Simple & Compound Interest

1. What will be the interest in 2 years and 3 months of Rs.2500 at the rate of 6% annual interest?
   (A) 423.50 rs.   (B) 445 rs.
   (C) 337.50 rs.   (D) 375 rs.

2. How much interest will be received in 10 years on the amount of Rs.1600? If the rate of interest is 7.25% per annum.
   (A) 1240 rs.   (B) 1160 rs.
   (C) 1220 rs.   (D) 1180 rs.

3. Sarathi deposited Rs.3,125 in a bank on which 8% simple interest was payable annually by the bank. If Sarathi kept the money in the bank for 5 years, how much interest will he earn?
   (A) 1,290 rs.   (B) 1,250 rs.
   (C) 1,240 rs.   (D) 1,280 rs.

4. What will be the interest in 5 years at Rs.4,600 at the rate of 4.5% annual simple interest?
   (A) 1,020 rs.   (B) 1,025 rs.
   (C) 1,035 rs.   (D) 1,045 rs.

5. At 5.25% simple interest per annum, _____ interest will be earned in 8 years on an amount of Rs.3,250.
   (A) 1,425 rs.   (B) 1,395 rs.
   (C) 1,365 rs.   (D) 1,465 rs.

6. Akshay borrows Rs 3000 at the rate of 6% simple annual interest for 2 years and lends the same amount to his friend at 9% annual simple interest for 2 years. How much will Akshay benefit in a year?
   (A) 90 rs.   (B) 180 rs.
   (C) 120 rs.   (D) 150 rs.

7. What will be the amount received at a simple annual interest rate of 7.5% at Rs.1640 in 6 years?
   (A) 750 rs.   (B) 748 rs.
   (C) 742 rs.   (D) 738 rs.

8. An amount at the same simple interest rate becomes Rs.457 in 5 years and Rs.574 in 10 years. Find the value (in Rupees) of the amount.
   (A) 500 rs.   (B) 280 rs.
   (C) 340 rs.   (D) 420 rs.

9. On a compounded sum, the simple interest received in 5/2 years at an annual rate of 12% is Rs. 50 less than the simple interest received in 7/2 years at an annual rate of 10% on the same amount. Find the amount.
   (A) 1,500 rs.   (B) 1,000 rs.
   (C) 2,5000 rs.   (D) 1,200 rs.

10. At the rate of 8% simple interest, an amount becomes Rs.924 in $6\frac{3}{4}$ years. What amount was deposited initially?
    (A) 626 rs.   (B) 650 rs.
    (C) 600 rs.   (D) 675 rs.

11. The difference of interest of 4 years at the rate of 12% per annum simple interest on a sum of a money and 5 years at the rate of 9% per annum simple interest on the same amount is Rs.412.50. What is money?
    (A) 13,900 rs.   (B) 14,630 rs.
    (C) 14,080 rs.   (D) 13,750 rs.

12. A person has Rs.2000. He gives a portion of the amount at 5% simple interest rate and the remaining amount at 4% simple interest rate. After 1 year he earns Rs.96. What amount did he pay at 4% interest rate?
    (A) 500 rs.   (B) 480 rs.
    (C) 400 rs.   (D) 420 rs.

13. 600 was given to two persons, out of which the first person was given at 5% annual interest rate and the second person at 10% annual interest rate. After one year, the sum of interest of both is Rs 40. First find the amount given to the person.
    (A) 400 rs.   (B) 420 rs.
    (C) 380 rs.   (D) 200 rs.

14. A sum of money invested for 2 years 9 months at the rate of 8% annual simple interest becomes Rs.915 at the end of the period. How much was invested initially?
    (A) 725 rs.
    (B) 700 rs.
    (C) 675 rs.
    (D) 750 rs.

15. The interest received in 3.5 years on the amount invested at 16% simple interest rate per year is equal to the interest received on investing another amount for 5 years at 12.6% simple interest rate. What is the ratio of the two invested amounts?
(A) 14:9　　　　(B) 8: 7
(C) 9: 8　　　　(D) 6: 5

16. When an amount was invested for 5 years, it yielded an amount of Rs 5,250. If the simple interest was 2% more per year, then the amount received was Rs 5,600. What was the amount of investment?
(A) 4,000 rs.　　　(B) 3,750 rs.
(C) 3,250 rs.　　　(D) 3,500 rs.

17. When an amount is invested for 5 years, the amount becomes Rs.3,640. If the rate of simple interest increased by 2% per year, then this amount becomes Rs.3,920. What is the principal amount.
(A) 2,560 rs.　　　(B) 2,690 rs.
(C) 2,750 rs.　　　(D) 2,800 rs.

18. In how many years will a certain sum be doubled at an annual interest rate of 28.75%?
(A) 6.00　　　　(B) 3.47
(C) 3.00　　　　(D) 3.90

19. At what rate per cent will an amount double in 15 years?
(A) 50%　　　　(B) 25%
(C) $\frac{20}{3}$%　　　(D) 33.33%

20. An investment of 775 for 6 years yields an interest of Rs 372. What is the annual rate of simple interest?
(A) 7%　　　　(B) 8%
(C) 9%　　　　(D) 7.5%

21. Mani deposits Rs.12,500 in a bank and it becomes Rs.15,500 in 6 years at the rate of simple interest. What is the rate of interest?
(A) 4%　　　　(B) 5%
(C) 3%　　　　(D) 6%

22. An investment of Rs.1125 for three months yields an interest of Rs.27. What will be the annual rate of simple interest?
(A) 7.2%　　　　(B) 12%
(C) 9.6%　　　　(D) 2.4%

23. Simple interest for 6 years on an amount of Rs. 1775 is Rs.852. What is the simple interest rate per year?
(A) 8%　　　　(B) 9%
(C) 7%　　　　(D) 7.5%

24. If the value of a bill of Rs 600 becomes Rs 660 in 2 years, what is the rate of simple interest per year?
(A) 10%　　　　(B) 4%
(C) 6%　　　　(D) 5%

25. Neha's amount of Rs. 8000 becomes Rs. 9200 after 3 years at a fixed simple interest rate. If the interest rate was increased by 2%, what amount would she have received?
(A) rs.8900　　　(B) rs. 9800
(C) rs.2000　　　(D) rs. 9680

26. The amount of Rs. 800 becomes Rs. 956 in 3 years at a fixed rate of simple interest. If the rate of interest increases by 4%, then the amount of Rs. 800 will be in 3 years:
(A) rs.1025　　　(B) rs. 1020.80
(C) rs.1052　　　(D) rs.1054

27. Simple interest on a certain sum is 1/36 of the principal. If the rate of interest and number of years are equal, then what is the rate of interest?
(A) $\frac{6}{19}$%　　　(B) $\frac{5}{3}$%
(C) $\frac{10}{3}$%　　　(B) $\frac{10}{12}$%

28. An investment of Rs.1,080 for 3 months yielded an interest of Rs.27. The annual simple interest rate was:
(A) 7.5%　　　　(B) 5%
(C) 2.5%　　　　(D) 10%

29. Investments of Rs.875 made for 3 months yield interest of Rs.21. What was the rate of simple interest per year?
(A) 12%　　　　(B) 2.4%
(C) 7.2%　　　　(D) 9.6%

30. Raghu has invested Rs.1000 and received Rs.6000 after x years, at a simple interest rate of 6% per annum. Find the value of x?
(A) 2 year　　　(B) 5 year
(C) 3 year　　　(D) 4 year

31. At what time will the simple interest of Rs.1800, at the rate of 5% per year, be Rs.390?
(A) 5 year 2 month　(B) 5 year 4 month
(C) 4 year 4 month　(D) 4 year 2 month

32. Simple interest on a fixed amount is 9/4 of the principal amount. If the number of years and rate of interest are the same, then for what period the amount was deposited?
(A) 12 year　　　(B) 5.5 year
(C) 15 year　　　(D) 7.5 year

33. The difference in simple interest paid by banks for two years at Rs 5000 is Rs 25. Explain the difference between the interest rates of the two banks:
(A) 0.25%　　　(B) 0.60%
(C) 1%　　　　(D) 0.10%

34. Vimal has given a loan of Rs.5000 to Kamal for 2 years and to Sumal, a loan of Rs.3000, for 4 years at same simple interest rate and received Rs.2,200 as interest from both. Calculate the interest rate per year.
(A) 13%　　　　(B) 15%
(C) 23%　　　　(D) 10%

35. Anuj invested some money in a scheme for 3 years at a simple interest rate of 12% per annum. In addition, he invested three times in the second

plan for 2 years. If he has earned the same interest from both the schemes, what is the normal interest rate of the second plan?

