99. (c)	100. (d)

Note (*) None of the correct in the given options.

Hints and Solutions

1. All Agog means full of interest and excitement.
2. To the manner born means something is natural for you and you have done it many times in the past.
3. Lose one's marbles means not behaving in a sensible way; become insane.
4. Bolt from the blue means an event or news which is sudden and unexpected; a complete surprise.
5. Be like a bear with a sore head means to be bad tempered or in a bad mood.
6. Beguile means to trick somebody into doing something especially by being nice to them.
7. Ameliorate means to make something better. Deteriorate means to make or become worse.
8. Feckless means weak; incompetent; irresponsible. Out of the given alternatives strong is nearly opposite in meaning to it.
9. Cacophonous means producing loud and unpleasant sounds. Harmonious means producing pleasant sounds.
10. Squeeze means to get liquid out of something by pressing or twisting.
11. A lemon is more likely to be squeezed than any other of the given options.
12. All other options are clearly inappropriate.
13. If something contains something else it has that thing inside it or as part of it.
14. 'Kept circulated' is the appropriate phrase here.
15. The correctly spelt word is 'Ascendancy.
16. The correctly spelt word is 'Hegemony'.
17. The correctly spelt word is 'Perpetuate'.
18. The correctly spelt word is 'Apocalyptic'.
19. Preposterous means unusual in a silly or shocking way.
20. Dissemble means to hide your real feelings or emotions.
21. Raucous means sounding loud and rough. Boisterous means noisy and full of energy.
22. Abrogate means to officially end a law, an agreement etc.
23. The answer can be inferred from the first sentence of the passage.
24. The answer is quite clear after reading the passage.
25. According to the passage none of the options (a), (b) and (c) is correct.
26. The book, 'On my terms: From the Grassroots to the Corridors of Power' is an autobiography of National Congress Party (NCP) leader Mr. Sharad Pawar.
27. The 21st session of the conference of parties (COP 21) on climate change and the 11th session of the conference of the parties serving as the meeting the parties to the Kyoto Protocol (CMP) was held in Paris (France) in Nov-Dec 2015.
28. Artificial rain is mainly produced by seeding clouds with silver Iodide (AgI).
29. In India Tamilnadu receive rainfall from retreating monsoon. October-November is the main rainy season in Tamilnadu and adjoinning areas of Andhra Pradesh to the South of the Krishna delta as well as a secondary rainy period for Kerala state.
30. Sanjeev Koshy from Indian Origin has been honoured with the Order of Australia in Jan 2016 (the highest civilian award of Australia) for his contribution in the field of medicine. Chennupati Jagdish and Jay Chandra were also awarded by the Order of Australia with Sanjeev Koshy.

