RRB NTPC Tier I Official Paper (Held On: 12 Apr 2016 Shift 2) (Previous Year Paper)

RRB NTPC • 2016 • 100 questions • 90 minutes • Answer key and solutions

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Q1. Quality A and B rice, valued at Rs 35 per kg and Rs 65 per kg respectively, are mixed. The new average price of the mixture obtained is Rs 50 per kg. What is the ratio of the quantity of A and B in the mixture?

A. 1 : 2
B. 1 : 3
C. 1 : 1
D. 1 : 5

(a) D
(b) B
(c) C
(d) A

Q2. Which dynasty succeeded the Muaryas?

A. Shunga
B. Gupta
C. Sisunaga
D. Chola

(a) B
(b) D
(c) A
(d) C

Q3. Who is the author of 'To Kill a Mocking Bird'?

A. Umberto Eco
B. Salman Rushdie
C. J. K. Rowling
D. Harper Lee

(a) C
(b) B
(c) D
(d) A

Q4. Which one of the following is not a fossil fuel?

A. Coal
B. Oil
C. Peat
D. Electricity

(a) D
(b) B
(c) C
(d) A

Q5. Where did the Sepoy mutiny start?

(a) Jhansi
(b) Kanpur
(c) Lucknow
(d) Meerut

Q6. Which of the following options is programming software?

A. ABasic
B. RBasic
C. TBasic
D. QBasic

(a) B
(b) D
(c) A
(d) C

Q7. Choose the correct word of AF : KP : : FK : _____

A. QX
B. TY
C. PU
D. GL

(a) B
(b) C
(c) D
(d) A

Q8. Which is the hottest planet?

A. Mercury
B. Venus
C. Earth
D. Mars

(a) B
(b) A
(c) D
(d) C

Q9. If α means '÷', β means '×', γ means '-', ω means '+', then what will be the value of 8 α 6 γ 4 β7 ω 3?

A. 14
B. - 71/3
C. 12
D. - 23/2

(a) B
(b) A
(c) D
(d) C

Q10. If “×” means “+”, “+” means “÷”, “-“ means “=”, “=” means “<“, “<” means “-”, “÷“ means “>” and “>” means “×” then which of the following relation is true?

A. 7 × 3 > 2 – 8 + 2 × 9
B. 7 × 3 + 2 ÷ 8 > 2 × 9
C. 7 > 3 × 2 = 8 + 2 × 9
D. 7 < 3 + 2 – 8 < 2 + 9

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(a) C
(b) D
(c) A
(d) B

Q11. If (4x + 16) ÷ 4x = 9, then find the value of 5x ÷ [12x²+ (14/11)x + 2].

A. 29/57
B. 51/111
C. 55/124
D. 68/121

(a) B
(b) C
(c) A
(d) D

Q12. Who was the only female ruler of Delhi Sultanate?

A. Chand Bibi
B. Noor Jahan
C. Razia Sultan
D. Mumtaz Mahal

(a) A
(b) C
(c) B
(d) D

Q13. As Tola is related to the village, similarly the metropolis is related to which of the following?

A. City
B. Urban
C. District
D. Place

(a) B
(b) D
(c) A
(d) C

Q14. The mean of a distribution is 24 and the standard deviation is 6. What is the value of variance coefficient?

A. 50%
B. 25%
C. 100%
D. 75%

(a) D
(b) B
(c) A
(d) C

Q15. Under whose captaincy did the Australian cricket team win the 1987 World Cup?

A. Steve Waugh
B. Allan Border
C. Geoff Marsh
D. Mark Taylor

(a) A
(b) C

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(c) B
(d) D

Q16. Which is the most energy-efficient city in the world?

A. Vancouver
B. Reykjavik
C. Denmark
D. Malmo

(a) C
(b) B
(c) D
(d) A

Directions

Direction: Study the following table to answer the questions given below.

Expenditure per year of a company in given years (In lakhs Rs)

Year	Salary	Fuel and Transportation	Bonus	Interest on Loans	Taxes
2008	288	98	3.00	23.4	83
2009	342	112	2.52	32.5	108
2010	324	101	3.84	41.6	74
2011	336	133	3.68	36.4	88
2012	420	142	3.96	49.4	98

Q17. The bonus paid by the company in the given years is approximate what percentage of the salary paid by the company in the given years?

A. 0.5
B. 0.1
C. 1
D. 1.11

(a) D
(b) C
(c) B
(d) A

Q18. The ratio between total expenditure on tax in all years and total expenditure on fuel and transport in all years is approximately:

A. 10 : 13
B. 15 : 18
C. 2 : 3
D. 4 : 7

(a) C
(b) D
(c) B
(d) A

Q19. The total expenditure of the company in the year 2010 on all these items is:

A. 612.13 Lakh
B. 544.44 Lakh
C. 501.11 Lakh

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D. 446.46 Lakh

(a) D
(b) B
(c) A
(d) C

Q20. Where is the famous Borobudur Buddhist temple located?

A. Nepal
B. Sri Lanka
C. Indonesia
D. Malaysia

(a) A
(b) C
(c) B
(d) D

Q21. Dholavira, an archaeological site, is associated with which period?

A. Gupta period
B. Magadha period
C. Indus Valley Civilization
D. Chalukya period

(a) B
(b) A
(c) D
(d) C

Q22. 2 years 8 months simple interest of Rs. 7800 is Rs. 1976. Find the annual rate of interest.

A. 8.5%
B. 9%
C. 9.5%
D. 10%

(a) A
(b) B
(c) C
(d) D

Q23. Rearrange the disarranged letters in their natural order and select the incompatible ones.

A. otro
B. ealf
C. ntpal
D. orefwl

(a) B
(b) C
(c) D
(d) A

Q24. Megamart sells one pressure cooker at a profit of 30% and the other at a loss of 30% and each has an equal selling price of Rs. 900. What is the percentage of profit/loss earned by Megamart (approx value)?

A. 10%
B. 4%
C. 9%
D. 8%

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(a) D
(b) C
(c) B
(d) A

Q25. Anil alone can do a piece of work in 6 days and Binu alone in 8 days. Anil and Binu undertook to do it for Rs. 240. With the help of Chitra, they completed the work in 3 days. How much more money is to be paid to Anil than Chitra?

A. 120
B. 30
C. 100
D. 90

(a) C
(b) B
(c) D
(d) A

Q26. Which of the following is a graphical representation of the algorithm?

A. Programming
B. Software
C. Flow Chart
D. Pseudocode

(a) B
(b) A
(c) C
(d) D

Q27. Who was sworn in as the 9th Chief Minister of Arunachal Pradesh?

A. Kalikho Pul
B. J. P. Rajkhowa
C. Nabam Tucci
D. Prem Khandu Thungan

(a) B
(b) D
(c) C
(d) A

Q28. If A + B = 90°, then which of the following is correct?

A. sin A = cos B
B. sin A + cos B = 0
C. sin A – cos B = 1
D. sin A – cos B = 2

(a) C
(b) A
(c) B
(d) D

Q29. If $(x + 1/x) = 3$, then find the value of $(x^3 + 1/x^3) \div (x^2 + 1/x^2)$.

A. 18/5
B. 26/3
C. 18/7
D. 54/5

(a) D

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(b) B
(c) A
(d) C

Q30. What is liquid paper?

A. Paper that does not get wet
B. Paper that turns into liquid
C. Quick drying paper colored fluid that is applied to correct the printed material.
D. Paper that never dries

(a) A
(b) D
(c) C
(d) B

Q31. Choose the word from the given alternatives that are related to each other like the words in the first pair.

Gram : Grain : Pound : _____

A. Cereals
B. Weight
C. Height
D. Commodities

(a) A
(b) C
(c) D
(d) B

Q32. Find the unit digit in the given factor (3451)^(51) × (531)^(43).

A. 6
B. 4
C. 1
D. 9

(a) B
(b) C
(c) D
(d) A

Q33. Two temples are facing each other on each side of a river. The angle of depression of the top and bottom of the second 36 m height from the top of the first temple is 30° and 60° respectively. The height of the first temple is:

A. 40 m
B. 60 m
C. 45 m
D. 54 m

(a) B
(b) C
(c) A
(d) D

Q34. A statement and its two conclusions - I and II are given. You have to follow the given statements is correct even if they seem to be at variance from commonly known facts.

Statement:

All belts are hot.

All bolts are hot.

Conclusions:

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I. At least some belts are bolts.

II. All hot are belts.

Decide which of the following options logically follows from the given conclusions.

A. Only conclusion I follow.

B. Only conclusion II follows.

C. Both conclusions I and II follow.

D. Neither conclusion I nor conclusion II follows.

(a) A
(b) C
(c) D
(d) B

Q35. A sum of money becomes 3 times itself in 5 years. In how many years will this amount become 5 times of itself at the same interest rate?

A. 5 years

B. 10 years

C. 9 years

D. 8 years

(a) A
(b) C
(c) B
(d) D

Q36. Below is an Assertion (A) and a Reason (R).

Assertion (A): Land breeze blows during the night.

Reason (R): The land heats up quickly.

Choose the correct option.