(A) 12% per year   (B) 18% per year

(C) 6% per year   (D) 9% per year

36. Find the simple interest from 5 February 2017 to 19 April 2017 for an amount of Rs. 5000 at the rate of 6.25% annual interest.

(A) 62.50 rs.   (B) 48.50 rs.

(C) 64 rs.   (D) 80 rs.

37. How much interest will be received of Rs.3680 in 2.5 years at 4% annual simple interest rate?

(A) 368 rs.   (B) 92 rs.

(C) 184 rs.   (D) 274 rs.

38. A compounded amount was invested for 5 years at a compounded rate at simple interest. If it had been invested at a 10% higher rate, it would have gained Rs.2000 more. What was the principal invested?

(A) 3500 rs.   (B) 4000 rs.

(C) 4500 rs.   (D) 5000 rs.

39. At 6% simple interest per annum, a sum of amount at the end of $3\frac{3}{4}$ years yields a total amount of Rs.2,940. What was the amount invested?

(A) 2,350 rs.   (B) 2,400 rs.

(C) 2,550 rs.   (D) 2,600 rs.

40. The interest earned on the money invested for six years at a simple interest rate of 9.5% per annum was Rs 456. What was the amount invested?

(A) 750 rs.   (B) 775 rs.

(C) 800 rs.   (D) 850 rs.

41. At what rate of interest will an amount double itself in 12 years?

(A) 8%   (B) $8\frac{1}{2}\%$

(C) $8\frac{1}{3}\%$ (D) $8\frac{1}{4}\%$

42. On deposits of Rs.5000 for 4 years and 4000 for 5 years, a uniform annual rate of simple interest is applied, and a total interest of Rs.2,400 is received. Find the annual rate of interest.

(A) 4%   (B) 7%

(C) 8%   (D) 9%

43. If an amount becomes Rs.20720 in 4 years and Rs.24080 in 6 years, find the amount and the rate of simple interest.

(A) $16000\ rs.,8\%$ (B) $14000\ rs.,10\%$

(D) $16000\ rs.,12\%$ (C) $14000\ rs.,12\%$

44. In how much time will an amount double, if invested at a simple annual rate of 12.5%?

(A) 6 year   (B) 7 year

(C) 9 year   (D) 8 year

45. What will be the interest earned on the principal amount of Rs.3,675, at the rate of 4% simple interest per annum for 2 years?

(A) 289.50 rs.   (B) 292 rs.

(C) 294 rs.   (D) 288.50 rs.

46. How much interest will be received on the amount of Rs.2,000 invested for 6 years at the rate of 8.5% simple annual interest?

(A) 935 rs.   (B) 1,020 rs.

(C) 510 rs.   (D) 1,275 rs.

47. Rs. X invested at 9% simple interest per annum for 5 years yields as much interest as 7.5% simple interest per annum for 4 years on investment of Rs.y. Find x: y.

(A) 45:30   (B) 2:3

(C) 16:15   (D) 8:9

48. Saathi deposited Rs 825 in a bank that promised 8% annual simple interest. If saathi keeps the money in the bank for 5 years, how much interest will she earn on it:

(A) 280 rs.   (B) 330 rs.

(C) 290 rs.   (D) 480 rs.

49. For 5 years, simple interest, at the rate of 9% per annum, investing Rs x, yields the same amount of interest as for 8 years, at a simple interest rate of 6.25% per annum, investing Rs. y. Find x: y?

(A) 16: 15   (B) 10: 9

(C) 45: 50   (D) 5: 8

50. A sum of money at the end of $3\frac{1}{4}$ years at 5% annual simple interest becomes a total of Rs.2,790. What was the amount invested?

(A) 2,350 rs.   (B) 2,400 rs.

(C) 2,600 rs.   (D) 2,550 rs.

51. In how much time, Rs 4400 will become Rs 4576 at 8% annual rate of interest, if interest compound half-yearly?

(A) 6 months   (B) 2 years

(C) 7 months   (D) 1 year

52. A woman invests Rs. 2000 per year at the beginning of every year at a compound interest rate of 5%. How much will she invest at the end of the second year?

(A) Rs. 4305   (B) Rs. 430

(C) Rs. 4355   (D) Rs. 4350

53. A person borrows a certain amount from a bank for 3 years at a rate of 7% compound interest annually. If he paid Rs. 85,966 as total interest, then what was the amount borrowed?

(A) Rs. 462,000   (B) Rs.382,000

(C) Rs. 354,000   (D) Rs. 428,000

54. How much rupees will be made from Rs. 80,000 after 2 years at an annual rate of 20% compound interest compounded half yearly?

(A) Rs. 97,240   (B) Rs.117,128

(C) Rs. 115,200   (D) Rs. 120,000

55. A takes some amount from a bank at the rate of 8% interest in which the interest is compounded half yearly. If he paid Rs.1,96,851 after one and a half year, then find the principal.

(A) Rs. 168,000　　　　**(B)** Rs. 175,000
(C) Rs. 179,000　　　　**(D)** Rs. 184,000

56. 'P' money is invested for 2 years at 5% annual interest rate. If interest compounded half yearly, then after 2 years how much amount will he receive?
(A) $P(1.025)^4$　　　**(B)** $P(1.1)$
(C) $P(1.05)^2$　　　**(D)** $P(1.025)^2$

57. A sum of money at a compound interest rate of 20% per annum becomes Rs.7200 in 2 years. Find the Principal –
(A) Rs.4800　　　　**(B)** Rs. 6000
(C) Rs.5400　　　　**(D)** Rs.5000

58. Prakash invests in an FD. What will be the maturity amount of Rs 13,000 for 6 months at a compound interest rate of 20% per annum, when interest compounding quarterly?
(A) Rs. 14332.25　　　**(B)** Rs. 14332.5
(C) Rs. 14332.75　　　**(D)** Rs. 14332

59. Mr. Akhil deposited Rs. 13500 in a fixed deposit. Find the total money after 6 months at the rate of 20% annually compound interest, if the interest is compounded every three months?
(A) Rs. 14,883.35　　　**(B)** Rs. 14,883.75
(C) Rs. 14,883.5　　　**(D)** Rs. 14,883

60. A woman invested Rs. 4000 at the beginning of the year at a compound interest rate of 5% per annum. What will be his invested amount at the end of the second year?
(A) Rs.4410　　　　**(B)** Rs. 4615
(C) Rs.5000　　　　**(D)** Rs. 4010

61. Rakesh invests Rs. 10,000 in a fixed deposit scheme for 2 years at a 5% annual rate of compound interest. How much amount will he get on maturity of fixed deposit?
(A) Rs. 10000　　　　**(B)** Rs.8500
(C) Rs. 11050　　　　**(D)** Rs. 11025

62. A person invests Rs. 20,000 for 1 year at an annual rate of 15%. If the interest is compounded half-yearly, then the amount received by him at the end of the year will be-
(A) Rs.16537.50　　　**(B)** Rs.23112.50
(C) Rs. 18112.75　　　**(D)** Rs. 22175.30

63. Rs 441 is received after 2 years at an annual rate of 5% compound interest. Find the principal.
(A) Rs.400　　　　**(B)** Rs. 390
(C) Rs.380　　　　**(D)** Rs. 350

64. Gitesh took a loan for 4 years at a 5 percent rate of compound interest. If the total interest paid was Rs.431.01, find the principal.
(A) Rs.2000　　　　**(B)** Rs. 2050
(C) Rs.2100　　　　**(D)** Rs. 2150

65. A woman deposited Rs 100 at an annual interest rate of 10%. The woman received Rs 121 at the end of the period at the annual rate of compound interest. How long did she keep the money in the bank?
(A) 1 years　　　　**(B)** 2 years
(C) 2.5 years　　　**(D)** 3 years

66. If a certain amount becomes Rs 6655 at the rate of compound interest of 10 percent in 3 years, find the principal amount.
(A) Rs.5000　　　　**(B)** Rs. 5500
(C) Rs. 4500　　　　**(D)** Rs.4800

67. Rakesh invested an amount of Rs 10,000 in two different schemes NSC and PPF at annual compound interest rates of 14% and 11% respectively. If the total interest for 2 years is Rs 2726, then what was the amount invested in NSC?
(A) Rs.5000　　　　**(B)** Rs. 4000
(C) Rs. 6000　　　　**(D)** Rs.7000

