SSC Higher Secondary Level Exam Practice Set

Answers with Explanation

English

1. (b) Use 'room in place of 'place'.
2. (c) 3. (c) 4. (c) 5. (c) 6. (a)
7. (d) 8. (c) 9. (a) 10. (a) 11. (d)
12. (d) 13. (b) 14. (b) 15. (a) 16. (c)
17. (a) Use 'We discuss/have been discussing' in place of 'have discussing' as it is better to use simple present here.
18. (b) 19. (a) 20. (d) 21. (a) 22. (d)
23. (b) 24. (a) 25. (a)

Quantitative Aptitude

26. (d) $999\frac{1}{7}=1000-\frac{6}{7}, 999\frac{2}{7}$

$=1000-\frac{5}{7}, 999\frac{3}{7}=1000-\frac{4}{7},$

$999\frac{4}{7}=1000-\frac{3}{7}, 999\frac{5}{7}=1000-\frac{2}{7},$

$999\frac{6}{7}=1000-\frac{1}{7}$

then substituting these values in the given equation, we have

$=\left(1000-\frac{6}{7}\right)+\left(1000-\frac{5}{7}\right)+\left(1000-\frac{4}{7}\right)$

$+\left(1000-\frac{3}{7}\right)+\left(1000-\frac{2}{7}\right)+\left(1000-\frac{1}{7}\right)$

$=6000-\left(\frac{6}{7}+\frac{5}{7}+\frac{4}{7}+\frac{3}{7}+\frac{2}{7}+\frac{1}{7}\right)$

$=6000-\frac{21}{7}=6000-3=5997$

27. (b) Let money earned by Michael be = 100
Then money earned by Albert = 80
Money earned by Peter = 80 + 32 = 112
Peter earned more than Michael by = 112 – 100 = 12%

28. (a) Let C.P. = ₹100
S.P. = (114.28)% of C.P. = (88.89)% of M.P.

$\Rightarrow \frac{114.28}{100}\times100=\frac{88.89}{100}\times M.P.$

$\Rightarrow M.P.=\frac{114.28}{88.89}\times100=₹128.56$

Marked price above cost price = 128.56 – 100 = 28.56%

29. (b) Let C.P. be ₹100, then, M.P. = ₹120

S.P. $=\frac{100-10}{100}$ of M.P. $=\frac{90}{100}\times120$

= ₹108
Profit% = (108 – 100)% = 8%

30. (b) (A+B)'s 5 days work + (B + C)'s 2 days work + C's 11 days work = 1

$\frac{5}{12}+\frac{2}{16}+C's\ 11$ days work = 1

C's 11 days work $=1-\left(\frac{5}{12}+\frac{2}{16}\right)=\frac{11}{24}$

C's 1 day work $=\frac{11}{24}\times\frac{1}{11}=\frac{1}{24}$

∴ C alone can finish it in 24 days

31. (c) Let first pipe takes x hours to fill the tank, then second pipe will take (x – 5) hours and third pipe will take (x – 9) hours to fill the tank. According to questions,

∴ $\frac{1}{x}+\frac{1}{x-5}=\frac{1}{x-9}$

$\Rightarrow \frac{x-5+x}{x(x-5)}=\frac{1}{x-9}$

$\Rightarrow (x-9)(2x-5)=x^2+5x$
$\Rightarrow x^2-18x+45=0$
$\Rightarrow (x-15)(x-3)=0$
$\Rightarrow x=15$ hours (neglecting x = 3)
∴ Thus time taken by first pipe is 15 hours.

32. (b) Let the speed of the goods train be x km/hr. Then

$\frac{187.5}{(50+x)\times\frac{5}{18}}=9\Rightarrow\frac{187.5\times18}{(50+x)}=45$

$\Rightarrow x=75-50=25$ km/hr.