A. A is true but R is false.

B. A is false but R is correct.

C. Both A and R are correct and R is the correct explanation of A.

D. Both A and R are correct but R is not a proper explanation of A.

(a) D
(b) B
(c) C
(d) A

Directions

Directions: Study the following information carefully and answer the questions given below it.

Shweta's mother is Yamuna's sister. The Yamuna has a daughter named Harini. Harini is extremely fond of her mother's mother Kamala.

Q37. If we know that Kamala has two daughters Roshini and Yamuna, then how is Shweta related to the Yamuna?

A. Daughter

B. Aunt

C. Niece

D. Cannot be determined

(a) C
(b) D
(c) A
(d) B

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Q38. How is Harini related to Shweta?

A. Grand Daughter
B. Daughter
C. Cousin
D. Cannot be determined

(a) B
(b) C
(c) A
(d) D

Q39. If it is given that Yamuna and Shweta are female, then how is Shweta related to Kamala?

A. Cousin
B. Grand Daughter
C. Daughter
D. Sister

(a) D
(b) C
(c) A
(d) B

Q40. If the ratio of the angles of a triangle is 3 : 5 : 7, find the value of the largest angle.

A. 36°
B. 60°
C. 84°
D. 15°

(a) B
(b) A
(c) C
(d) D

Q41. In which country is the Golden Rock Pagoda?

A. Sri Lanka
B. Myanmar
C. Nepal
D. China

(a) D
(b) A
(c) B
(d) C

Q42. If one pipe P can fill a tank in 10 minutes, then 5 pipes, each of 20% efficiency of P, can fill the tank in

A. 10 minutes
B. 50 minutes
C. 130 minutes
D. 175 minutes

(a) A
(b) D
(c) C
(d) B

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Q43. If FRUIT is coded as ESTJS, then JUICE can be coded as:

A. IVHDD
B. IHVDD
C. IVDHD
D. IHDVD

(a) A
(b) C
(c) D
(d) B

Directions

Direction: Answers to the following questions are based on the details given below:

In a city with 120 families, 93 families use biogas, 63 use LPG gas, 45 use wood, 45 use biogas and LPG gas, 24 use LPG of gas and wood and 27 of families use wood and biogas for cooking.

Q44. How many families use LPG gas, biogas and wood?

A. 5
B. 10
C. 15
D. 2

(a) D
(b) C
(c) B
(d) A

Q45. How many families use biogas only?

A. 30
B. 36
C. 25
D. 20

(a) D
(b) C
(c) A
(d) B

Q46. How many families do not use any of these three?

A. 2
B. 5
C. 1
D. 0

(a) D
(b) C
(c) A
(d) B

Q47. Find the absent values of 20, 30, 42, 56, 72, _____.

A. 80
B. 92
C. 90
D. 84

(a) B

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(b) A
(c) C
(d) D

Q48. The average of the results of 35 tests is 21. The average of the first 17 results is 19 and the average of the last 17 is 22. What is the value of the result of the 18th test?

A. 42
B. 36
C. 38
D. 34

(a) C
(b) B
(c) D
(d) A

Q49. If the standard deviation of a population is 5, what will be its variance?

A. 10
B. 15
C. 25
D. 12.5

(a) B
(b) C
(c) A
(d) D

Q50. In a certain code language, if ONIDA is written as 57834, then how will you write INDIA in that code language?

A. 83874
B. 87834
C. 87384
D. 83784

(a) C
(b) D
(c) B
(d) A

Q51. Dividing (x^(80) + x^(40) + 5) by (x^8+ 1) gives the remainder as _____.

A. 5
B. 8
C. 12
D. 13

(a) A
(b) B
(c) D
(d) C

Q52. Find the greatest number of 4 digits which is completely divided by 12, 20, 32 and 44.

A. 5200
B. 4719
C. 6800
D. 5280

(a) A
(b) D

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(c) B
(d) C

Q53. Which of the following options means that the fog which has been polluted by smoke?

A. Skog
B. Pollutant
C. Clog
D. Smog

(a) A
(b) D
(c) B
(d) C

Q54. When is World Heritage Day celebrated?

A. 8 March
B. 8 April
C. 18 April
D. 25 May

(a) C
(b) D
(c) B
(d) A

Q55. If (6y + 70)° and (3y + 47)° are supplementary angles, find the value of y.

A. 12
B. 15
C. 7
D. 10

(a) C
(b) A
(c) B
(d) D

Q56. What is the APGAR scale?

A. Scale to measure the height of mountains
B. Time Measuring Scale
C. Scale to determine the physical condition of a newborn
D. Longevity scale

(a) C
(b) A
(c) B
(d) D

Q57. What is black gold?

A. Raw gold
B. Petrol
C. Coal
D. Carbon

(a) B
(b) C
(c) A
(d) D

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Q58. Find the HCF of 1.43, 1.87 and 20.9.

A. 11

B. 1

C.0.11

D. 110

(a) A
(b) B
(c) C
(d) D

Q59. A wholesaler mixes three types of apples, valued at Rs 40, Rs 50 and Rs 50 per kg, in the ratio of 1 : 3 : 5 on the basis of weight and sells the mixture at the rate of Rs 59.88 per kg. What is the percentage of profit earned by the wholesaler?

A. 20%

B. 12.5%

C. 22.5%

D. 18%

(a) B
(b) D
(c) C
(d) A

Q60. The mean of 6 observations is 12. Two observations are added to these and the new mean becomes 13. Mean of two new observations:

A. 16

B. 18

C. 13

D. 15

(a) D
(b) B
(c) C
(d) A

Q61. Which planet was named after the king of Roman gods?

A. Earth

B. Venus

C. Saturn

D. Jupiter

(a) D
(b) C
(c) A
(d) B

Q62. Which Prime Minister of India has hoisted the national flag from Red Fort most often?

A. Indira Gandhi

B. Jawahar Lal Nehru

C. Manmohan Singh

D. Atal Bihari Vajpayee

(a) A
(b) C
(c) B
(d) D

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Q63. Who won the 2016 Australian Open Women's Doubles title?

A. Martina Hingis and Sania Mirza

B. Sara Errani and Roberta Vinci

C. Bethanie Mattek-Sands and Lucie Safarova

D. Serena Williams and Venus Williams

(a) C
(b) D
(c) A
(d) B

Q64. Rearrange the disordered letters in their natural order and choose the incompatible ones.

A. LUCOD

B. PIGSRN

C. INWETR

D. MEUSRM

(a) A
(b) B
(c) C
(d) D

Q65. Which of the following is the best example of free market?

A. A market where goods can be transported for free

B. Government owned markets

C. Markets where goods are heavily discounted

D. Market where price is determined by demand and supply.

(a) B
(b) D
(c) A
(d) C

Q66. In a project a team of 54 members can do a work in 35 hours. In how many hours can 18 members do the same work?

A. 90

B. 120

C. 105

D. 110

(a) A
(b) C
(c) D
(d) B

Q67. Bal Gangadhar Tilak, along with Sir Ratanji Jamsetji Tata, opened a shop of indigenous goods in the year 1905, what was the name of that shop?

A. Bharat Swadeshi Co-Op Shop Co. Ltd.

B. Jai Hind Co-Op Shop Ltd.

C. Hindustan Swadeshi Co-Op Shop Co. Ltd.

D. Bombay Swadeshi Co-Op Stores Co. Ltd.

(a) C
(b) D
(c) B
(d) A

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Q68. Below is an assertion and a reason given.

Assertion (A): India is a democratic country.

Reason (R): India has its own constitution.

Choose the correct option.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are correct but R is not a proper explanation of A.

C. A is true but R is false.

D. Both A and R are correct.

(a) B
(b) A
(c) D
(d) C

Q69. Who is the current director of Bhabha Atomic Research Center? (As of 2016)

A. K. N. Vyas

B. Dr. Shekhar Basu

C. Dr. Ratan Kumar Sinha

D. Dr. Banerjee

(a) D
(b) B
(c) C
(d) A

Q70. The disorganized letters of a word are given below. Arrange these letters to make meaningful words and find the last letter of the word.

N U P C H A

A. A

B. N

C. H

D. P

(a) D (P)
(b) C (H)
(c) A (A)
(d) B (N)

Q71. If the middle point of a straight line XY is Z and W is a different point from Z such that XW = WY, then which of the following is incorrect?

A. XZ = ZY

B. angle XZW = 90°

C. Triangle XZW is similar to triangle YZW.

D.angle XZW > 90°

(a) C
(b) D
(c) A
(d) B

Q72. Two buses from two stations - Mumbai and Pune, which have a distance of 300 km, run opposite directions of each other at the same time and cross each other at a distance of 220 km from one station. What is the ratio of their speed?

A. 13 : 9

B. 10 : 3

C. 11 : 4

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D. 14 : 5

(a) C
(b) D
(c) B
(d) A

Q73. Find the value of '?' -

0.0043/? = 0.43

A. 0.10
B. 0.01
C. 1.001
D. 0.001

(a) D
(b) C
(c) A
(d) B

Q74. If MTQRD is coded as NURSE, then BZRD can be coded as:

A. EASE
B. CASE
C. BASE
D. NEWS

(a) D
(b) A
(c) B
(d) C

Q75. What is Vinegar made of?