68. Satya invested some amount in a fixed deposit. What amount of money will he receive on maturity if he has invested Rs. 14,500 at 20% compound interest; quarterly compounding for a period of 6 months.
(A) Rs. 15,986.25　　　**(B)** Rs. 15,986.5
(C) Rs. 15,986.35　　　**(D)** Rs. 15,986

69. If a person deposits Rs. 500 every year at the beginning of year for 2 years at an annual compound interest of 10%, what will be the maturity value of the money at the end of 2 years?
(A) Rs.1.050　　　　**(B)** Rs. 1,150
(C) Rs.1,155　　　　**(D)** Rs. 1,200

70. A bank pays interest on savings account at the rate of 4% compounded half yearly. What will be the effective interest rate at the end of the year?
(A) 4.04%　　　　**(B)** 4.01%
(C) 4.02%　　　　**(D)** 4.00%

71. Rs. 37500, invested for $1\frac{1}{2}$ years at rate of 8% compound interest. How much the money will be if interest compounded half yearly?
(A) Rs. 42,182.40　　　**(B)** Rs. 42,000
(C) Rs. 42,120　　　　**(D)** Rs. 42,812.40

72. 'A' invests Rs. 10,000 in a scheme at a special rate. At the end of two years the amount becomes Rs. 11,664. Find the annual interest rate if compound interest rate is applicable?
(A) 7.9　　　　**(B)** 8.5
(C) 8.7　　　　**(D)** 8.0

73. If Ram deposits Rs 2000 in his savings account on which he gets 20% annual interest, compounding half yearly. How much will be in his account after one year.
(A) Rs.3530　　　　**(B)** Rs. 2420
(C) Rs.2630　　　　**(D)** Rs. 3870

74. At the rate of 20% compound interest per annum, Rs 10,000 was given. If this interest is counted half-yearly, find the amount after 2 years.
(A) Rs.14600　　　　**(B)** Rs. 12500
(C) Rs. 14642　　　　**(D)** Rs. 14641

75. At what time in a bank the principal of Rs 10,000 will become Rs 13,310 at 10% per annum, while the interest is compounded annually?
(A) 4 years　　　　　　(B) 5 years
(C) 3 years　　　　　　(D) 6 years

76. Mr. Vagish invested money in FD. How much amount will he get at maturity, if Rs. 4500 is invested for 6 months at a rate of 20% annualy compound interest and the interest is compounded quarterly?
(A) Rs.4961.5　　　　　(B) Rs. 4961.25
(C) Rs. 4961.35　　　　(D) Rs. 4961

77. Mr. Nishi borrows Rs 2000 at an annual compound interest rate of 5%, what will be the compound interest for 2 years while the interest compounded annually?
(A) Rs.205　　　　　　(B) Rs. 2205
(C) Rs. 2250　　　　　(D) Rs. 250

78. A person named Shri Ram invested Rs. 14000 in FD (Fixed Deposit). How much amount will he get after the maturity period if he invests the amount (capital) for 6 months at a compound interest rate of 20% per annum and interest compounded quarterly?
(A) Rs.15,437　　　　　(B) Rs. 15,434
(C) Rs. 15,436　　　　(D) Rs. 15,435

79. Mr. Yashwant invested a few rupees in an FD. What will be the total amount of maturity if Rs.10,000 is invested for 6 months at the rate of 20% per annum, and interest compounded quarterly?
(A) 11025.25　　　　　(B) 11025
(C) 11025.75　　　　　(D) 11025.5

80. Sanjeev invests in a fixed deposit. If Rs 11,000 is invested at the rate of 20% per annum for 6 months and the interest is compounded quarterly, then how much amount will he get on maturity?
(A) Rs. 12127.25　　　(B) Rs. 12127.50
(C) Rs. 12127.75　　　(D) Rs. 12127

81. Any money is deposited at 8% per annum compound interest. If the interest for the first year is 72, then get the interest for the second year-
(A) Rs.77.56　　　　　(B) Rs. 77.64
(C) Rs.77.76　　　　　(D) Rs. 85.77

82. What will be the 3-year compound interest at 8% of Rs.172000 (rounded off to the nearest rupees)
(A) Rs. 44,670　　　　(B) Rs. 11,667
(C) Rs. 41,280　　　　(D) Rs. 46,470

83. Find the compound interest (in nearest rupee) of Rs.7500 at 12% per annum for 2 years 4 months, if interest is calculated on an annual basis?
(A) 2284　　　　　　　(B) 2176
(C) 2097　　　　　　　(D) 2235

84. Find the compound interest of Rs.25000 for 12 years at interest rate of 12% per annum.
(A) Rs. 9,000　　　　　(B) Rs. 9,833.40
(C) Rs. 10123.20　　　(D) Rs. 10,678.90

85. What will be the compound interest of Rs.24000 in 2 years at 25% per annum if the interest is compounded annually?
(A) Rs. 37,500　　　　(B) Rs. 13,500
(C) Rs.38,400　　　　　(D) Rs. 36,400

86. If the interest is compounded annually, then after 2 years, what will be the compound interest of Rs.48000 at interest rate of 20% per annum?
(A) Rs. 69,120　　　　(B) Rs.21,120
(C) Rs.76,800　　　　　(D) Rs. 72,000

87. What will be the amount of Rs. 40,000 after 2 years at interest rate of 20% per annum, if the interest is compounded annually?
(A) Rs. 48,620　　　　(B) Rs. 58,564
(C) Rs. 57,600　　　　(D) Rs. 60,000

88. If Jahnavi borrows Rs. 1,25,000 at an interest of 8% per annum, what will be the amount to be paid by her at the end of 2 years?
(A) Rs. 1,45,800　　　(B) Rs. 2,00,000
(C) Rs.1,45,000　　　　(D) Rs. 1,35,800

89. 20% compound interest is being given every year at Rs. 10,000. Calculate the amount received after 2 years if interest is charged half yearly-
(A) Rs.10041　　　　　(B) Rs. 14641
(C) Rs.12000　　　　　(D) Rs. 13660

90. Find the compound interest of Rs.5000 for 3 years at an annual rate of 10%.
(A) 1655　　　　　　　(B) 1500
(C) 1600　　　　　　　(D) 1800

91. Abraham took Rs. 7500 at an annual rate of 5% compound interest. What will be the compound interest after 2 years which is compounded annually?
(A) Rs. 768.75　　　　(B) Rs. 8268.75
(C) Rs. 8286.75　　　(D) Rs. 786.75

92. Devesh borrowed Rs. 4,500 at an annual rate of 4% compound interest. What will be the compound interest after 2 years if the interest is compounded annually.
(A) Rs.367.2　　　　　(B) Rs. 4,867.2
(C) Rs. 4,876.2　　　(D) Rs. 376.2

93. Harsha borrowed Rs.8,000 at an annual rate of 4% compound interest. What will be the compound interest after 2 years if the interest is compounded annually?
(A) Rs. 652.8　　　　(B) Rs. 8,652.8
(C) Rs. 8,625.8　　　(D) Rs. 625.8

94. Mr. Ayush borrowed Rs.3000 at the rate of 5% per annum compound interest. What will be the compound interest after 2 years?
(A) Rs.370.5　　　　　(B) Rs.307.5
(C) Rs.3307.5　　　　(D) Rs. 3370.5

95. Mr. Yudish borrowed Rs.3,500 at an annual rate of 4% compound interest. What will be the compound interest compounded for 2 years?
(A) Rs. 285.6　　　　（B) Rs.3785.6
(C) Rs. 3758.6　　　　(D) Rs.258.6

96.   Mr. Ravish invests in an FD. What is the total amount he will get at maturity if Rs.5500 is invested for 6 months at the rate of 20% compound interest annually, and interest compounded quarterly?

(A) Rs.6063.5   **(B)** Rs. 6063.75

(C) Rs. 6063.35   **(D)** Rs. 6063

97.   Mr. Manjunath borrowed Rs. 3500 at a compound interest of 5% per annum. What will be the compound interest of 2 years, if the interest is compounded annually?

(A) Rs. 358.75   **(B)** Rs. 3858.75

(C) Rs. 3885.75   **(D)** Rs.385.75

98.   Mr. Preetosh borrowed Rs. 4,500 at 5% compound interest. If the interest is compounded annually, what will be the compound interest for 2 years?

(A) Rs. 4961.25   **(B)** Rs. 461.25

(C) Rs. 4916.25   **(D)** Rs. 416.25

99.   The simple interest of 8 years at 8% per annum on a deposit is Rs. 16000. What will be the compound interest of 2 years at the rate of one fourth of this rate on the same amount?