31. Lance Naik Mohan Nath Goswami (Posthumous) was awarded by Ashok Chakra on 26 January 2016. Ashok Chakra is India's highest peace time gallantry award.
32. The Solar Eclipse is a situation, when the Moon comes between Sun and Earth. It is occurs only on a new moon day. But it does not occurs on every new moon day because of the inclination of the Moon's orbital plan.
33. The highest civilian award, Bharat Ratna was conferred in 2015 to freedom fighter and BHU founder Madan Mohan Malviya and Ex. Prime Minister Atal Bihari Vajpayee. So, both options (a) and (d) are right.
35. Baji Rao I (AD 1720-40), the eldest son of Balaji Vishwanath, was appointed as Peshwa at the age of 20 years under the rign of Chhatrapati Shahu. Baji Rao was considered the greatest exponent of gurilla tactice after Shivaji and Maratha Power reached its zenith under him.
37. Qutab-ud-din Aibak constructed two mosques Quwat-ul-Islam at Delhi and Adhai-din-ka Jhopra at Ajmer. He also began the construction of Qutub Minar in honour of famous Sufi Saint Khwaja Qutb-ud-din Baktiyar Kaki. He became the sultan of India in AD 1206 and known as Lakh Baksh (giver of lakhs).
38. Hyder Ali defeated the British Army, led by colonel Baillie during second Anglo-Mysore war (AD 1780-1784).
40. The mascot of the south Asian Games 2016 was Tikhor. It carries the message of peace, progress and prosperity in the south Asian region.
43. The largest concentration of Harappan sites has been found along the river Indus. Mohenjodaro (discovered by RD Banerjee in 1922) is the largest site of Harappan civilisation along with the river Indus. The great bath and the great Granary found was the largest building of Harappan civilisation.
44. Heavy water (D_2O) is called heavy because it has a heavier isotope of hydrogen. It is also called deuterated water. It can be prepared by exhaustive electrolysis of water or as a by-product in some fertilizer industries. It is extensively used as a moderator in nuclear reactors.
45. Black soil is most conductive for the growth of cotton. It is mainly found in Maharashtra and Gujarat and rich in lime, iron, magnesia and alumina.
47. The resolution of Purna Swaraj was passed on 26 January 1930 at Lahore in 45th annual session of congress.
   Jwaharlal Nehru was elected President of this historic session of the congress. In this annual session of congress Jwaharlal Nehru unfurled the flag of India's independence on the bank of the river Ravi in Lahore.
50. The Fundamental Rights have been described in Articles 12-35, Part III of Indian constitution. Originally the fundamental Rights were seven. The Right of Property (Article 31) was deleted from the list of Fundamental Rights by the 44th Amendment Act, 1978.
51. Let x and $(80 - x)$ km are the distance covered by travelling by taxi and car respectively.
   According to the question
   $$1.5x + 0.50(80 - x) = 50$$
   $$1.5x + 0.50 \times 80 - 0.50x = 50$$
   $$x + 40 = 50$$
   $$x = 10 \text{ km}$$

52. Let the required number $= x$

According to the question

$$\frac{3x}{4} - \frac{3x}{14} = 150, \frac{21x - 6x}{28} = 150, 15x = 150 \times 28, 15x = 4200$$

$$\therefore \qquad x = \frac{4200}{15} = 280$$

53. Let the shares of A, B and C are $x, 3x$ and $2x$ respectively.

According to the question,

$(x + 25) + (3x + 25) + (2x + 25) = 735$

$$6x + 75 = 735, 6x = 660, x = 110$$

$\therefore$ Shares of $C = 2x + 25 = 2 \times 110 + 25 = 220 + 25 = 245$

So, C gets ₹ 245

54. Quantity of mixture $= 20$ L, milk : water $= 5 : 3$

$$\therefore \text{ Quantity of milk} = \frac{5}{8} \times 20 = 12.5 \text{ L}$$

$$\text{Quantity of water} = \frac{3}{8} \times 20 = 7.5 \text{ L}$$

Since, quantity of milk in 20 L $= 12.5$ L

$$\therefore \text{Quantity of milk in 4 L} = \frac{12.5 \times 4}{20} = 2.5 \text{ L}$$

Similarly quantity of water in 4 L of mixture $= 1.5$ L

So, remaining quantity of milk in mixture $= 12.5 - 2.5 = 10$ L

and water $= 7.5 - 1.5 = 6$ L

According to the question $\frac{10 + 4}{6} = \frac{14}{6} = 7 : 3$

So, the required ratio of milk and water $= 7 : 3$

55. Let the speed of boat in still water be x km and speed of current be y km.

According to the condition, $x + y = \frac{9}{3} = 3$

$$x + y = 3 \qquad \qquad \qquad ...(i)$$
$$\text{and} \qquad x - y = 6 \qquad \qquad ...(ii)$$

by solving Eqs. (i) and (ii), we get

$$2x = 9, x = 4.5 \text{ km/h}$$

So, the speed of boat in still water $= 4.5$ km/h

56. A's work in 1 day $= \frac{1}{10}$, A's work in 4 days $= \frac{2}{5}$

Remaing part of work $= 1 - \frac{2}{5} = \frac{3}{5}$

According to the question, B finishes it in 9 days

$\therefore B$'s work in one day $= \frac{9 \times 5}{3} = \frac{1}{15}$

Work done by A and B together in $\dfrac{1}{\frac{1}{10} + \frac{1}{15}}$ days $= \frac{30}{5} = 6$ days