A. Sulphuric acid
B. Acetic acide
C. Hydorchloric acid
D. Oxalic acide

(a) B
(b) C
(c) A
(d) D

Q76. What does hydropower change

A. Kinetic energy to electrical energy
B. Mechanical energy from electrical energy
C. Chemical energy to electrical energy
D. Wind energy to electrical energy

(a) C
(b) B
(c) D
(d) A

Q77. If POET will be written as 1947 and YOUR will be written as 8923 then the code for POETRY will be:

A. 194783
B. 194738
C. 194728
D. 194793

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(a) B
(b) C
(c) A
(d) D

Q78. Deepa Karmakar is associated with which sport?

A. Swimming
B. Badminton
C. Gymnastics
D. Athletics

(a) B
(b) D
(c) A
(d) C

Q79. Who developed the rock garden of Chandigarh?

A. Tara Chand
B. Nek Chand
C. Himanshu Parikh
D. Kamal Sagar

(a) C
(b) D
(c) A
(d) B

Q80. An Assertion (A) and a Reason (R) are given below.

Assertion (A): Red color of blood is due to hemoglobin.
Reason (R): Hemoglobin is a red pigment.
Choose the correct option.

A. Both A and R are true and R is the correct explanation of A.
B. Both A and R are true but R is not the correct explanation of A.
C. A is true but R is false.
D. Both A and R are false.

(a) B
(b) C
(c) A
(d) D

Q81. Choose one of the following options that are related to the third group of letters.

PqsT : SrpO :: BceF : _____

A. EdbA
B. EDba
C. FeaB
D. FebA

(a) D
(b) A
(c) B
(d) C

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Q82. What is the sound made by camels?

A. Howl
B. Grunt
C. Bleat
D. Gibber

(a) C
(b) D
(c) B
(d) A

Q83. Where is Parks Observatory located?

A. USA
B. US
C. Russia
D. Australia

(a) B
(b) D
(c) C
(d) A

Q84. What is the most poisonous fish?

A. Pufferfish
B. Porcupinefish
C. Piranhas)
D. Angler fish

(a) C
(b) A
(c) B
(d) D

Q85. The price ratio of a Samsung mobile and LG mobile is 10 : 7. If the price of Samsung mobile is Rs 3000 more than the price of LG mobile, then find the price of LG mobile.

A. Rs. 7000
B. Rs. 9000
C. Rs. 10000
D. Rs. 8000

(a) D
(b) C
(c) A
(d) B

Q86. Select the pairs whose numbers are related like the given pair:

19 : 361 :: ____ : ____

A. 13 : 169
B. 15 : 235
C. 9 : 27
D. 12 : 154

(a) B
(b) D
(c) C
(d) A

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Q87. Who is the current President of Pakistan?(As of 2016)

A. Asif Ali Zardari
B. Mamnoon Hussain
C. Muhammad Mian Soomro
D. Mohammed Nawaz Sharif

(a) C
(b) D
(c) A
(d) B

Q88. When Sita sells 48 ladies soaps, she gets a profit equal to the selling price of 12 soaps. Find the profit percentage.

A. 30%
B. 32%
C. 33.33%
D. 25%

(a) B
(b) C
(c) D
(d) A

Q89. If L represents 'add', M represents 'minus', N represents 'division' and P represents 'multiply', then the value of 10 P 2 L 5 M 5 will be:

A. 25
B. 35
C. 10
D. 20

(a) B
(b) A
(c) C
(d) D

Q90. Which instrument is used to measure atmospheric pressure?

A. Lactometer
B. Barometer
C. Thermometer
D. Multimeter

(a) D
(b) A
(c) C
(d) B

Q91. Find the value of 7342015 × 9999?

A. 73416544985
B. 73453222985
C. 73412807985
D. 73412907985

(a) B
(b) A
(c) D
(d) C

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Q92. The distance between the two stations of Madhubani and Patna is 300 km. A train starts from Madhubani at 9 am with a speed of 30 km per hour towards Patna. Another train runs from Patna at 10 am towards Madhubani at a speed of 20 km per hour. What time will they meet each other?

A. 4.24 p.m.

B. 2.24 p.m.

C. 3.24 p.m.

D. 5.24 p.m.

(a) C
(b) A
(c) B
(d) D

Q93. If P represents "÷", Q represents "×", R represents "-" and S represents "+", then which of the following statements is correct?

A. 11 Q 34 P 17 R 8 P 3 = 38/3

B. 32 S 8 P 16 R 4 = - 3/2

C. 9 S 9 P 9 R 9 Q 9 = - 71

D. 6 Q 18 R 26 P 13 S 7 = 172/11

(a) B
(b) C
(c) A
(d) D

Q94. Heera is a strict form of

A. Oxygen

B. Nitrogen

C. Mercury

D. Carbon

(a) C
(b) A
(c) B
(d) D

Q95. Who is credited for manufacturing and marketing jeans?

A. Levi Strauss

B. Arthur Wellesley

C. Mary Phelps

D. Lyman Blake

(a) C
(b) D
(c) A
(d) B

Q96. What is the extension of PDF?

A. Print Document Folder

B. Portable Document Format

C. Pre-defined Folder

D. Program Document File

(a) C
(b) A
(c) B
(d) D

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Q97. In which field is Pandit Jasraj famous?

A. Classical dancer
B. Sitar player
C. Classical musician
D. Tabla artist

(a) C
(b) D
(c) B
(d) A

Q98. Who is considered the grand old lady of Bollywood?

A. Zohra Sehgal
B. Nargis
C. Suraiya
D. Madhubala

(a) A
(b) D
(c) C
(d) B

Q99. Which of the following is a vertical restructuring method?

A. Job rotation
B. Job growth
C. Job promotion
D. Job evaluation

(a) C
(b) D
(c) A
(d) B

Q100. Find the missing value denoted by '?'.

'?' % OF 40 = 1.20

A. 3
B. 9
C. 4
D. 5

(a) C
(b) B
(c) A
(d) D

ANSWER KEY

1	c	2	c	3	c	4	a	5	d	6	b	7	b	8	a	9	a	10	c
11	b	12	b	13	c	14	b	15	c	16	b	17	b	18	d	19	b	20	b
21	d	22	c	23	b	24	b	25	c	26	c	27	b	28	b	29	d	30	c
31	d	32	b	33	d	34	c	35	c	36	a	37	b	38	b	39	d	40	c
41	c	42	a	43	a	44	b	45	d	46	a	47	c	48	a	49	b	50	a
51	a	52	b	53	b	54	a	55	a	56	a	57	a	58	c	59	c	60	d
61	a	62	c	63	c	64	a	65	b	66	b	67	b	68	a	69	d	70	b

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71	b	72	a	73	d	74	c	75	a	76	d	77	a	78	d	79	d	80	c
81	b	82	c	83	b	84	b	85	c	86	d	87	d	88	b	89	d	90	d
91	d	92	a	93	b	94	d	95	c	96	c	97	a	98	a	99	a	100	c

SOLUTIONS

Q1. Answer: (c) C

Given:

The cost price of A = Rs 35 per kg

Cost price of B = Rs 65 per kg

The average price of the mixture = 50 per kg

Calculation:

Let the total quantity of rice be X kg.

Total cost price = 50 × X = 50X

Let the quantity of rice of variety A = A kg

Then, the quantity of rice of variety B = (X - A) kg

Total cost price of variety A = 35 × A = 35A

Total cost price of variety B = 65 × (X - A) kg

65(X - A) + 35A = 50X

15X = 30A

Or, X/A = 2/1

The ratio of variety A to variety B = A/(X - A) = 1/(2 - 1)

Ratio of A to B = 1 : 1

Therefore The required ratio is 1 : 1.

Shortcut Trick

By using the allegation method

Therefore The ratio of variety A to variety B is 1 : 1

Q2. Answer: (c) A

The correct answer is Shunga.

Key Points

• After the Mauryan rule Pushyamitra, the founder of the Shunga dynasty established his rule.

• The Sungas ruled for over a hundred years.

• The extent of the Sunga kingdom under Pushyamitra extended from Punjab and extended to the southern regions of the Narmada.

• The Sunga dynasty had a line of ten rulers.

• The last of the Sunga king was Devabhuti.

Additional Information

• Chandragupta Maurya is the founder of the Mauryan dynasty.

• In the wake of the death of Alexander the Great in 323 BCE, Chandragupta (or Chandragupta Maurya), conquered the Punjab region from the southeastern edges of Alexander's former empire.

• Chola Dynasty

• Vijayalaya Chola (846-907 AD): He was a vassal of the Pallavas. He captured Tanjore from the Pandyas and made it the capital of the Cholas.

• Aditya I (871-907 AD): Extended the work of Vijayalaya by occupying the territories from the Pallavas.

• Parantaka Chola I (907-955 AD): Was the first imperial Chola.

• He defeated the Pandyans and Shrilankans initially but was later defeated by the Rashtrakuta king Krishna III.

• Raja Raja Chola I (907-1014 AD): Orchestrated the resurgence of the Cholas.

• Raja Raja, I developed the naval strength of the Cholas

• He re-organized the administrative system

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• In 1000 Ad he began the conduction of a land survey

• He adopted the practice of inscribing the historical inscriptions

• He began the practice of associating Yuvaraja or crown Prince with the administration

• Raja Raja I being a patron of Shaivism constructed the great Raja Rajeshwar temple (Also called the Brihadeeswarar temple) at Tanjore.