(A) Rs. 1,020   **(B)** Rs.980

(C) Rs. 1,010   **(D)** Rs. 1,015

100.   The simple interest on a certain sum of money at a certain interest rate is Rs. 1200 in 2 years. The compound interest of the same amount gets Rs. 1290 in 2 years at the rate of same interest. What will be the principal?

(A) Rs.1200   **(B)** Rs. 16000

(C) Rs. 6000   **(D)** Rs.4000

Simple & Compound Interest (Solution)

1. **Ans.(C)**

2 years 3 months $= 2 + \frac{3}{12} = \frac{9}{4}$ year

Hence, simple intrest $= \frac{p \times r \times t}{100}$

Interest received $= \frac{2500 \times 6 \times \frac{9}{4}}{100}$

$= \frac{675}{2} = 337.50\ Rs.$

2. **Ans.(B)**:

Principal Amount (p) = Rs.1600

Time (t) = 10 year

Rate (r) = 7.25%

Simple interest $= \frac{p \times r \times t}{100}$

$= \frac{1600 \times 7.25 \times 10}{100}$

$= 16 \times 10 \times 7.25 = Rs.\,1160$

3. **Ans.(B)** :

Simple interest $= \frac{p \times r \times t}{100}$

$= \frac{3125 \times 8 \times 5}{100} = Rs.\,1250$

4. **Ans.(C)**

Principal Amount (p) = 4,600 Rs.

Rate (r) = 4.5% yearly

Time (t) = 5 year, Interest = ?

$SI = \frac{P \times R \times T}{100}$

$= \frac{4600 \times 4.5 \times 5}{100}$

$= 46 \times 4.5 \times 5$

$= Rs.\,1035$

5. **Ans.(C)**

Rate of interest = 5.25%

Principal amount = 3250 Rs.

Time = 8 year

$SI = \frac{p \times r \times t}{100}$

$= \frac{3250 \times 5.25 \times 8}{100}$

$= Rs.\,1365$

6. **Ans.(A)**

On money taken by Akshay

$SI = \frac{3000 \times 6 \times 2}{100}$

$= Rs.\,360$

Simple interest on money given to friend

$= \frac{3000 \times 9 \times 2}{100}$

$= Rs.\,540$

Akshay's *profit* in 2 years = 540 − 360

$= Rs.\,180$

profit in 1 *year* $= \frac{180}{2} = Rs.\,90$

7. **Ans.(D)**

Principal Amount (p) = Rs.1640

Rate (r) = 7.5 % yearly

Time (t) = 6 year

∵ Simple interest $= \frac{p \times r \times t}{100}$

$= \frac{1640 \times 7.5 \times 6}{100}$

SI = Rs.738

8. **Ans.(C)** :

Let the principal = P

And rate = r% per year

$P + \frac{P \times 5 \times r}{100} = 457\ \dots\dots\dots(i)$

$P + \frac{P \times 10 \times r}{100} = 574\ \dots\dots\dots(ii)$

Substituting equation (i) from equation (ii) –

∴ $117 = \frac{P \times r \times 5}{100}$

∴ $117 = \frac{P \times r}{20}\ \dots\dots\dots\dots(iii)$

∴ From equation (i)

$457 = P + 117$

∴ $P = 457 - 117$

$P = Rs.\,340$

9. **Ans.(B)** :

Let the Principal amount = P

∴ According to Question,

$\frac{P \times 10 \times 7}{100 \times 2} - \frac{P \times 12 \times 5}{100 \times 2} = 50$

$\frac{P \times 35}{100} - \frac{P \times 30}{100} = 50$

$\frac{P \times 5}{100} = 50$

$P = Rs.\,1000$

10. **Ans.(C)**

Rate = 8%, time $= 6\frac{3}{4}$ year $= \frac{27}{4}$ year

Amount = 924 Rs.

Amount = Principal $\left(1 + \frac{\text{time} \times \text{rate}}{100}\right)$

$A = P\left(1 + \frac{RT}{100}\right)$

$924 = P\left(1 + \frac{27 \times 8}{4 \times 100}\right)$

$924 = P\left(1 + \frac{27}{50}\right)$

$924 = \frac{77P}{50}$

$\Rightarrow P = \frac{924 \times 50}{77}$

$P = Rs.\,600$

11. **Ans.(D)**

Let that amount be is Rs.x.

According to Question –

$\frac{12 \times 4 \times x}{100} - \frac{9 \times 5 \times x}{100} = 412.50$

$48x - 45x = 41250$

$3x = 41250$

$x = 13750$

Therefore, that amount is Rs. 13,750.

12. **Ans.(C)**

Let the amount given at 4% interest rate

= x ∴ Given amount at 5% = (2000 − x)

According to Question,

$\frac{x \times 4 \times 1}{100} + \frac{(2000-x) \times 5 \times 1}{100} = 96$

$\frac{4x}{100} + \frac{2000 \times 5 - 5x}{100} = 96$

$\frac{-x}{100} + \frac{10000}{100} = 96$

$\frac{x}{100} = 4$

Thus money given at 4% interest = Rs. 400

13. Ans.(A) :

Suppose the amount given to another person at 10% interest = x

Then the amount given to the first person at 5% interest rate = (600 – x)

SI = 40

According to Question,

$\Rightarrow \left(x \times \frac{10}{100} \times 1 \right) + \left\{ (600-x) \times \frac{5}{100} \times 1 \right\} = 40$

$\Rightarrow \frac{x}{10} + \left\{ (600-x) \times \frac{1}{20} \right\} = 40$

$\Rightarrow \frac{x}{10} + \left\{ 30 - \frac{x}{20} \right\} = 40$

$\frac{x}{20} = 40 - 30$

$x = Rs.\,200$

Amount given to first person = 600 – 200

= Rs 400.

14. Ans.(D)

Let the principal amount be x.

$SI = \frac{p \times r \times t}{100}$

$915 - x = \frac{x \times 8 \times \frac{11}{4}}{100}$

$91500 - 100x = 22x$

$122x = 91500$

$x = Rs.\,750$

15. Ans.(C)

$SI = \frac{p \times r \times t}{100}$

Let the first invested amount = P_1

And second invested amount = P_2

According to Question –

$\frac{P_1 \times 16 \times 3.5}{100} = \frac{P_2 \times 12.6 \times 5}{100}$

$P_1 \times 16 \times 3.5 = P_2 \times 12.6 \times 5$

$P_1 \times 11.2 = P_2 \times 12.6$

$\frac{P_1}{P_2} = \frac{12.6}{11.2}$

$P_1 : P_2 = 9 : 8$

16. Ans.(D)

Let the principal be x.

And the interest rate is a% –

According to Question,

$\left\{ x + \frac{x \times (a+2) \times 5}{100} \right\} - \left\{ x + \frac{x \times a \times 5}{100} \right\} = 5600 - 5250$

$\frac{10x}{100} = 350$

$\Rightarrow x = Rs.\,3500$

17. Ans.(D)

Let rate be x% and principal amount be y.

According to Question,

$\frac{y \times (x+2) \times 5}{100} - \frac{y \times x \times 5}{100} = 3920 - 3640$

$\frac{y \times 2 \times 5}{100} = 280$

$y = Rs.\,2800$

18. Ans.(B)

Let the principal amount = P

Rate = 28.75%

Interst = P

$SI = \frac{p \times r \times t}{100}$

$P = \frac{P \times 28.75 \times T}{100}$

$T = \frac{10000}{2875} = 3.47$ years

19. Ans.(C)

Let the principal = P,

Interst = 2P – P = P

Time = 15 year, rate = R%

$SI = \frac{p \times r \times 15}{100}$

$P = \frac{P \times R \times 3}{20} \Rightarrow R = \frac{20}{3}\%$

20. Ans.(B)

Given –

P = Rs.775

SI = Rs.372

t = 6 year

$SI = \frac{p \times r \times t}{100}$

$372 = \frac{775 \times R \times 6}{100}$

$\frac{6200}{775} = R$

$R = 8\%$

Hence the annual rate of simple interest will be 8%.

21. Ans.(A)

Formula $S.I. = \frac{P \times R \times T}{100}$

S.I. = 15,500 – 12,500

S.I. = 3000

$3000 = \frac{12500 \times R \times 6}{100}$

$r = 4\%$

22. Ans.(C)

P = 1,125

t = 3 month or 3/12 year

SI = Rs.27

r = ?