33. (b) New average = original average – 7
= 25 – 7 = 18

34. (a) Let 3A = 4B = 7C = k, Then $A=\frac{k}{3}, B$

$=\frac{k}{4}$ and $C=\frac{k}{7}$

∴ A : B : C $=\frac{k}{3}:\frac{k}{4}:\frac{k}{7}=28:21:12$

C's share $=\frac{12}{61}\times427=₹84$

35. (b) Let x kg of first quality of tea be mixed with y kg of the second quality.
Then $10x + 14y = 11(x + y)$

$3y = x$ or $\dfrac{x}{y} = \dfrac{3}{1} \Rightarrow x : y = 3 : 1$

36. (c) S.I. = $956 - 800 = ₹156$

$R = \dfrac{156 \times 100}{800 \times 3} = 6\dfrac{1}{2}\%$

New rate $= \left(6\dfrac{1}{2} + 4\right)\% = 10\dfrac{1}{2}\%$

New S.I. $= ₹\dfrac{800 \times 21 \times 3}{2 \times 100} = ₹252$

∴ New amount $= ₹(800 + 252)$
$= ₹1052$

37. (c) Given $\cos^2 q - \sin^2 q = \dfrac{1}{2}$

Here, $\cos^2 q - \sin^2 q = (1 - \sin^2 q) - \sin^2 q$
$= 1 - 2 \sin^2 q$

Now, $1 - 2\sin^2 q = \dfrac{1}{2} \Rightarrow \sin 2\theta = \dfrac{1}{4}$

$\Rightarrow \sin\theta = \dfrac{1}{2} \Rightarrow \theta = 30°$

∴ $\tan(90° - q) = \tan(90° - 30°)$
$= \tan 60° = \sqrt{3}$

38. (b) $\sec\theta = p + \dfrac{1}{4p}$ (given), we know $\tan\theta$

$= \sqrt{\sec^2\theta - 1}$

$\tan\theta = \sqrt{\left(p + \dfrac{1}{4p}\right)^2 - 1}$

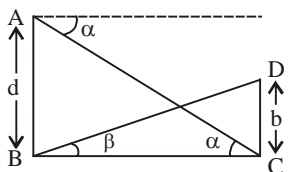$= \sqrt{p^2 + \dfrac{1}{16p^2} - \dfrac{1}{2}} = \sqrt{\left(p - \dfrac{1}{4p}\right)^2}$

$= p - \dfrac{1}{4p}$

∴ $\sec\theta + \tan\theta = \left(p + \dfrac{1}{4p}\right) + \left(p - \dfrac{1}{4p}\right)$
$= 2p$

39. (d) Height of a building = AB = d
Height of a tower = CD = h

$\dfrac{h}{d} = \dfrac{\cot\alpha}{\cot\beta}$

$h = d.\dfrac{\cot\alpha}{\cot\beta} = d.\tan\beta\cot\alpha$

40. (c) Let height of the tower = AB = h metres
Height of the pole = CD = 5m

$\dfrac{5}{h} = \dfrac{\sqrt{3} - \dfrac{1}{\sqrt{3}}}{\sqrt{3}} = \dfrac{2}{3} \Rightarrow h = \dfrac{15}{2} = 7.5\,m$

41. (b) Area of triangle $= \sqrt{15 \times 10 \times 3 \times 2} = 30$ sq. unit

length of rectangle $= \dfrac{30}{10} = 3$ unit

(Area of triangle = Area of rectangle)
perimeter $= 2(10 + 3) = 26$ units.

42. (a) Average depth of swimming pool

$= \dfrac{1 + 4}{2} = 2.5\,m$

∴ volume of pool $= 12 \times 9 \times 2.5$
$= 270\,cm^3$

43. (c) Maximum radius of the greatest sphere be 1 cm
∴ r = 1 cm

Volume of sphere $= \dfrac{4}{3}\pi r^3 = \dfrac{4}{3}\pi(1)^3$

$= \dfrac{4}{3}\pi$

44. (d) $r = \dfrac{1}{2}h$ (given)

and area of inner part is 616 sq. cm
i.e. $2prh + pr^2 = 616$

$2\pi \times \dfrac{1}{2}h \times h + \pi \times \left(\dfrac{1}{2}h\right)^2 = 616$

$\pi h^2 + \dfrac{1}{4}\pi h^2 = 616$

$\dfrac{5}{4}\pi h^2 = 616$

$h^2 = \dfrac{616 \times 4}{\pi \times 5} \Rightarrow h = \dfrac{28}{\sqrt{5}}$

Now volume $= \pi r^2 h = \dfrac{1}{4}\pi h^3$

Volume $= \dfrac{1}{4}\pi \times \dfrac{28 \times 28 \times 28}{5\sqrt{5}}\,cm^2$

Volume $= \dfrac{22 \times 28 \times 28}{5\sqrt{5} \times 1000}$ litres $= 1.53$ litres