• Rajendra I (1014-44 AD):

• He is considered the greatest Chola ruler.

• He completed the conquest of Sri Lanka in 1017 AD and captured the whole of Sri Lanka and made it a part of the Chola empire.

• Origin of Gupta Empire

• The Gupta Empire rose to prominence in 320 AD and spread to large parts of northern India, central and small parts of southern India.

• The founder of the Gupta dynasty is Sri Gupta.

• They are thought to be either Brahmins or Vaishyas.

Q3. Answer: (c) D

The correct answer is Harper Lee.

Key Points

• Harper Lee, whose first novel, “To Kill a Mockingbird,” about racial injustice in a small Alabama town, sold more than 40 million copies, died at the age of 89.

• Harper Lee, the famously reclusive author of To Kill a Mockingbird, spent most of her life out of the spotlight.

• The instant success of “To Kill a Mockingbird,” which was published in 1960 and won the Pulitzer Prize for fiction the next year, turned Ms. Lee into a literary celebrity, a role she found oppressive and never learned to accept.

• Hence, option 3 is correct.

Additional Information

• J. K. Rowling

• J. K. Rowling is a British author and philanthropist.

• She is best known for writing the Harry Potter fantasy series.

• Salman Rushdie

• Rushdie has been shortlisted for the Booker Prize five times, in 1981 for Midnight's Children, 1983 for Shame, 1988 for The Satanic Verses, 1995 for The Moor's Last Sigh, 2019 for Quichotte.

• Umberto Eco

• Books: The Name of the Rose, The Prague Cemetery, Number Zero.

Q4. Answer: (a) D

The correct answer is Electricity.

Key Points

• Fossil fuels include coal, petroleum, peat, natural gas, oil shales, bitumens, tar sands, and heavy oils.

• All contain carbon and were formed as a result of geologic processes acting on the remains of organic matter produced by photosynthesis, a process that began in the Archean Eon (4.0 billion to 2.5 billion years ago).

• Hence, option 1 is correct.

Additional Information

• Fossil fuel power plants burn coal or oil to create heat which is in turn used to generate steam to drive turbines that generate electricity.

• In gas plants, hot gases drive a turbine to generate electricity, whereas a combined cycle gas turbine (CCGT) plant also uses a steam generator to increase the amount of electricity produced.

• In 2017, fossil fuels generated 64.5% of electricity worldwide.

• These plants generate electricity reliably over long periods of time and are generally cheap to build.

• However, burning carbon-based fuels produces large amounts of carbon dioxide, which drives climate change.

• These plants also produce other pollutants, such as oxides of sulphur and nitrogen, which cause acid rain.

Q5. Answer: (d) Meerut

The correct answer is Meerut.

Key Points

• The Mutiny proper began at Meerut on 10 May 1857 when 85 members of the 3rd Bengal Light Cavalry, who had been jailed for refusing to use the new cartridges, were broken out of prison by their comrades.

• They ransacked the nearby military station and killed any Europeans they could find.

• Hence, option 4 is correct.

Additional Information

• Sepoy mutiny

• It was the first expression of organized resistance against the British East India Company.

• It began as a revolt of the sepoys of the British East India Company's army but eventually secured the participation of the masses.

• The revolt is known by several names: the Sepoy Mutiny (by the British Historians), the Indian Mutiny, the Great Rebellion (by the Indian Historians), the Revolt of 1857, the Indian Insurrection, and the First War of Independence (by Vinayak Damodar Savarkar).

Q6. Answer: (b) D

The correct answer is QBasic.

Key Points

• QBasic is an integrated development environment and interpreter for a variety of dialects of BASIC which are based on QuickBASIC.

• Code entered into the IDE is compiled to an intermediate representation, and this IR is immediately interpreted on-demand within the IDE.

• QBasic is a Quick Basic interpreter.

• This application can be used to run a quick basic program and software developed for your Windows10 desktop or tablet.

• Hence, option 2 is correct.

Q7. Answer: (b) C

Given,

AF : KP : : FK : _____

The pattern followed here is,

Similarly,

Hence, the correct answer is C.

Q8. Answer: (a) B

The correct answer is Venus.

Key Points

• Venus is the hottest planet in the solar system.

• Although Venus is not the planet closest to the sun, its dense atmosphere traps heat due to the greenhouse effect makes it our solar system's hottest planet.

• Venus is known as the twin sister of earth.

• Venus is also known as the Morning star or Evening star.

• Hence, option 1 is correct.

Additional Information

• There are eight planets in the Solar System.

• From the closest to farthest from the Sun, they are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.

• The first four planets are called terrestrial planets.

• They are mostly made of rock and metal, and they are mostly solid.

• The last four planets are called gas giants.

• This is because they are much larger than other planets and are mostly made of gas.

• The Solar System also contains other things.

• There are asteroid belts, mostly between Mars and Jupiter.

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• Further out than Neptune, there is the Kuiper belt and the scattered disc.
• These areas have dwarf planets, including Pluto, Makemake, Haumea, Ceres, and Eris.
• There are thousands of very small objects in these areas. There are also comets, centaurs, and there is interplanetary dust.

Q9. Answer: (a) B

Given,

Symbol	α	β	γ	ω
Meaning	÷	×	•	•

8 ÷ 6 - 4 × 7 + 3 = 4 ÷ 3 - 25
Therefore 4 ÷ 3 - 25 = - 71/3
Hence the correct answer is - 71/3.

Q10. Answer: (c) A

Given,

Code	×	•	•	=	<	÷	
Meaning	•	÷	=	<	•		×

A. 7 × 3 > 2 – 8 + 2 × 9
B. 7 × 3 + 2 ÷ 8 > 2 × 9
C. 7 > 3 × 2 = 8 + 2 × 9
D. 7 < 3 + 2 – 8 < 2 + 9
Therefore,
A. 7 + 3 × 2 = 8 ÷ 2 + 9
13 = 13
LHS= RHS
B. 7 + 3 ÷ 2 > 8 × 2 + 9
C. 7 × 3 + 2 < 8 ÷ 2 + 9
D. 7 - 3 ÷ 2 = 8 - 2 ÷ 9
Hence, the correct answer is A.

Q11. Answer: (b) C

Given :
(4x + 16) ÷ 4x = 9
Calculations :
(4x + 16) ÷ 4x = 9
=> 4x + 16 = 36x
=> 32x = 16
=> x = 16/32
=> x = 1/2
Now put x = 1/2 in equation 5x ÷ [12x2 + (14/11)x + 2) get,
(5 × 1/2) ÷ [12 × (1/4) + (14/11) × (1/2) + 2]
=> (5/2) ÷ [3 + (7/11) + 2]
=> (5/2) ÷ (62/11)
=> 55/124
Therefore The value of the given equation will be (55/124)

Q12. Answer: (b) C

The correct answer is Razia Sultan.
Key Points
• Razia Sultana was the first woman Sultanate of India and ruled the court of Delhi from the end of 1236 to 1240.
• The only ever woman to do so, she defied all odds to occupy the throne, including overcoming conflicts over her gender and her slave ancestry.

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• During her reign, she proved her mettle as a just and capable ruler and was renowned for her subversive actions, which varied from sporting men's attire to printing coins in her own name and image.

• Malik Altunia, the governor of Bhatinda grew to fall in love with Razia's charm and wit, and took her as his wife.

• Hence, option 2 is correct.

Additional Information

• Mumtaz Mahal

• Mumtaz Mahal was the Empress consort of the Mughal Empire from 19 January 1628 to 17 June 1631 as the chief consort of the Mughal emperor Shah Jahan.

• The Taj Mahal in Agra often cited as one of the Wonders of the World, was commissioned by her husband to act as her tomb.

• Noor Jahan

• Noor Jahan was the twentieth wife of the Mughal emperor Jahangir.

• Noor Jahan was born Mehr-un-Nissa, the daughter of a Grand Vizier who served under Akbar.

• Noor Jahan, meaning 'Light of the World', was married at age 17 to a Persian soldier Sher Afgan, governor of Bihar, an important Mughal province.

• Chand Bibi

• Sultana Chand Bibi was an Indian Muslim ruler and warrior.

• She acted as the Regent of Bijapur Sultanate and Ahmednagar Sultanate in current day Maharashtra.

• Chand Bibi is best known for defending Ahmednagar against the Mughal forces of Emperor Akbar in 1595.

Q13. Answer: (c) A

As Tola is related to the village, basically, a group of 3- 5 tola is called a village.

Similarly,

A metropolis is a large city or conurbation which is a significant economic, political, and cultural centre for a country or region, and an important hub for regional or international connections, commerce, and communications.

The correct answer is the City.

Q14. Answer: (b) B

Given:

Mean of the distribution = 24

Standard deviation = 6

Concept used:

Coefficient of variance = standard deviation/mean × 100

Calculation:

Coefficient of variance = 6/24 × 100 = 100/4

Coefficient of variance = 25%

Therefore The coefficient of variance is 25%.

Q15. Answer: (c) B

The correct answer is the Allan Border.

Key Points

• The 1987 Cricket World Cup was the first time that it was played outside England.