$r = \frac{SI \times 100}{P \times T}$

$\frac{27 \times 100}{1125 \times 3/12} = 9.6\%$

23. Ans.(A)

$SI = \frac{P \times R \times T}{100}$

$852 = \frac{1775 \times R \times 6}{100}$

$r = \frac{85200}{10650} = 8\%$

24. Ans.(D)

SI = 660 – 600 = Rs.60

$SI = \frac{P \times R \times T}{100}$

$60 = \frac{600 \times दर \times 2}{100}$

$r = \frac{60 \times 100}{600 \times 2}$

r = 5%

25. Ans.(D)

Amount = P + SI

$9200 = 8000 + \dfrac{8000 \times 3 \times r}{100}$

$1200 = 80 \times 3r$

$r = 5\%$

New rate $= 5 + 2 = 7\%$

$SI = \dfrac{8000 \times 3 \times 7}{100} = 1680$

Total Amount $= 8000 + 1680 = Rs.\,9680$

26.　Ans.(C)

SI = Amount – Principal

$SI = \dfrac{p \times r \times t}{100}$

$156 = \dfrac{800 \times r \times 3}{100}$

$r = \dfrac{156}{24} = 6.5\%$

When the rate is increased by 4% then, Addition =
Simple Interest + Principal

$= \dfrac{800 \times 10.5 \times 3}{100} + 800$

$= 8 \times 10.5 \times 3 + 800$

$= 84 \times 3 + 800 = 1052$

27.　Ans.(B)

Let the principal = Rs.P

$\therefore SI = \dfrac{P}{36}$

Let the time = n year

$\therefore r = n\%$

$SI = \dfrac{p \times r \times t}{100}$

$\dfrac{P}{36} = \dfrac{P \times n \times n}{100}$

$n^2 = \dfrac{100}{36} = \dfrac{25}{9}$

$n = \dfrac{5}{3}$ year

$\therefore r = \dfrac{5}{3}\%$

28.　Ans.(D)

$p = 1080$ Rs. , $t = 3$ months $= \dfrac{3}{12} = \dfrac{1}{4}$ years

$I = 27$

$r = ?$

$SI = \dfrac{p \times r \times t}{100}$

$27 = \dfrac{1080 \times r \times 1}{100 \times 4}$

$r = 10\%$

29.　Ans.(D)

$I = Rs.\,21$, $P = Rs.\,875$, $t = \dfrac{3}{12}$ years

Formula, $SI = \dfrac{p \times r \times t}{100}$

$21 = \dfrac{875 \times r \times 3}{100 \times 12}$

$r = \dfrac{21 \times 100 \times 4}{875} = 9.6\%$

30.　Ans.(B)

SI = 1300 – 1000 = Rs.300

$SI = \dfrac{p \times r \times t}{100}$

$300 = \dfrac{1000 \times 6 \times x}{100}$

$x = 5$ year

31.　Ans.(C)

Principal = Rs.1800

Rate = 5%

Simple interest = Rs.390

$SI = \dfrac{p \times r \times t}{100}$

$390 = \dfrac{1800 \times 5 \times t}{100}$

$t = \dfrac{78}{18} = \dfrac{26}{6} = \dfrac{13}{3}$ year

$t = 4\dfrac{1}{3}$ years = 4 years 4 months

32.　Ans.(C)

$SI = \dfrac{p + \times r \times t}{100}$

According to Question,

rate = time

$\dfrac{9P}{4} = \dfrac{P \times \text{time} \times \text{time}}{100}$

$\dfrac{9 \times 100}{4} = \text{time} \times \text{time}$

$\text{time} = \sqrt{9 \times 25} = 15$ year

33.　Ans.(A)

Suppose the first bank pays interest at the rate of $R_1\%$ and the second bank pays interest at the rate of $R_2\%$.

First bank interest

$= \dfrac{5000 \times R_1 \times 2}{100} = 100R_1 \ldots\ldots(i)$

Second bank Interest

$= \dfrac{5000 \times R_2 \times 2}{100} = 100R_2 \ldots\ldots(ii)$

According to Question,

$100R_1 - 100R_2 = 25$

$100(R_1 - R_2) = 25$

$R_1 - R_2 = \dfrac{25}{100} = \dfrac{1}{4} = 0.25\%$

34.　Ans.(D)

Interest of both = 2200

$\dfrac{5000 \times 2 \times R}{100} + \dfrac{3000 \times 4 \times R}{100} = 2200$

$100R + 120R = 2200$

$220R = 2200$

$R = 10\%$

35.　Ans.(C)

According to Question –

$\dfrac{P \times 12 \times 3}{100} = \dfrac{3P \times 2 \times R}{100}$

$12 \times 3 = 3 \times 2 \times R$

$R = 6\%$ per year

36.　Ans.(A)

r = 6.25%,

Principal = Rs.5000

5 February 2017 to 19 April 2017 = 73 Days

$= \dfrac{73}{365}$ year

$SI = \dfrac{5000 \times 6.25 \times 73}{100 \times 365}$

$= \dfrac{50 \times 625 \times 73}{100 \times 365}$

$= \dfrac{1 \times 125 \times 73}{2 \times 73} = Rs.\,62.5$

37.　Ans.(A) :

P = Rs.3680

r = 4%

t = 2.5 year

$SI = \dfrac{p \times r \times t}{100}$

$= \dfrac{3680 \times 4 \times 2.5}{100}$

$= \dfrac{3680 \times 10.0}{100} = Rs.\,368$

38. **Ans.(B)**

Let the principal = P

r = R%

t = 5 year

By question –

$\frac{P\times(R+10)\times5}{100} - \frac{P\times R\times5}{100} = 2000$

$\frac{5PR+50P}{100} - \frac{5PR}{100} = 2000$

$\frac{5PR+50P-5PR}{100} = 2000$

$\frac{50P}{100} = 2000$

$P = 2000 \times 2 = Rs.4000$

39. **Ans.(B)**

r = 6%

$t = 3\frac{3}{4}$ year $= \frac{15}{4}$ year

A = P $\left[\frac{p\times t}{100} + 1\right]$

$2940 = P\left[\frac{6\times\frac{15}{4}}{100} + 1\right] = P\left[\frac{90}{400} + 1\right]$

$= P \times \frac{49}{40}$

$\Rightarrow P = \frac{2940\times40}{49}$

$\Rightarrow P = 60 \times 40$

$\Rightarrow P = Rs.2,400$

So the amount invested $= Rs.2,400$

40. **Ans.(C)**

Given –

Simple interest = Rs.456

Rate (R) = 9.5%

Time (T) = 6 year

$\because$ SI = $\frac{p\times r\times t}{100}$

$\Rightarrow 456 \times 100 = P \times 9.5 \times 6$

$\Rightarrow p = \frac{45600}{57}$

$P = Rs.800$

41. **Ans.(C)**

Let the money = P

Amount = 2P

Rate = r% (annual)

Time = 12 year

SI = 2P – P = P

$\therefore P = \frac{P\times r\times12}{100}$

$r = \frac{100}{12} = \frac{25}{3}$

$r = 8\frac{1}{3}\%$

42. **Ans.(C)**

$\because SI = \frac{P\times R\times T}{100}$

According to Question

$2400 = \frac{5000\times4\times R}{100} + \frac{4000\times5\times R}{100}$

$2400 = 200R + 200R$

$2400 = 400R$

$R = 6\%$

43. **Ans.(C)**

Let that amount be P and the rate of simple interest is r%.

$A - P = \frac{P\times r\times t}{100}$

According to Question,

$20720 - P = \frac{P\times r\times4}{100} \dots\dots..(i)$

$24080 - P = \frac{P\times r\times6}{100} \dots\dots..(ii)$

On dividing equation (i) by (ii) –

$\frac{20720-P}{24080-P} = \frac{P\times r\times4}{100} \times \frac{100}{P\times r\times6}$

$\frac{20720-P}{24080-P} = \frac{2}{3}$

$62160 - 3P = 48160 - 2P$

$P = 14000$

Putting the value of P in equation (i) –

$20720 - 14000 = \frac{14000\times r\times4}{100}$

$6720 = 560r$

$r = 12\%$

44. **Ans.(D)**

Let the sum invested = x

$A = P\left(1 + \frac{r\times t}{100}\right)$

$\Rightarrow 2x = x\left(1 + \frac{12.5\times t}{100}\right)$

$\Rightarrow 2 = 1 + \frac{125\times t}{1000}$

$\Rightarrow 1 = \frac{t}{8}$

time $(t) = 8$ years

45. **Ans.(C)**

SI $= \frac{p\times r\times t}{100}$

$= \frac{3675\times4\times2}{100} = Rs.294$

46. **Ans.(B)**

SI $= \frac{p\times r\times t}{100}$

$= \frac{2000\times8.5\times6}{100} = 1020$

47. **Ans.(B)**

$\because SI = \frac{P\times R\times t}{100}$

According to Question,

$\frac{x\times9\times5}{100} = \frac{y\times7.5\times4}{100}$

$x \times 9 \times 5 = \frac{y\times75\times4}{10}$

$3x = 2y$

$x:y = 2:3$

48. **Ans.(B)**

SI $= \frac{p\times r\times t}{100}$

SI $= \frac{825\times8\times5}{100} = \frac{825\times2}{5} = \frac{1650}{5}$

SI $= Rs.330$

49. **Ans.(B)**

According to Question,

$\frac{5\times9\times x}{100} = \frac{8\times6.25\times y}{100}$

$\frac{x}{y} = \frac{8\times6.25}{5\times9}$

$= \frac{8\times1.25}{9} = \frac{8\times125}{900} = \frac{8\times125}{9\times100}$