45. (a) Clearly, OQ = OR = 5 cm
$\angle$OQP = $\angle$ORP = 90°
and OP = 13 cm
$\therefore$ In right angled DPOQ
$PQ^2 = (OP^2 - OQ^2)$
$= (13)^2 - (5)^2$
[by Phythagoras theorem]
$= 169 - 25 = 144$
$\Rightarrow PQ = \sqrt{144} = 12$ cm

$\therefore$ Area of $\angle$OQP $= \dfrac{1}{2} \times PQ \times OQ$

[Area of triangle $= \dfrac{1}{2} \times$ Base $\times$ Height]

$= \dfrac{1}{2} \times 12 \times 5 = 30$ cm^2

Similarly, area of ΔORP = 30cm^2
$\therefore$ Area of quadirilateral PQOR = (30 + 30)
= 60 cm^2

46. (b) In ΔABC,

$\dfrac{AD}{DB} = \dfrac{AE}{EC}$

[by Basic Proportionality theorem]
Taking reciprocal and then adding 1 on both sides

$\therefore \dfrac{DB}{AD} + 1 = \dfrac{EC}{AE} + 1$

$\Rightarrow \dfrac{DB + AD}{AC} = \dfrac{EC + AE}{AE}$

$\Rightarrow \dfrac{AB}{AD} = \dfrac{AC}{AE}$

$\Rightarrow \dfrac{7.2}{4.5} = \dfrac{6.4}{AE}$

$\Rightarrow AE = \dfrac{6.4 \times 4.5}{7.2}$

$\Rightarrow$ AE = 4 cm

47. (b) Total number of literate people in age group 15 to 45 yr
= 900 + 800 + 650 + 600 + 500 + 250 = 3700

48. (a) Number of literate people in age group 20-35 yr
= 800 + 650 + 600 = 2050

49. (b) Total number of literate people
= 350 + 900 + 800 + 650 + 600 + 500 + 250
= 4050
Number of literate people in age group 30-45 yr
= 600 + 500 + 250 = 1350
$\therefore$ Required percentage

$= \dfrac{1350}{4050} \times 100 = 33.33\%$

50. (c) Number of literate people in age group 20-35 yr
= 800 + 650 + 600 = 2050
Number of literate people in age group 30-45 yr
= 600 + 500 + 250 = 1350

$\therefore$ Required ratio $= \dfrac{2050}{1350} = \dfrac{41}{27} = 41:27$

General Intelligence

51. (b) 154 B 11 C 6 A 6 D 27
After putting proper signs we get
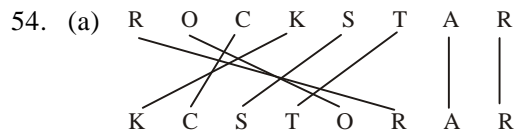154 $\div$ 11 $\times$ 6 + 6 − 27
= 14 $\times$ 6 + 6 − 27
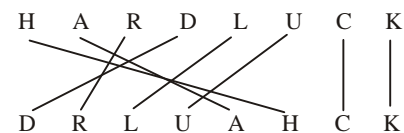= 63

52. (a)

53. (a) $\sqrt{4} \times \sqrt{9} = 6$
Similarly,
$\sqrt{8} \times \sqrt{18} = 12$

54. (a) R O C K S T A R

K C S T O R A R

Similarly,

H A R D L U C K

D R L U A H C K

55. (b) Let present age of Amit = A

A.T.Q

$A = \dfrac{5}{4}(A - 5)$

$\Rightarrow$ A = 25
$\therefore$ Amit's age at the time of his sister's marriage
= 25 − 5 = 20 years
Father's present age = 2 $\times$ 20 + 5 = 45 years

56. (b) $(5)^2 = 25$
$(6)^2 = 36$
$(4)^2 = 16$
But, $(7)^2 \neq 45$

57. (d)
58. (d)
59. (a)
60. (c)
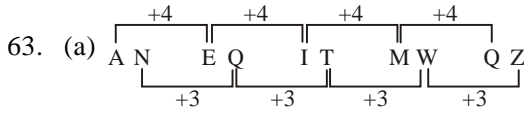61. (c) $(2+3) \times [(2+3) - 1] = 20$
$(3+6) \times [(3+6) - 1] = 72$