• The Aussies led by the legendary Allan Border managed to achieve their first big ICC title in India.

• Australia lost only one match in the tournament, which leads Allan Border to become the third World Cup Winning Captain.

• Hence, option 3 is correct.

Additional Information

• The Australian cricket team is the most successful in the Cricket World Cup-winning 1987, 1999, 2003, 2007, and 2015 editions.

• This also makes them the only team to have won the world cup in all the regions (a group of countries) that have hosted the world cup till now.

• Besides, Australia had reached the finals of the 1975 and 1996 World cups losing to West Indies and Sri Lanka respectively.

• They also reached the quarterfinals of the 2011 Cricket World Cup and were knocked out in the first round three times: 1979, 1983, and 1992.

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Q16. Answer: (b) B

The correct answer is Reykjavik.

Key Points

• Reykjavik is the most energy-efficient city in the world.

• Reykjavik tops the list of energy-efficient cities worldwide.

• Along with the rest of Iceland, Reykjavik relies on renewable hydropower and geothermal plants to provide all of the heat, electricity, and hot water for its more than 120,000 citizens.

• Hence, option 2 is correct.

Additional Information

• Vancouver, Canada

• In 2012, the city of Vancouver laid out an action plan to become the world's greenest city by 2020.

• While that may seem like a big accomplishment in a fairly small amount of time, the city is well on its way.

• Hydroelectric power already accounts for 90 percent of the city's energy supply, while the other 10 percent includes renewables like wind, solar, and wave power.

• Copenhagen, Denmark

• With a large off-shore wind farm and streets known for being incredibly bike-friendly (with over a third of residents riding every day), the city of Copenhagen is considered by many to be one of the world leaders in clean technology.

• As part of the city's goal to be the first carbon-neutral capital by 2025, green roofs have sprouted up all over Copenhagen, not only helping to insulate buildings, but also allowing water to be more slowly absorbed, lessening the pressure on sewers and drains.

• Malmo, Sweden

• Most of Sweden's energy already comes from nuclear power and the country has reduced its consumption of fossil fuels by 25 percent from 2008 to 2012.

• Sweden's third-largest city, Malmo, has created an ambitious and innovative energy-efficient housing plan.

Q17. Answer: (b) C

Given:

Bonus paid

2008 = 3, 2009 = 2.52, 2010 = 3.84, 2011 = 3.68, 2012 = 3.96

Salary paid

2008 = 288, 2009 = 342, 2010 = 324, 2011 = 336, 2012 = 420

Formula used:

Percentage = (Part value/Original value) × 100

Calculation:

Total bonus Paid

=> 3 + 2.52 + 3.84 + 3.68 + 3.96

=> 17

Total Salary Paid

=> 288 + 342 + 324 + 336 + 420

=> 1710

Approximate percentage

=> (17/1710) × 100

=> 0.99 ≈ 1

Therefore The approximate% is 1.

Q18. Answer: (d) A

Given:

Taxes

2008 = 83, 2009 = 108, 2010 = 74, 2011 = 88, 2012 = 98

Fuel and Transportation

2008 = 98, 2009 = 112, 2010 = 101, 2011 = 133, 2012 = 142

Calculation:

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Total expenditure on taxes

=> 83 + 108 + 74 + 88 + 98

=> 451

Total expenditure on Fuel and Expenditure

=> 98 + 112 + 101 + 133 + 142

=> 586

Approximate Ratio

=> 451 : 586

Divide by 45

=> 10 : 13 ----(Approximate value)

Therefore The approximate ratio is 10 : 13.

Q19. Answer: (b) B

Given:

Salary = 324, Fuel and Transportation = 101, Bonus = 3.84, Interest on Loans = 41.6, Taxes = 74

Calculation:

Total expenditure in 2010

=> 324 + 101 + 3.84 + 41.6 + 74

=> 544.44

All expenditures are in lakhs

=> 544.44 lakhs

Therefore The total expenditure is 544.44 lakhs.

Q20. Answer: (b) C

The correct answer is Indonesia.

Key Points

• Borobudur, also transcribed Barabudur is a 9th-century Mahayana Buddhist temple in Magelang Regency, not far from the town of Muntilan, in Central Java, Indonesia.

• It is the world's largest Buddhist temple.

• The temple consists of nine stacked platforms, six square and three circulars, topped by a central dome.

• Built: Originally built in the 9th century during the reign of the Sailendra Dynasty.

• Province: Central Java

• Architect: Gunadharma

• Hence, option 2 is correct.

Additional Information

• Mahabodhi Temple

• Located in: Bodh Gaya, Bihar.

• Mahabodhi temple is considered one of the most important and sacred pilgrim sites in the Buddhist religion.

• Specialty: It was the place where Lord Buddha attained enlightenment sitting under an ancient Bodhi tree which is still present within the temple.

• Construction: Built in the 3rd century by Emperor Ashoka, the temple was rebuilt from bricks in the 5th century and has remarkable architecture.

• Mahaparinirvana Temple

• Located in: Kushinagar

• Specialty: Famous for housing a huge six meters long idol of Buddha in a sleeping posture. T

• Construction: This ancient single storey Buddha temple made of red sandstone was built by one of the great followers of Lord Buddha, namely Swami Haribala.

• Wat Thai Temple

• Located in: Kushinagar

• Wat Thai Temple is one of the other Buddhist treasures.

• Specialty: A wonderful combination of Buddhist and Thai architecture, the temple is a living architectural masterpiece.

• Sarnath Temple

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• Located in: Varanasi.

• Sarnath Temple is widely known to be one of the holiest and must-visit pilgrim sites holding great significance in the Buddhism religion. It is located in Varanasi.

• Construction: Built by Emperor Ashoka.

• Specialty: It is believed that it was at this place that the first spiritual discourse as an enlightened master was given by Lord Buddha.

Q21. Answer: (d) C

The correct answer is Indus Valley Civilization.

Key Points

• Dholavira, an archaeological site, is associated with the Indus Valley Civilization period.

• Dholavira is an archaeological site at Khadirbet in Bhachau Taluka of Kutch District, in the state of Gujarat in western India, which has taken its name from a modern-day village 1 kilometer south of it.

• This village is 165 km from Radhanpur.

• Also known locally as Kotada timba, the site contains ruins of an ancient Indus Valley Civilization/Harappan city.

• Dholavira's location is on the Tropic of Cancer.

• Hence, option 4 is correct.

Additional Information

• Dholavira site was discovered in 1967-68 by J. P. Joshi, of the Archaeological Survey of India (ASI), and is the fifth largest of eight major Harappan sites.

• The other major Harappan sites discovered so far are Harappa, Mohenjo-daro, Ganeriwala, Rakhigarhi, Kalibangan, Rupnagar and Lothal.

Q22. Answer: (c) C

Given:

Principal, P = Rs 7800

Simple interest, SI = Rs 1976

Time period, T = 2 year 8 months

Concept used:

Simple interest, SI = PRT/100, R - rate of interest

Calculation:

T = 2 years + 8 months = 2 + (8/12)

1976 = 7800 × R × (2 + 2/3)/100

R × 26 × 8 = 1976

R = 9.5%

Therefore The rate of interest is 9.5%.

Q23. Answer: (b) C

Given,

A. otro = Root

B. ealf = Leaf

C. ntpal = Plant

D. orefwl = Flower

All except 'ntpal' that is plant are parts of a plant.

Hence, the correct answer is C.

Q24. Answer: (b) C

Given:

one pressure cooker sold at a profit of 30%

the other pressure cooker sold at a loss of 30%

the selling price of both = Rs. 900

Concept used:

Selling Price = Cost Price × (P or L)%

Calculation:

Let the cost price of the first pressure cooker be C1 and that of the second be C2.

C1 = selling price × (100/130)

C1 = 900 × (10/13) = 9000/13

C2 = selling price × (100/70)

C2 = 900 × (10/7) = 9000/7

Net profit or loss = Net SP - net CP

Net CP = C1 + C2 = 9000/13 + 9000/7 = 9000 × (20/91)

CP = 1978 (approx)

Net SP = 2 × 900 = 1800

CP - SP = 1978 - 1800 = 178

Net loss percentage = 178/1978 × 100 = 9% (approx)

Therefore Net loss of 9% incured in the whole tansaction.

Total selling price = 900 + 900 = 1800

CP of 1 pressure cooker = 900 × 100/70 = 1285

CP of 2nd pressure cooker = 900 × 100/130 = 692

Total CP = 1285 + 692 = 1977

Loss = 1977 - 1800 = 177

Loss % = (177/1977) × 100 = 8.9

Therefore 9% loss approx

Q25. Answer: (c) D

Given:

Anil alone can do a piece of work in 6 days

Binu alone can do a piece of work in 8 days

Anil, Binu, and Chitra together can do a piece of work in 3 days

Work undertook for an amount of Rs 240

Concept used:

work = time × efficiency

For the same work, wage prop. to efficiency

Calculation:

Work	Time	Efficiency
Anil	6	24/6 = 4
Binu	8	24/8 = 3
Anil + Binu + Chitra	3	24/3 = 8
Total work (LCM of time)	24	

The efficiency of Chitra = total efficiency of all - (efficiency of Anil + Binu)

The efficiency of Chitra = 8 - (4 + 3) = 1

The ratio of efficiency of Anil, Binu, and Chitra = 4 : 3 : 1

Amount paid in the same proportion.