$\frac{x}{y} = \frac{8\times5}{9\times4} = \frac{10}{9}$

$x:y = 10:9$

50. **Ans.(B)**

$S.I = \frac{P\times R\times T}{100} = \frac{P\times5\times13}{100\times4} = \frac{65}{400}P$

According to Question –

$P + \frac{65}{400}P = 2790$

$\Rightarrow \frac{465P}{400} = 2790$

$\Rightarrow P = \frac{2790 \times 400}{465}$

$\Rightarrow P = 6 \times 400$

$\Rightarrow P = 2400$

Thus, the amount invested = Rs. 2400

51. **Ans.(A)**
Suppose it will take n half years.
Given –
Amount $(A) = Rs.\,4576$
Principal $(P) = Rs.\,4400$
Rate $(r) = \dfrac{8\%}{2}$
$= 4\%$ half yearly
According to Question,
Time = 2n half year
$A = P\left(1 + \frac{r}{100}\right)^n \Rightarrow 4576$
$= 4400\left(1 + \frac{4}{100}\right)^{2n}$
$\frac{4576}{4400} = \left(1 + \frac{4}{100}\right)^{2n}$
$\left(\frac{26}{25}\right)^1 = \left(\frac{26}{25}\right)^{2n}$
$\Rightarrow 2n = 1 \Rightarrow n = \frac{1}{2}$
Hence; Required time = 6 months

52. **Ans.(A)**
Amount received in the first year
= Money invested + Simple interest
$= 2000 + \frac{2000 \times 5 \times 1}{100} = 2100$
Amount received in the second year
= Invested money + Simple interest
$= (2100 + 2000) + \frac{4100 \times 5 \times 1}{100}$
$= 4100 + 205 = 4305$
Hence, the woman invests Rs.4305 at the end of the second year.

53. **Ans.(B)**
Let the principal amount borrowed = Rs x
Amount (A) = Principal + Interest
$= x + 85966$
$\because A = P\left(1 + \frac{r}{100}\right)^n$
$x + 85966 = x\left(1 + \frac{7}{100}\right)^3$
$x + 85966 = x(1.07)^3$
$x + 85966 = 1.225043x$
$0.225043x = 85966$
$x = \frac{85966}{0.225043}$
$x = 381998.107,$
$x = Rs.\,382000$

54. **Ans.(B)**
Interest is payable half yearly.
$\therefore$ Time = 2 years = 4 half year
Rate $= \dfrac{20}{2} = 10\%$ half yearly

$\therefore A = 80000\left(1 + \frac{10}{100}\right)^4$
$= 80000 \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} = Rs.\,117,128$

55. **Ans.(B)**
Given –
Rate r = 8% yearly, = 4% half yearly
Time n = 1.5 years = 3 half year
Principal $= \dfrac{196851}{\left(1 + \frac{4}{100}\right)^3} = \dfrac{196851}{(26/25)^3}$
$= \dfrac{196851 \times 25 \times 25 \times 25}{26 \times 26 \times 26}$
$= 174999.82 = Rs.\,175000$

56. **Ans.(A)**
2 years = 4 half yearly
$R = \left(\frac{5}{2}\right)\%$ half yearly
$A = P\left(1 + \frac{R}{100}\right)^n$
$A = P\left(1 + \frac{5}{2 \times 100}\right)^4$
$A = P\left(\frac{41}{40}\right)^4$
$A = P(1.025)^4$

57. **Ans.(D)**
$A = P\left(1 + \frac{r}{100}\right)^n$
$7200 = P\left(1 + \frac{20}{100}\right)^2$
$7200 = P\left(1 + \frac{20}{100}\right)^2$
$7200 = P \times \frac{36}{25}$
$P = 200 \times 25 = Rs.\,5000$

58. **Ans.(B)**
P = Rs. 13000
T = 6 months = 6/3 quarter = 2 quarter
$R = \dfrac{20}{4}\% = 5\%$ quarterly
$A = P\left(1 + \frac{R}{100}\right)^2 = 13000 \times \left(1 + \frac{5}{100}\right)^2$
Compound Amount $= 13000 \times \left(1 + \frac{1}{20}\right)^2$
$= 13000 \times \left(\frac{21}{20}\right)^2$
$= 13000 \times \frac{21}{20} \times \frac{21}{20} = Rs.\,14332.5$

59. **Ans.(B)**
When rate is payable quarterly $r = \frac{20}{4} = 5\%$
Time = 6 months = 2 quarters
According to Question,
$= 13500\left[1 + \frac{5}{100}\right]^2$
$= 13500 \times \frac{21 \times 21}{20 \times 20} = Rs.\,14883.75$

60. **Ans.(A)**
$S.I = \frac{PRT}{100} = \frac{4000 \times 5 \times 1}{100} = 200$
$C.I = \frac{4200 \times 105}{100} = Rs.\,4410$

61. **Ans.(D)**
Given –
Principal (P) = Rs.10000
Annual rate (R) = 5%
Time (t) = 2 years

Formula – A $= P\left(1 + \frac{R}{100}\right)^t$

$A = 10000\left(1 + \frac{5}{100}\right)^2$

$= 10000\left(\frac{21}{20}\right)^2$

$= 10000 \times \frac{441}{400}$

$= 25 \times 441 = Rs.\,11025$

62. **Ans.(B)**

Principal (P) = Rs. 20,000

Time (n) = 2 (Half year)

Rate $(R) = \frac{15}{2}$% (Half yearly)

$A = P\left(1 + \frac{r}{100}\right)^n$

$= 20000\left(1 + \frac{15}{2 \times 100}\right)^2$

$= 20000 \times \frac{43}{40} \times \frac{43}{40} = Rs.\,23112.50$

63. **Ans.(A)**

According to Question,

$A = P\left(1 + \frac{r}{100}\right)^n$

$441 = P\left(1 + \frac{5}{100}\right)^2$

$441 = P\left(\frac{21}{20}\right)^2$

$441 = P \times \frac{441}{400}$

$P = \frac{441 \times 400}{441} = Rs.\,400$

64. **Ans.(A)**

$A = P\left[\left(1 + \frac{r}{100}\right)^n - 1\right]$

$431.01 = P\left[\left(1 + \frac{5}{100}\right)^4 - 1\right]$

$431.01 = P\left[\frac{21}{20} \times \frac{21}{20} \times \frac{21}{20} \times \frac{21}{20} - 1\right]$

$431.01 = p\left[\frac{194481}{160000} - 1\right]$

$431.01 = P\left[\frac{194481 - 160000}{160000}\right]$

$431.01 = P \times \frac{34481}{160000}$

$P = \frac{431.01 \times 160000}{34481} = 1999.99$

$= Rs.\,2000$

65. **Ans.(B)**

Given –

Principal (P) = 100 Rs

Rate (R) = 10 %

Time t = ?

Formula – $A = P\left(1 + \frac{R}{100}\right)^t$

$121 = 100\left(1 + \frac{10}{100}\right)^t$

$\frac{121}{100} = \left(\frac{11}{10}\right)^t$

$\left(\frac{11}{10}\right)^2 = \left(\frac{11}{10}\right)^t$

$t = 2$ years

66. **Ans.(A)**

$A = P\left(1 + \frac{r}{100}\right)^n$

$6655 = P\left(1 + \frac{10}{100}\right)^3$

$6655 = \frac{1331P}{1000}$

$P = \frac{1000 \times 6655}{1331} = Rs.\,5000$

67. **Ans.(C)**

Suppose the amount invested in NSC is Rs. X. So amount invested in P.P.F. (PPF) be (10,000 – x).