$(3+7) \times [(3+7) - 1] = 90$

$(7+4) \times [(7+4) - 1] = 110$

$(1+7) \times [(1+7) - 1] = 56$
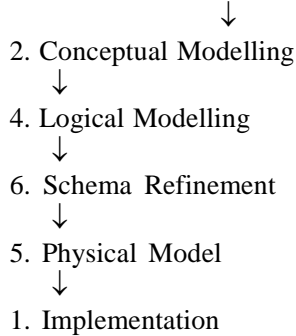
$(7+6) \times [(7+6) - 1] = 156$

62. (a)

63. (a)
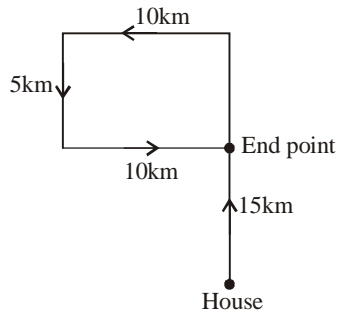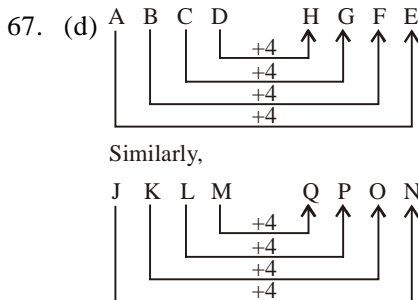
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      +4      +4      +4      +4
    ┌───┐   ┌───┐   ┌───┐   ┌───┐
A   N   E   Q   I   T   M   W   Q   Z
    └───┘   └───┘   └───┘   └───┘
      +3      +3      +3      +3
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64. (b) Meaningful order

3. Requirements analysis

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2. Conceptual Modelling

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4. Logical Modelling

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6. Schema Refinement

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5. Physical Model

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1. Implementation

65. (c)

66. (c) $3!5 \Rightarrow (3\times5)\times2 = 30$

$6!1 \Rightarrow (6\times1)\times2 = 12$

$5!8 \Rightarrow (5\times8)\times2 = 80$

Similarly,

$2!2 \Rightarrow (2\times2)\times2 = 8$

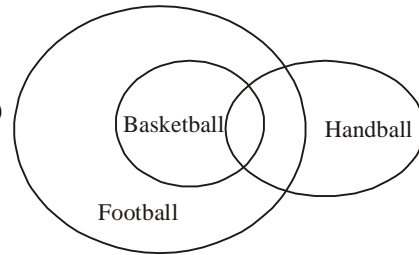67. (d)

Similarly,

68. (a)

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E I D C A F H G B
└─┴─┴─┴─┴─┴─┴─┴─┘
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69. (a) The correct sequence is $5^2, 7^2, 9^2, 11^2, 13^2, 15^2$

So, 36 is wrong.

70. (c)

71. (c)

72. (b)

I. ✓

II. ✗

III. ✗

73. (b) 74. (c)

75. (d) Pooja > Nishu > Riya > Nikita > Amrita

Nishu is the second tallest.

General Awareness

76. (d) Sound is a sequence of waves of pressure which propagates through compressible media such as air or water. During their propagation, waves can be reflected, refracted or attenuated by the medium.

77. (b) The landmarks of Dalhousie's administration did not include English as the medium of instruction.

78. (a) Interferons (IFNs) are a group of signaling proteins made and released by host cells in response to the presence of pathogens such as viruses, bacteria, parasites or tumour cells such as in cancer.

79. (b) The East India Company Act (EIC Act 1784), also known as Pitt's India Act, was an Act of the Parliament of Great Britain intended to address the shortcomings of the Regulating Act of 1773 by bringing the East India Company's rule in India under the control of the British Government. It differentiated the commercial and political affairs of the Company. Thus it established a system of double government in India by Crown in Great Britain and the British East India Company.

80. (c) Muhammad bin Tughluq was one of the most remarkable rulers of his time. He was highly educated and was well versed in Arabic and Persian language. He was well read in the subjects of religion, philosophy, astronomy, mathematics, medicine and logic.

81. (c) The India and South Korea have agreed to go for joint production and export of military

hardware, enhance intelligence sharing and boost cooperation in cyber and space domains as part overall expansion of defence and security ties. ✎অ্যাচিভার্স

82. (d) Molten rock below the surface of the earth is called Magma. Magma is extremely hot liquid and semi-liquid rock located under Earth's surface. This magma can push through holes or cracks in the crust, causing a volcanic eruption. When magma flows or erupts onto Earth's surface, it is called lava.