57. Let the bruised mangoes and unsalable mangoes are $3x$ and $4x$ respectively. In 30 mangoes.

According to the condition, $3x = 12, x = 4$

No. of bruised mangoes $= 4 \times 4 = 16$

So, the required number of mangoes in a crate $= 16 \times 30 = 480$

58. Let the speed of boat in still water $= x$ km/h and speed of current $= y$ km/h

According to the question, $\dfrac{30}{x - y} + \dfrac{44}{x + y} = 10$

Now, Let $x - y = p, x + y = q, \dfrac{30}{p} + \dfrac{44}{q} = 10$

or $\dfrac{15}{p} + \dfrac{22}{q} = 5 \qquad \qquad ...(i)$

[multiplying by 5 to Eq.(i)]

$$\frac{75}{p} + \frac{110}{q} = 25 \qquad \qquad ...(ii)$$

Again by condition,

$$\frac{40}{x - y} + \frac{55}{x + y} = 13 \qquad ...(iii)$$

or $\dfrac{80}{p} + \dfrac{110}{q} = 26 \qquad \qquad ...(iv)$

(Multiplying by 2 in both sides)

By solving Eqs. (ii) and (iv)

$$\begin{array}{r} \dfrac{75}{p} + \dfrac{110}{q} = 25 \\ \dfrac{80}{p} + \dfrac{110}{q} = 26 \\ \underline{- \quad - \quad \quad -} \\ -\dfrac{5}{p} \qquad \quad = -1 \end{array}$$

So, $\boxed{p = 5}$

$\boxed{q = 11}$

Putting the value of p and q

$$x - y = 5$$
$$\underline{x + y = 11}$$
$$2x \quad = 16$$

By solving the equation, $x = 8$ and $y = 3$

So, the speed of current $= 3$ km/h

59. Let the principle amount be P.

According to the condition

$$(100 + 40)\% \text{ of } P = \frac{140 \times P}{100} = \frac{7P}{5} \text{ and } \frac{7P}{5} = P\left(\frac{T \times 5}{100} + 1\right)$$

$$\frac{7}{5} - 1 = \frac{T \times 5}{100}, \frac{2}{5} = \frac{T}{20}$$

$$T = 8 \text{ years}$$

60. Average of 50 observations $= 36$

So, the sum of observation of 50,

Total value of 50 observations $= 50 \times 36 = 1800$

But 48 was wrongly taken 23. So, difference $= 48 - 23 = 25$

Hence, total correct value of 50 observation $= 1800 + (25) = 1825$

$\therefore$ required mean $= \dfrac{1825}{50} = 36.5$

61. The average of runs of 10 matches $= 38.9$

$\therefore$ Total no. of runs $= 10 \times 38.9 = 389$

but no. of runs for the first six matches $= 42 \times 6 = 252$

and no. of runs for last 4 matches $= 389 - 252 = 137$

So, the required mean/average $= \dfrac{137}{4} = 34.25$

62. Let the principle amount is p, rate $= r\%$

According to the question

$$\frac{3}{8} p = p \times 6\frac{1}{4} \times \frac{r}{100}, \frac{3}{8} = \frac{25 \times r}{400}$$

$$r = 3 \times 2 = 6\%$$

63. Let the cost price of horse be x and selling price $= x \times \dfrac{125}{100} = \dfrac{5x}{4}$.

According to the question,

$$\frac{\left(\dfrac{5x}{4} - 200\right) - (x - 200)}{x - 200} \times 100 = 30$$

$$\frac{1.25x - 200 - x + 200}{x - 200} = \frac{3}{10}, \frac{0.25x}{x - 200} = \frac{3}{10}, 2.5x = 3x - 600$$

$$0.5x = 600, \; x = 1200$$

So, the cost price of horse $= ₹ 1200$

64. The relative speed of the train $= (36 + 45) \times \dfrac{5}{18}$

$$= 22.5 \text{ m/s time} = 8 \text{ s}.$$

So, the length of fast train $=$ speed $\times$ time $= 22.5 \times 8 = 180$ m

65. Let the cost price of a chair be $₹ x$

According to the question $= 368 = x \times 92\%$

$$\therefore \quad x = \frac{368 \times 100}{92}$$

So, the selling price at the profit of $15\% = 115\%$ of cost price

$$= \frac{115}{100} \times 400 = ₹ 460$$

66. According to the question, Length of the train $= 110$ m

$$\text{Speed} = \frac{60 \times 5}{18} \text{ m/s} = 16\frac{2}{3} \text{ m/s}$$