Total Amount = 10,000 + 2726

= Rs.12726

According to Question,

$12726 = x\left(1 + \frac{14}{100}\right)^2 + (10000 - x)\times\left(1 + \frac{11}{100}\right)^2$

$12,726 = x \times \frac{114 \times 114}{100 \times 100} + 10,000 \times \frac{111 \times 111}{100 \times 100} - x \times \frac{111 \times 111}{100 \times 100}$

$\Rightarrow 12,726 \times 10,000$

$= 12,996x + 12,321 \times 10,000 - 12,321x$

$\Rightarrow (12,726 \times 10,000 - 12321 \times 10,000)$

$= 12996x - 12321x$

$x = \frac{40,50,000}{675}$

$= Rs.\,6000$

68. **Ans.(A)**

Amount invested = Rs. 14500

Time = 6 months = 2 quarters

Rate = 20% annual = 5% quarterly

$\because A = P\left(1 + \frac{r}{100}\right)^n$

Satya received money on maturity = 14500

$= 14500\left(1 + \frac{5}{100}\right)^2$

$= 14500\left(\frac{21}{20}\right)^2 = 14500 \times \frac{441}{400} = Rs.\,15986.25$

69. **Ans.(C)**

Amount at the end of first year $= 500 \times \left(1 + \frac{10}{100}\right)^1 = 500 \times \frac{11}{10} = 550$

Principal for second year = 500 + 550 = 1050

Amount at the end of second year

$= 1050 \times \left(1 + \frac{10}{100}\right)^1$

$= 1050 \times \frac{11}{10} = 1155$

Hence, at the end of 2 years, the maturity value of the money = Rs. 1155

70. **Ans.(A)**

The rate of interest is compounded half yearly.

$\therefore$ For 1 year,

Time = 2 Half year

rate $= \frac{4}{2} = 2$% Half yearly

Let principal = 100

$\therefore$ Amount (A) $= 100\left(1 + \frac{2}{100}\right)^2$

$= 100 \times \frac{51}{50} \times \frac{51}{50} = Rs.\,104.04$

$\therefore$ Effective interest rate at the end of the year = 104.04 – 100 = 4.04%

71. **Ans.(A)**

Given –

Principal, P = Rs. 37500   r = 8% per year = 4% half yearly

time $t = 1\frac{1}{2}$ year = 3 half year

$(A) = P\left(1 + \frac{r}{100}\right)^t$

$= 37500\left(1 + \frac{4}{100}\right)^3$

$= 37500 \times \frac{26}{25} \times \frac{26}{25} \times \frac{26}{25} = Rs.\,42182.40$

72. **Ans.(D)**

$Amount\ (A) = (P) \times \left(1 + \frac{r}{100}\right)^n$

$\Rightarrow 11664 = 10000\left(1 + \frac{R}{100}\right)^2$

$\Rightarrow \frac{11664}{10000} = \left(1 + \frac{R}{100}\right)^2$

$\Rightarrow \frac{729}{625} = \left(1 + \frac{R}{100}\right)^2$

$\Rightarrow 1 + \frac{R}{100} = \frac{27}{25}$

$\Rightarrow \frac{R}{100} = \frac{2}{25}$

$R = 8\%$

73. **Ans.(B)**

One year = 2 half year

rate $= \frac{20}{2} \Rightarrow 10\%$ half yearly

$A = 2000 \times \left(1 + \frac{10}{100}\right)^2$

$= 2000 \times \frac{11}{10} \times \frac{11}{10} = ₹2420$

74. **Ans.(D)**

When interest is compounded half yearly

rate $= \frac{20}{2} = 10\%$

Time $= 2 \times 2 = 4$

$\therefore A = P\left(1 + \frac{r}{100}\right)^n = 10000\left(1 + \frac{10}{100}\right)^4$

$= 10000\left(1 + \frac{1}{10}\right)^4 = 10000\left(\frac{11}{10}\right)^4$

$= 10000 \times \frac{14641}{10000} = Rs.\ 14641$

75. **Ans.(C)**

Given –

(P) = Rs. 10000

(A) = Rs. 13310

(R) = 10% annual

(T) = ?

$A = P\left(1 + \frac{R}{100}\right)^t$

$13310 = 10000\left(1 + \frac{10}{100}\right)$

$\left(\frac{11}{10}\right)^3 = \left(1 + \frac{10}{100}\right)^t$

$\left(\frac{11}{10}\right)^3 = \left(\frac{11}{10}\right)^t$

On comparing the powers of the two sides –

t = 3 years

76. **Ans.(B)**

Rate $(r) = \frac{20}{4} = 5\%$

Time (n) = 2 Quarter

$(A) = P\left(1 + \frac{r}{100}\right)^n = 4500\left(1 + \frac{5}{100}\right)^2$

$= 4500 \times \frac{21}{20} \times \frac{21}{20} = Rs.\ 4961.25$

77. **Ans.(A)**

Rate = 5% Time = 2 years,

Principal = 20000

$A = P\left(1 + \frac{r}{100}\right)^n$

$= 2000\left(1 + \frac{5}{100}\right)^2$

$= 2000 \times \left(\frac{21}{20}\right)^2 \Rightarrow 2000\left(\frac{21 \times 21}{20 \times 20}\right) = 2205$

Interest = Amount – Principal

= 2205 – 2000 = 205

78. **Ans.(D)**

Principal (P) = Rs. 14000

Rate $= \frac{20}{4} = 5\%$ quarterly

Time (n) = 6 months = 2 quarters

$A = P\left(1 + \frac{R}{100}\right)^n$

$A = 14000\left(1 + \frac{5}{100}\right)^2$

$A = 14000 \times \left(\frac{21}{20}\right)^2$

$\Rightarrow 14000 \times \frac{441}{400} = 441 \times 35 = 15435$

79. **Ans.(B)**

Principal (P) = 10000,

r = 20% per annum = 5% quartely

(n) Time = 6 months, = 2 quarter

$A = P\left(1 + \frac{r}{100}\right)^n$

$= 10,000\left(1 + \frac{5}{100}\right)^2$

$= 10,000\left(1 + \frac{1}{20}\right)^2$

$= 10,000\left(\frac{21}{20}\right)^2$

$= 10,000 \times \frac{21}{20} \times \frac{21}{20}$

$= Rs.\ 11025$

80. **Ans.(B)**

If interest is quarterly,

time $= \frac{6}{12} \times 4 = 2$ quarter

$r = \frac{20}{4} = 5\%$ quarterly

$(A) = P\left(1 + \frac{r}{100}\right)^n$

$= 11000\left(1 + \frac{5}{100}\right)^2$

$= 11000 \times \frac{21}{20} \times \frac{21}{20}$

$= 12127.5$

81. **Ans.(C)**

$P = \frac{S.I \times 100}{R \times T}$

amount $= \frac{72 \times 100}{8 \times 1} = 900$

Money for second year = 900 + 72 = 972

Second year interest $= \frac{972 \times 8 \times 1}{100} = 77.76$

82. **Ans.(A)**

Given –

Principal (P) = 172,000

Rate = 8% per annum

Time (n) = 3 years

$C.I = P\left(1 + \frac{r}{100}\right)^n - P = P\left[\left(1 + \frac{r}{100}\right)^n - 1\right]$

$= 172000\left[\left(1 + \frac{8}{100}\right)^3 - 1\right]$

$= 172000\left[\left(\frac{27}{25}\right)^3 - 1\right]$

$= 172000\left[\frac{19683}{15625} - 1\right]$

$= 172000 \times \frac{19683 - 15625}{15625}$

$= 11.008 \times 4058 = 44,670$

83. **Ans.(A)**

P = Rs. 7500,

t = $2\frac{1}{3}$ year,

r = 12% per year

$A = P\left(1 + \frac{r}{100}\right)^t$

$= 7500\left(1 + \frac{12}{100}\right)^{2\frac{1}{3}}$

$= 7500\left(1 + \frac{3}{25}\right)^2\left(1 + \frac{3}{25}\right)^{\frac{1}{3}}$

$= 7500 \times \frac{28}{25} \times \frac{28}{25} \times \left(1 + \frac{1}{3} \times \frac{3}{25}\right)$

$= 7500 \times \frac{28}{25} \times \frac{28}{25} \times \frac{26}{25} = Rs.\,9784.32$

C.I. = Rs.9784.32 – 7500 = Rs. 2284.32

Hence compound interest will be nearest Rs. 2284.32.