83. (a) The main respiratory surface in humans is the alveoli. Alveoli are tiny balloon like structures with very thin walls. They have numerous tiny thin walled blood vessels in direct contact with them. It is within the lungs.

84. (a) The River Neyyar is the southernmost river in the State of Kerala. ✎অ্যাচিভার্স

85. (a) Glimpses of World History, a book published by Jawaharlal Nehru in 1934, is a panoramic sweep of the history of humankind. It is a collection of 196 letters on world history written from various prisons in British India from 1930–1933. ✎অ্যাচিভার্স

86. (c) ICICI Bank and PhonePe announced their partnership for the issuance of FASTag using UPI on the PhonePe App. This integration allows over 280 million registered PhonePe users to order and track the ICICI Bank FASTag conveniently on the app.

87. (c) Sinkhole, also called cenote , swallet, swallow hole, sink or doline, topographic depression formed when underlying limestone bedrock is dissolved by groundwater. It is considered the most fundamental structure of karst topography. Karst processes are the chemical dissolution of carbonate rocks or suffosion processes. Sinkholes vary greatly in area and depth and may be very large. ✎অ্যাচিভার্স

88. (a) Takshashila is located in between River Indus and Hydaspes. River Hydaspes is now known as river Jhelum.

89. (c) Repo rate refers to the rate at which commercial banks borrow money by selling their securities to the Central bank of our country i.e Reserve Bank of India (RBI) to maintain liquidity, in case of shortage of funds or due to some statutory measures. RBI repo rate is the most important policy interest rate in India. The repo rate is decided by the Monetary Policy Committee headed by the Governor of RBI.

90. (c) The glass or steel which is used in thermos bottle is coated with a silver layer to keep drinks at the same temperature for sometime. The silver coating on the inner bottle prevents heat transfer by radiation and the vacuum between its double wall prevents heat moving by convection. The thinness of the glass walls stops heat entering or leaving the flask by conduction. The case surrounding the flask provides additional insulation.

91. (d) Dari is the most widely spoken language of Afghanistan's official languages and acts as a lingua franca for the country. ✎অ্যাচিভার্স

92. (b) In Tennis, Hubert Hurkacz of Poland defeated Italian teenager Jannik Sinner in straight sets to win the 2021 Miami Open.

93. (b) The representatives of each State and of the two Union territories in the Rajya Sabha are elected by the elected members of the Legislative Assembly of the State and by the members of the electoral college for that territory, as the case may be, in accordance with the system of proportional representation by means of the single transferable vote. Votes are given by open ballot. ✎অ্যাচিভার্স

94. (d) Eravikulam National Park is located in the state of Kerala in the Western Ghats and is characterized by high altitude grassy meadows and the tropical montane forests of the Shola. It is the first national park in kerala. The park is surrounded by different tributaries of the Periyar, Kaveri and Chalakudiyar River and has several waterfalls. The Tiger, Leopard, Dhole, Indian Porcupine, Nilgiri Tahr, Stripe-necked mongoose, Golden Jackal and Sambar Deer can be spotted here. ✎অ্যাচিভার্স

95. (c) A type of colloid, of the form of one solid dispersed in another continuous solid is called Solid sol. Coloured Gems is an example of solid sol.

96. (c) The Preamble to the Constitution of India reflects the hopes and aspirations of the people. It was adopted on 26 November, 1949 by the Constituent Assembly and came into effect on 26 January, 1950, celebrated as the Republic day in India. It states:
WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a
SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC and to secure to all its citizens: ✎অ্যাচিভার্স

JUSTICE, social, economic and political;
LIBERTY of thought, expression, belief, faith and worship;   অ্যাচিভার্স
EQUALITY of status and of opportunity, and to promote among them all,
FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation.   অ্যাচিভার্স

97. (d) Distance-time graph is the plot of distance travelled by a body against time. If the Distance-Time graph is a curve then it represents non uniform speed. The slope of distance-time graph represents its velocity.

98. (a) For economists, Demand refers to the amount of a product or service that people are both willing and able to buy at a given price in a given time period.   অ্যাচিভার্স

99. (c) The Prithviraj Raso is a Brajbhasha epic poem about the life of the 12th century Indian King Prithviraj Chauhan. It is wriiten by Chand Bardai, who according to the text was a court poet of the king.   অ্যাচিভার্স

100. (d) Chloe Zhao's "Nomadland" received a major boost ahead of the Oscars as the movie bagged the top prize at the 2021 Producers Guild of America (PGA) Awards.

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