So, amount paid to Anil more than Chitra = 4 unit - 1 unit = 3 unit

Total amount = 4 unit + 3 unit + 1 unit = 8 unit

8 unit = 240

Then, 1 unit = Rs 30

Extra amount got by Anil, 3 unit = 3 × 30 = Rs 90

Therefore Anil received Rs 90 more than Chitra.

Q26. Answer: (c) C

The correct answer is the Flow Chart.

Key Points

• Flow Chart is a graphical representation of the algorithm.
• Graphic representation of the control logic of processing function or modules representing a system called a System flow chart.
• A flowchart is a graphical representation of an algorithm.
• An algorithm is a set of specific steps that lead to a predefined goal.
• A program on the other hand has a lot of other steps involved(or rather assumed) that are necessary for successful execution but not relevant to the algorithm.
• Hence, option 3 is correct.

Additional Information
• Software is a collection of instructions and data that tell the computer how to work.
• This is in contrast to physical hardware, from which the system is built and actually performs the work.
• Pseudocode is a term that is often used in programming and algorithm-based fields.
• It is a methodology that allows the programmer to represent the implementation of an algorithm.
• Simply, we can say that it's the cooked up representation of an algorithm.

Q27. Answer: (b) D

The correct answer is Prem Khandu Thungan.

Key Points
• Prem Khandu Thungan was sworn in as the 9th Chief Minister of Arunachal Pradesh.
• Shri Pema Khandu has been sworn-in as the Chief Minister of Arunachal Pradesh in a magnificent function at the Dorjee Khandu Convention Centre, Itanagar on 29th May 2019.
• P K Thungan is the Arunachal's first Chief Minister in 1978 at the age of 29. Gegong Apang became CM of the State in 1980 at the age of 31.
• Hence, option 2 is correct.
•

Additional Information
• Pema Khandu (born 21 August 1979) is an Indian politician and the Chief Minister of Arunachal Pradesh.
• Since assuming the office of chief minister in July 2016, he and his government have twice changed their party affiliation; in September from the Indian National Congress to the Peoples Party of Arunachal, and then in December 2016 to the Bharatiya Janata Party.
• Previously he had served as Minister of Tourism, Urban Development, and Water Resources in Nabam Tuki's government.

Q28. Answer: (b) A

Given :
A + B = 90°
Concept used :
Sin A = cos (90 -A)
Calculations :
According to the question
A + B = 90
So, B = 90 - A
Now check for each option
For option A
Sin A = Cos B
=> Sin A = Cos (90 - A)
=> Sin A = Sin A
For option B
Sin A + Cos B = Sin A + Cos (90 - A)
=> Sin A + Sin A = 2Sin A
For option C
Sin A - Cos B = Sin A - Cos (90 - A)
=> Sin A - Sin A = 0
For option D

Sin A - Cos B = Sin A - Cos (90 - A)

=> Sin A - Sin A = 0

Therefore Option 2 will be the correct choice.

Q29. Answer: (d) C

Given:

(x + 1/x) = 3

Calculation:

(x + 1/x) = 3 ----(1)

Squaring both sides of (1),

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

$x^2 + 2 \times x \times (1/x) + 1/x^2 = 9$

Then, x2 + 1/x2 = 9 - 2 = 7 ----(2)

Finding the third power of (1),

$(x + 1/x)3 = 3^3$

$x^3 + (1/x^3) + 3 \times x \times (1/x) \times [x + 1/x] = 27$

x3 + (1/x3) = 27 - 3 × 3 = 18 ----(3)

(3)/(2) gives,

[x3 + (1/x3)]/[x2 + 1/x2] = 18/7

Therefore The required value is 18/7.

Q30. Answer: (c) C

The correct answer is Quick-drying paper colored fluid that is applied to correct the printed material.

Key Points

• The liquid paper is a quick-drying paper colored fluid that is applied to correct the printed material.

• Liquid Paper is an American brand of the Newell Brands company marketed internationally that sells correction fluid, correction pens, and correction tape.

• Mainly used to correct typewriting in the past, correction products now mostly cover handwriting mistakes.

• Hence, option 3 is correct.

Additional Information

• Current MSDSs list Liquid Paper as containing titanium dioxide, solvent naphtha, mineral spirits, resins, dispersant, and fragrances.

• In 1956, Bette Nesmith Graham invented the first correction fluid in her kitchen.

Q31. Answer: (d) B

Given,

Gram : Grain : Pound : _____

A. Cereals

B. Weight

C. Height

D. Commodities

Here we know that the Gram is a Grain similarly, Pound has related to the Weight.

Hence, the correct answer is B.

Note: As this is a previous year question, we have to chose best possible answer among the given four options.

Q32. Answer: (b) C

Shortcut Trick

The unit digit of any number ending in 1 remains 1 for all positive integer powers.

Unit digit of (3451)^(51) → 1^(51) = 1

Unit digit of (531)^(43) → 1^(43) = 1

Required unit digit = 1 × 1 = 1

Therefore The correct answer is 1.

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Alternate Method

Given Expression: (3451)^(51) × (531)^(43)

To find the unit digit of a product, we only need to consider the unit digits of the individual bases and their respective powers.

=> Unit digit of 3451 is 1.

=> Since $(....1)^n$ = ...1, (3451)^(51) results in a unit digit of 1.

=> Unit digit of 531 is 1.

=> Similarly, (531)^(43) results in a unit digit of 1.

=> Total unit digit = 1 × 1 = 1.

Therefore The correct answer is 1.

Additional Information

Cyclicity of 0, 1, 5, 6

Numbers ending in 0, 1, 5, or 6 have a cyclicity of 1. This means the unit digit remains the same regardless of the power (e.g., 5^n always ends in 5).

Cyclicity of 4 and 9

These numbers have a cyclicity of 2. For 4, the unit digit is 4 if the power is odd and 6 if even. For 9, it is 9 if the power is odd and 1 if even.

Cyclicity of 2, 3, 7, 8

These numbers have a cyclicity of 4. To find the unit digit, divide the power by 4 and use the remainder as the new power.

Q33. Answer: (d) D

Given :

Height of the smaller temple is 36 m

The angle from the top and bottom of the smaller triangle towards the top of the higher temple are 30° and 60° respectively

Concept used :

tanθ = perpendicular/base

Calculations :

CD = 36 m (Height of the smaller temple)

Let the base BC be 'b'

Let AE be 'a'

Height of the higher temple is '36 + a' m

In ΔABC

tan 60° = AB/BC = (AE + EB)/BC

tan60° = (36 + a)/b

=> b = (36 + a)/√3 ----(1)

In ΔADE

tan 30° = AE/BD

tan30° = a/b

=> b = a√3 ----(2)

Putting value of b in equation (1)

=> 3a = 36 + a

=> 2a = 36

=> a = 18 m

Height of temple = 36 + a = 36 + 18

=> 54

Therefore The height of the higher temple is 54 m.

Q34. Answer: (c) D

Given,

Statement:

All belts are hot.

All bolts are hot.

Conclusions:

I. At least some belts are bolts.

II. All hot are belts.

The least possible Venn diagram is as follows,

Conclusions:

I. At least some belts are bolts → False (From the Venn diagram we see it is possible but not definite.)

II. All hot are belts → False (From the Venn diagram we see it is possible but not definite.)

Hence, the correct answer is D.

Q35. Answer: (c) B

Given:

A sum of money becomes 3 times itself in 5 years.

Concept used:

Simple interest, SI = P × R × T/100

Where P is principal, R is the rate of interest and T is the time period.

Amount, A = P + SI

Calculation:

Amount, 3P = P + P × R × 5/100

2P = 5PR/100

Or, 40%

Amount = 5P = P + 40% × P × T/100

4P = 4PT/10

Or, T = 10 years

Therefore Time taken for amount to become 5 times itself is 10 years.

Q36. Answer: (a) D

Given,

Assertion (A): Land breeze blows during the night.

Reason (R): The land heats up quickly.

Here we see both assertion and Reason are true but the R is not the proper explanation of A.

Land breeze blows during the night, as at night, the roles reverse. The air over the ocean is now warmer than the air over the land

Hence, the correct answer is D.

Q37. Answer: (b) D

Given,

Shweta's mother is Yamuna's sister. The Yamuna has a daughter named Harini. Harini is extremely fond of her mother's mother Kamala.

The family tree is as follows,

Shweta's mother is Yamuna's sister. The Yamuna has a daughter named Harini.

Harini is extremely fond of her mother's mother Kamala.

If we know that Kamala has two daughters Roshini and Harini.

But still, we do not know the gender of Shweta, hence, we cannot determine how Shweta is related to Yamuna.

Hence, the correct answer is D.

Q38. Answer: (b) C

Given,

Shweta's mother is Yamuna's sister. The Yamuna has a daughter named Harini. Harini is extremely fond of her mother's mother Kamala.

The family tree is as follows,

Shweta's mother is Yamuna's sister. The Yamuna has a daughter named Harini.

Harini is extremely fond of her mother's mother Kamala.

Here we see Harini is a cousin to the Shweta.

Hence, the correct answer is C.