84. Ans.(C)

C.I. $= 25000\left[\left(1 + \frac{12}{100}\right)^3 - 1\right]$

$= 25000\left[\left(1 + \frac{3}{25}\right)^3 - 1\right]$

$= 25000\left[\left(\frac{28}{25}\right)^3 - 1\right]$

$= 25000\left(\frac{21952}{15625} - 1\right)$

$= 25000 \times \frac{6327}{15625} = Rs.\,10123.20$

85. Ans.(B)

$CI = P\left(1 + \frac{r}{100}\right)^n - P$

$= 24000\left(1 + \frac{25}{100}\right)^2 - 24000$

$= 24000\left(1 + \frac{1}{4}\right)^2 - 24000$

$= 24000\left(\frac{5}{4}\right)^2 - 24000$

$= 24000\left[\frac{25}{16} - 1\right]$

$= 24000\left(\frac{25-16}{16}\right) = 24000 \times \frac{9}{16} = 13,500$

86. Ans.(B)

P (principal) = 48000,

rate (r) = 20%

time (t) = 2 years

$A = P\left(1 + \frac{r}{100}\right)^T = 48000\left(1 + \frac{20}{100}\right)^2$

$= 48000\left(1 + \frac{1}{5}\right)^2 = 48000\left(\frac{6}{5}\right)^2$

$= 48000 \times \frac{6}{5} \times \frac{6}{5} = 69120$

Interest = Amount – Principal

= 69120 – 48000 = 21120

87. Ans.(C)

Principal (P) = 40,000

Time (n) = 2 year

Rate (r) = 20% per year

$A = P\left(1 + \frac{r}{100}\right)^n$

$= 40000\left(1 + \frac{20}{100}\right)^2$

$= 40000 \times \frac{6}{5} \times \frac{6}{5} = 57600$

88. Ans.(A)

P = 125000, R = 8%, n = 2 years, A =?

$A = P\left(1 + \frac{r}{100}\right)^n$

$A = 125000\left(1 + \frac{8}{100}\right)^2$

$= 125000 \times \frac{108 \times 108}{100 \times 100}$

$= 25 \times 54 \times 108 = Rs.145,80$

89. Ans.(B)

Given –

P = Rs. 10000

$r = \frac{20}{2} = 10\%$ half yearly

∵ 1 years = 2 half year

∴ 2 years = 4 half year

$A = P\left(1 + \frac{r}{100}\right)^t$

$A = 10000\left(1 + \frac{10}{100}\right)^4 = 10000\left(\frac{11}{10}\right)^4$

$= \frac{1331 \times 11 \times 10000}{10000} = Rs.\,14641$

90. Ans.(A)

Principal (P) = Rs. 5000

Time (t) = 3 year

Annual interest rate (R) = 10%

$(C.I.) = P\left[\left(1 + \frac{R}{100}\right)^t - 1\right]$

$= 5000\left[\left(1 + \frac{10}{100}\right)^3 - 1\right]$

$= 5000\left[\left(\frac{11}{10}\right)^3 - 1\right]$

$= 5000\left[\frac{1331 - 1000}{1000}\right]$

$= 5000 \times \frac{331}{1000} = 1655$

91. Ans.(A)

(P) = Rs. 7500

(R) = 5%

(t) = 2 year

C.I. $= P\left[\left(1 + \frac{R}{100}\right)^t - 1\right]$

$= 7500\left[\left(1 + \frac{5}{100}\right)^2 - 1\right]$

$= 7500\left[\left(\frac{21}{20}\right)^2 - 1\right]$

$= 7500\left[\frac{441}{400} - 1\right]$

$= 7500\left[\frac{441 - 400}{400}\right]$

$= 7500 \times \frac{41}{400}$

$= Rs.\,768.75$

92. Ans.(A)

P = 4500, R = 4%, n = 2 year

$A = P\left(1 + \frac{R}{100}\right)^n$

$= 4500\left(1 + \frac{4}{100}\right)^2$

$= 4500\left(\frac{104}{100}\right)^2$

$= 4500 \times \frac{104 \times 104}{100 \times 100} = 4867.2$

$CI = A - P$

$= 4867.2 - 4500 = Rs.\,367.2$

93. Ans.(A)

CI $= P\left[\left(1 + \frac{r}{100}\right)^n - 1\right]$

$$= 8000\left[\left(1 + \frac{4}{100}\right)^2 - 1\right]$$

$$= 8000\left[\left(\frac{26}{25}\right)^2 - 1\right]$$

$$= 8000\left[\frac{676 - 625}{625}\right]$$

$$= 8000 \times \frac{51}{625}$$

$$= \frac{64 \times 51}{5}$$

$$= \frac{3264}{5}$$

$$= Rs.\,652.8$$

94.　Ans.(B)

$$C.I. = P\left(1 + \frac{r}{100}\right)^n - P$$

$$C.I. = 3000\left(1 + \frac{5}{100}\right)^2 - 3000$$

$$= 3000\left[\left(\frac{21}{20}\right)^2 - 1\right]$$

$$= 3000\left(\frac{441}{400} - 1\right)$$

$$= 3000 \times \frac{41}{400}$$

$$= 7.5 \times 41 = 307.5$$

95.　Ans.(A)

P = Rs. 3500, r = 4%
t = 2 year, A = ?

$$A = P\left(1 + \frac{r}{100}\right)^t$$

$$A = 3500\left(1 + \frac{4}{100}\right)^2 = 3500\left(1 + \frac{1}{25}\right)^2$$

$$A = 3500\left(\frac{26}{25}\right)^2$$

$$A = 3500 \times \frac{26}{25} \times \frac{26}{25}$$

$$= 3785.6\sqrt{5}$$

Interest = Amount – Principal
= 3785.6 – 3500 = Rs. 285.6

96.　Ans.(B)

If interest is quarterly,

$$time = \frac{6}{12} \times 4 = 2\,quarter$$

$$rate = \frac{20}{4} = 5\%\,quarterly$$

$$A = P\left(1 + \frac{r}{100}\right)^n$$

$$A = 5500\left(1 + \frac{5}{100}\right)^2$$

$$= 5500\left(1 + \frac{1}{20}\right)^2$$

$$= 5500 \times \frac{21}{20} \times \frac{21}{20}$$

$$= \frac{55 \times 441}{4} = Rs.6063.75$$

97.　Ans.(A)

$$A = P\left(1 + \frac{r}{100}\right)^n = 3500\left(1 + \frac{5}{100}\right)^2$$

$$= 3500 \times \frac{21}{20} \times \frac{21}{20} = \frac{35 \times 441}{4} = \frac{15435}{4}$$

$$C.I. = \text{Amount} - \text{principal}$$

$$CI = \frac{15435}{4} - 3500$$

$$= \frac{15435 - 14000}{4}$$

$$= \frac{1435}{4} = 358.75$$

98.　Ans.(B)

P = 4500, r = 5%, t = 2 years, CI = ?

$$A = P\left(1 + \frac{r}{100}\right)^t$$

$$A = 4500\left(1 + \frac{5}{100}\right)^2$$

$$= 4500\left(1 + \frac{1}{20}\right)^2$$

$$= 4500\left(\frac{21}{20}\right)^2$$

$$= 4500 \times \frac{21}{20} \times \frac{21}{20}$$

$$= 4961.25$$

$$CI = A - P$$

$$CI = 4961.25 - 4500 = 461.25$$

99.　Ans.(C)

$$SI = \frac{P \times R \times T}{100}$$

$$P = \frac{16000 \times 100}{8 \times 8} = 25000$$

According to Question,

$$r = 8\%\,of \times \frac{1}{4}$$

$$CI = 25000\left(1 + \frac{8 \times \frac{1}{4}}{100}\right)^2 - 25000$$

$$= \frac{25000 \times 51 \times 51}{50 \times 50} - 25000$$

$$= 26010 - 25000 = 1010$$

Hence compound interest = Rs. 1010

100.　Ans.(D)

Rate = R,
(T) = 2 year
SI = 1200,
CI = 1290
Difference of two years of SI and CI

$$\boxed{D = P\left(\frac{R}{100}\right)^2}$$

$$1290 - 1200 = P\left(\frac{R^2}{10000}\right)$$

$$PR^2 = 90 \times 10000$$

$$PR^2 = 900000 \dots\dots(1)$$

$$SI = \frac{PTR}{100}$$

$$1200 = \frac{P \times 2 \times R}{100}$$

$$PR = \frac{1200 \times 100}{2}$$

$$PR = 60000 \dots\dots(2)$$

From equation (1) –

$$PR.R = 900000$$

$$60000 \times R = 900000$$

$$R = \frac{900000}{60000}$$

$$R = 15\%$$

From equation (2) –

$$P \times 15 = 60,000$$

$$P = \frac{60000}{15}\quad P = Rs.4000$$