$$\text{Speed of man} = 6 \times \frac{5}{18} \text{ m/s} = 1\frac{2}{3} \text{ m/s}$$

$$\text{relative speed} = 16\frac{2}{3} + 1\frac{2}{3} = 18\frac{1}{3}$$

$$\text{Required time} = \frac{110}{18\frac{1}{3}} = \frac{110 \times 3}{55} = 6 \text{ s}$$

67. According to the question, 3 men = 4 women

$$\therefore 7 \text{ men} = \frac{4 \times 7}{3} = \frac{28}{3} \text{ women}.$$

$$7 \text{ men} + 5 \text{ women} = \frac{28}{3} + 5 = \frac{43}{3} \text{ women}$$

So, the required no. of days to complete the work by

$$\frac{43}{3} \text{ women} = \frac{43 \times 4 \times 3}{43} = 12 \text{ days}$$

68. The cost price of first watch

$$\Rightarrow \quad 105\% = 3750$$

$$\therefore \quad 100\% = \frac{375000}{105} = 3571.42$$

The cost price of second watch $\Rightarrow 95\% = 3750$

$$\therefore \quad 100\% = 3947.36$$

The cost price of both watchs $= 3571.42 + 3947.36 = 7518.8$

and selling price $= 7500$, loss $= ₹ 18.8$

$$\% \text{ loss} = \frac{18.8 \times 100}{7518.8} = 0.25\%$$

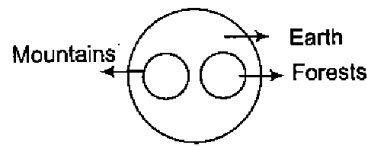**69.** figure (X) is embedded in figure (d).

70. figure (X) is embedded in figure (c).

71. figure (X) is embedded in figure (d).

72. figure (X) is embedded in figure (d).

73. If we rotate 90° clockwise to figure (b) we get the embedded figure of (X). So, figure (X) is embedded figure in figure (b).
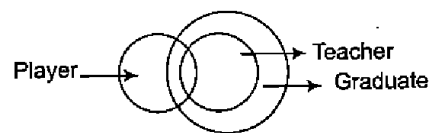
74. The best relation between Mountains, Earth and Forests is as following.
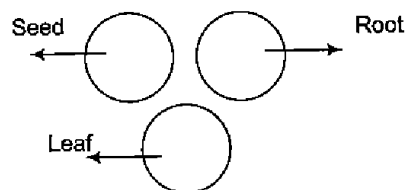

75. The best relation between Sun, Planets, and Earth is as following,

76. The best relation between Graduate, Teacher, Player is as following

77. The best relation between leaf, seed and root is as following

78. In the figure (a), the design (✓) is different from others.

79. There is no rectangle in any other figure.

80. Black point should becomes on the top in figure (d) according to the given figural series.

81. Except Sydney, all remaining are the capitals of their respective countries.

82. Except (c), all remaining are the internal part of an eye.

83. Badami was the capital of chalukyas, while all remaining are mountains or its region.

84. Tibia is the larger and stronger of the two bones in the leg, while all remaining are the part of human brain.

85. Except Saltoro Kangri, all remaining are the mountain passes. Saltoro Kangri is the peak of Saltoro mountain.

96. As, Anatomy is the branch of Zoology, similarly Paediatrics is the branch of medicine.

97. As Eccrinololgy is the branch of physiology that deals with secretion and the secretory glands. In the same way selenography related to Moon.

98. As virology related to virus, similarly semantics is the study of the meaning of linguististic expression. The language can be a natural language.

99. The Taxidermy is the art of preparing, stuffing and mounting the skins of animals.

100. As, Annihilation is the total destruction of something i.e, fire. Similarly, cataclysm is a great flow of water i.e., flood.