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Q39. Answer: (d) B

Given,

Given,

Shweta's mother is Yamuna's sister. The Yamuna has a daughter named Harini. Harini is extremely fond of her mother's mother Kamala.

The family tree is as follows,

Shweta's mother is Yamuna's sister. The Yamuna has a daughter named Harini.

Harini is extremely fond of her mother's mother Kamala.

Now, it is given that, Kamla and Shweta are female,

Here we see Shweta is a grand daughter of Kamala.

Hence, the correct answer is a granddaughter.

Q40. Answer: (c) C

Given:

The ratio of the angles of a triangle = 3 : 5 : 7

Concept used:

The sum of the angles of the triangle is 180°.

Calculation:

Let the angles of the triangle be 3x, 5x, and 7x.

Sum of the angles, 3x + 5x + 7x = 180

=> 15x = 180

=> x = 12

Value of the largest angle = 7x = 84°

=> 7 × 12 = 84°

Therefore Largest angle is 84°.

Q41. Answer: (c) B

The correct answer is Myanmar.

Key Points

• Golden Rock Pagoda is situated in Myanmar.

• Hence, option 3 is correct.

Additional Information

• The Kyaikhtiyo Pagoda also called the Golden Rock Pagoda is one of Burma’s most sacred Buddhist sites.

• A massive boulder on the edge of a cliff with a pagoda on top of it enshrining a hair of the Buddha is an important pilgrimage site for Burmese Buddhists.

• The huge Golden Rock in the mountains North-East of Yangon hanging over a steep cliff provides for an amazing sight.

• The rock that appears to be gold is actually a granite boulder that is covered with gold leaf applied to the rock by Buddhist devotees.

• The boulder is about 7½ meters high and has a golden pagoda called the Kyaikhtiyo Pagoda or Kyaik Hti Yo Pagoda on top of it where the Buddha’s hair relic is enshrined.

Q42. Answer: (a) A

Given:

P can fill a tank in 10 minutes

The efficiency of one pipe, P1 = 20% of P

Concept used:

work = time × efficiency

Calculation:

As it is given, P1 's efficiency is 20% of P, let us assume the efficiency of P be 5.

Then, efficiency of each P1 = (1/5) × 5 = 1

work = time × efficiency = 10 × 5 = 50 units

When 5 P1's are working together, total efficiency = 5 × 1 = 5

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50 units = tiime × 5

Or, time = 50/5 = 10 mins

Therefore In 10 mins the five pipes will together fill the tank.

Q43. Answer: (a) A

Given,

FRUIT is coded as ESTJS

The pattern followed here is,

Similarly,

Hence, the correct answer is A.

Q44. Answer: (b) C

Given:

Total number of families n(T) = 120

Resources	Number of families
Biogas n(B)	93
LPG n(L)	63
Wood n(W)	45
Biogas and LPG gas n(B∩L)	45
LPG gas and Wood n(L∩W)	24
Wood and Biogas n(W∩B)	27

Concept used:

Calculation:

n(B∩L∩W) = n(T) - [n(B) + n(L) + n(W) − n(B∩L) − n(L∩W) − n(W∩B)]

put the value from above data,

n(B∩L∩W) = 120 - [93 + 63 + 45 − 45 − 24 − 27]

n(B∩L∩W) = 120 - 105

=> n(B∩L∩W) = 15

Number of people who used Biogas, wood and LPG = 15

Therefore 15 people use all three fuels.

Q45. Answer: (d) B

Given:

Total number of families n(T) = 120

Resources	Number of families
Biogas n(B)	93
LPG n(L)	63
Wood n(W)	45
Biogas and LPG gas n(B∩L)	45
LPG gas and Wood n(L∩W)	24
Wood and Biogas n(W∩B)	27

Concept used:

Calculation:

From the Venn diagram, the number of families that use biogas only = 36

Therefore 36 families use biogas alone to cook.

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Q46. Answer: (a) D

Given:

Total number of families n(T) = 120

Resources	Number of families
Biogas n(B)	93
LPG n(L)	63
Wood n(W)	45
Biogas and LPG gas n(B∩L)	45
LPG gas and Wood n(L∩W)	24
Wood and Biogas n(W∩B)	27

Concept used:

Calculation:

From the Venn diagram, it is clear that all families use at least any one of the fuels.

Then, the number of families that use none of the given fuels = 0

Therefore All families use at least one of these fuels to cook.

Q47. Answer: (c) C

The logic behind the given series:

20 + 10 = 30

30 + 12 = 42

42 + 14 = 56

56 + 16 = 72

72 + 18 = 90

Therefore The next value is 90.

Q48. Answer: (a) C

The average of the results of 35 tests = 21

The average of the first 17 results = 19

The average of the last 17 results = 22.

Concept used:

Average = sum of elements/number of elements

Calculation:

Sum of 35 tests = 21 × 35

Sum of first 17 tests = 19 × 17

Sum of last 17 tests = 22 × 17

Sum of 35 tests = Sum of first 17 tests + 18 th test + Sum of last 17 tests

21 × 35 = 17 × 19 + 17 × 22 + 18 th test

18 test = 21 × 35 - 17 × 41 = 38

Therefore The result of the 18 th test is 38.

Q49. Answer: (b) C

Given:

The standard deviation of a population is 5

Concept used:

standard deviation = √variance

Calculation:

Variance = (standard deviation)²

Variance = 5^2 = 25

Therefore The variance is 25.

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Q50. Answer: (a) C

Given,

ONIDA is written as 57834

The pattern followed here is,

Some particular digits have been assigned to the alphabet, hence, we have to use same codes for the word INDIA.

Similarly,

Hence, the correct answer is C.

Q51. Answer: (a) A

Calculations :

(x80 + x40 + 5) = x^(^(8 × 10)) + x^((8 × 5))+ 5

=> (x^8)^(10) + (x^8)^5 + 5

Now to get the remainder for (x80 + x40 + 5) when dividing it by x^8 + 1, we should put x^8+ 1 = 0 or x^8 = -1 in given equation

=> (x8)10 + (x8)5 + 5

=> (-1)^(10) + (-1)^5 + 5 (x^8 + 1 = 0 or x^8 = -1)

=> 1 - 1 + 5

=> 5

Therefore Option A will be the correct answer.

Q52. Answer: (b) D

Calculation:

Let us find the LCM of the given numbers.

The greatest four digit number must be divisible by LCM.

LCM (12, 20, 32, 44) = 5280

To find the greatest four digit number,

9999/LCM = 9999/5280

As the LCM itself is a four digit number and any multiple of the LCM will be more than four digits, we can conclude that, 5280 is the greatest four digit number divisible by 12, 20, 32 and 44.

Q53. Answer: (b) D

The correct answer is Smog.

Key Points

• Smog means that the fog has been polluted by smoke.

• Smog is a type of intense air pollution.

• The word "smog" was coined in the early 20th century and is a contraction of the words smoke and fog to refer to smoky fog due to its opacity, and odor.

• The word was then intended to refer to what was sometimes known as pea soup fog, a familiar and serious problem in London from the 19th century to the mid-20th century.

• This kind of visible air pollution is composed of nitrogen oxides, sulfur oxides, ozone, smoke, and other particulates.

• Hence, option 2 is correct.

Q54. Answer: (a) C

The correct answer is 18 April.

Key Points

• World Heritage Day 2020:

• It is observed on 18 April to increase awareness on the importance of diversity of cultural heritage and preserving it for the generations ahead.

• The International Council on Monuments and Sites (ICOMOS) in 1982 announced, 18 April as the World Heritage Day.

• This was approved by the General Assembly of UNESCO in 1983, with an aim of enhancing awareness about the importance of cultural heritage, monuments and to conserve them.

Additional Information

• The theme of World Heritage Day 2020 is "Shared Culture', 'Shared heritage' and 'Shared responsibility".

• The theme of World Heritage Day 2019 was "Rural Landscapes".

Important Points

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Days	Observed on
World Wetlands Day	2nd February
National Science Day	28th February
Earth Day	22nd April
International Mother Language Day	21st February

Q55. Answer: (a) C

Given:

The angles are (6y + 70)° and (3y + 47)°

The numbers are supplementary.

Concept used:

Supplementary angles: the sum of the angles are 180°

Calculation:

(6y + 70)° + (3y + 47)° = 180

9y + 117 = 180

9y = 63

Or, y = 63/9 = 7

Therefore The value of y is 7.

Q56. Answer: (a) C

The correct answer is Scale to determine the physical condition of a newborn.

Key Points

• The APGAR scale is a method to quickly summarize the health of newborn children against infant mortality.

• Virginia Apgar, an anesthesiologist at New York-Presbyterian Hospital, developed the score in 1952 to quantify the effects of obstetric anesthesia on babies.

• The Apgar score is determined by evaluating the newborn baby on five simple criteria on a scale from zero to two, then summing up the five values thus obtained.

• The resulting score ranges from zero to 10.

• The five criteria are summarized using words chosen to form a backronym Appearance, Pulse, Grimace, Activity, Respiration.

• Hence, option 1 is correct.

Additional Information

• The APGAR scale test is generally done at 1 and 5 minutes after birth and may be repeated later if the score is and remains low. Scores of 7 and above are generally normal; 4 to 6, fairly low; and 3 and below are generally regarded as critically low and cause for immediate resuscitative efforts.

Q57. Answer: (a) B

The correct answer is Petrol.

Key Points

• Petrol is black gold.

• Black gold is a term applied to oil or petroleum, which is black when it comes out of the ground and is worth a great deal of money.

• Prior to the mid-19th century, oil from animal tallow (fat) and whale blubber was used as a lubricant and fuel.

• Hence, option 1 is correct.

Additional Information

• Petroleum is referred to as “Black Gold.”

• This name itself is an indication of its importance to humans.

• Crude oil is considered to be the “mother of all commodities” as it is used to manufacture various products such as pharmaceuticals, plastics, gasoline, synthetic fabrics, etc

• Petroleum or oil has also been the world’s leading source of energy since the 1950s.

• Petroleum is a liquid that occurs naturally in rock formations.

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• This consists of a complex mixture of different molecular weights of hydrocarbons, plus other organic compounds.

• Some petroleum-produced chemical compounds are also obtained from other fossil fuels.

Q58. Answer: (c) C

Calculation

HCF of fraction = HCF of numerator/LCM of denomenator

1.43 = 143/100,, 1.87 = 187/100 and 20.9 = 209/10

HCF of 143, 187, 209 = 11

LCM of 100,, 100, and 10 = 100

HCF of 1.43, 1.87 and 20.9 = 11/100 or 0.11

Q59. Answer: (c) C

Given:

Cost of the three types of apples = Rs 40 per kg, Rs 50 per kg and Rs 50 per kg

Weight ratio = 1 : 3 : 5

Selling price of the mixture = Rs 59.88 per kg

Concept used:

Cost price of the mixture = amount of each variety per kg × respective weight

Calculation:

Let the weight of each variety be x, 3x and 5x respectively.

Cost of the mixture per kg = (x × 40 + 3x × 50 + 5x × 50)/(x + 3x + 5x)

Cost of the mixture per kg = 440/9 = Rs 48.88 per kg

Selling price = Rs 59.88 per kg

Profit = SP - CP = 48.88 - 59.88

Profit = Rs 11

Profit percentage = Profit/CP × 100 = 11/(440/9) × 100

Profit percentage = 900/40 = 22.5%

Therefore The profit obtained by the shopkeeper is 22.5%.

Q60. Answer: (d) A

Given:

The mean of 6 observations = 12

New mean after adding two observations = 13

Calculation:

Sum of 6 observations = 6 × 12 = 72

Total observations after adding two more observations = 8

Sum of 8 observations = 8 × 13 = 104

Sm of two new observations = Sum of 8 observations - sum of 6 observations

Sum of teo new observations = 104 - 72 = 32

Mean of the two observations = 32/2 = 16

Therefore Mean of two new observations is 16.

Q61. Answer: (a) D

The correct answer is Jupiter.

Key Points

• Jupiter planet was named after the king of Roman gods.

• Jupiter, the solar system's biggest planet, was named for the king of the Roman gods, while the reddish colour of the planet Mars led the Romans to name it after their god of war.

• Mercury, which makes a complete trip around the Sun in just 88 Earth days, is named after the fast-moving messenger of the gods.

• Hence, option 1 is correct.

Additional Information

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• There are eight planets in the Solar System.
• From closest to farthest from the Sun, they are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.
• The first four planets are called terrestrial planets.
• They are mostly made of rock and metal, and they are mostly solid.
• The last four planets are called gas giants.
• This is because they are much larger than other planets and are mostly made of gas.

Q62. Answer: (c) B

The correct answer is B.

Key Points

• Jawahar Lal Nehru who was the Prime Minister of India has hoisted the national flag from Red Fort most often.
• On 15 August 1947, the first Prime Minister of India, Jawaharlal Nehru raised the Indian national flag above the Lahori Gate of the Red Fort in Delhi.
• From August 15, 1947, to 1964, he unfurled the Indian flag at Red Fort for continuous 17 years.

Additional Information

• Every year, the Prime Minister of India unfurls the flag at the Red Fort, but there are some who got a chance to become PM of India but were not able to hoist the flag at the iconic monument.
• List of Prime Minister who hoisted the flag at Red Fort more than five times:
• Indira Gandhi - From 1966 to 1977, she got the opportunity for nothing less than 11 times.
• Manmohan Singh - Ex-Prime Minister of India unfurled the flag 10 times.
• Narendra Modi - Current Prime Minister of India, Narendra Modi has been hoisting the Indian flag at Red fort since 2014 till date.
• Atal Bihari Vajpayee - He is the only non- Congress Prime Minister who has unfurled the Indian Flag at Red Fort six times.
• Rajiv Gandhi and Narasimha Rao unfurled the Indian flag five times each.

Q63. Answer: (c) A

The correct answer is Martina Hingis and Sania Mirza.

• Martina Hingis and Sania Mirza won the 2016 Australian Open Women's Doubles title.

Key Points

• Top seeds Martina Hingis and Sania Mirza won the title, defeating Andrea Hlaváčková and Lucie Hradecká in the final, 7–6(7–1), 6–3.
• Bethanie Mattek-Sands and Lucie Šafářová were the defending champions, but Šafářová withdrew before the tournament due to a bacterial infection. Mattek-Sands played alongside Sabine Lisicki but lost in the second round to Anastasia and Arina Rodionova.
• Hence, option 3 is correct.

Additional Information

• Tímea Babos and Kristina Mladenovic won their second Australian 2020 Open title, defeating Hsieh Su-wei and Barbora Strýcová in the final, 6–2, 6–1.
• Samantha Stosur and Zhang Shuai were the defending champions but chose not to participate together.
• Stosur played alongside Ellen Perez, but they lost in the first round to Lara Arruabarrena and Ons Jabeur.
• Zhang teamed up with Peng Shuai, but they lost to Veronika Kudermetova and Alison Riske, also in the first round.

Q64. Answer: (a) A

Given,

A. LUCOD → CLOUD

B. PIGSRN → SPRING

C. INWETR → WINTER

D. MEUSRM → SUMMER

All are seasons except for the 'CLOUD'

Hence, the correct answer A.

Q65. Answer: (b) D

The correct answer is Market where the price is determined by demand and supply.

Key Points

• The free market is an economic system based on supply and demand with little or no government control.

• Free markets are characterized by a spontaneous and decentralized order of arrangements through which individuals make economic decisions.

• Based on its political and legal rules, a country's free-market economy may range between very large or entirely black market where the price is determined by demand and supply is called the free market.

• Hence, option 2 is correct.

Additional Information

• Economists identify four types of market structures:

• (1) perfect competition, (2) pure monopoly, (3) monopolistic competition, and (4) oligopoly

• A perfectly competitive market is a hypothetical market where competition is at its greatest possible level.

• A pure monopoly is a market structure where one company is the single source for a product and there are no close substitutes for the product available.

• Monopolistic competition is a type of imperfect competition such that there are many producers competing against each other, but selling products that are differentiated from one another.

• Oligopoly is a market structure with a small number of firms, none of which can keep the others from having significant influence.

Q66. Answer: (b) C

Given:

54 members can do work in = 35 hours

Number of members = 18

Concept used:

work = time × efficiency

Calculation:

Let the efficiency of each member be M.

Let the number of hours by which 18 members finish work be D.

total work = 54 × M × 35

Total work = 18 × M × D

Equating total work in both cases,

54 × M × 35 = 18 × M × D

D = 54 × 35/18 =105 hours

Therefore The number of hours by which 18 members finish the work is 105 hours.

Q67. Answer: (b) D

The correct answer is Bombay Swadeshi Co-Op Stores Co. Ltd.

Key Points

• Bal Gangadhar Tilak along with Ratanji Jamshedji Tata founded the Bombay Swadeshi Co-operative Stores Co to promote swadeshi goods during early 1900.

Additional Information

• Bal Gangadhar Tilak was born on 23rd July 1856 in Ratnagiri, Maharashtra.

• Freedom fighter and lawyer, Bal Gangadhar Tilak, is also known as Lokmanya Tilak.

• Educationist:

• Founder of the Deccan Education Society (1884) along with his associate Gopal Ganesh Agarkar and others.

• One of the founders of the Fergusson College (1885) in Pune through the Deccan Education Society.

• Ideology:

• He was a devout Hindu and used Hindu scriptures to rouse people to fight oppression.

• Stressed the need for self-rule and believed that without self-rule or swarajya, no progress was possible.

• Slogan: “Swaraj is my birthright and I shall have it!”

• A book ‘Indian Unrest’ written by Valentine Chirol, an English journalist, stated Tilak the ‘father of Indian unrest’

Q68. Answer: (a) B

Given,

Assertion (A): India is a democratic country.

Reason (R): India has its own constitution.

Both the assertion and reason are true, but the R is not a proper explanation of A.

Hence, the correct answer is B.

Q69. Answer: (d) A

The correct answer is K.N.Vyas.

Key Points

• K.N.Vyas is the current director (in the year 2016) of Bhabha Atomic Research Center.

• Shri K. N. Vyas, Director, Bhabha Atomic Research Centre, has taken over the charge of Secretary, Department of Atomic Energy and Chairman, Atomic Energy Commission from Dr. Sekhar Basu on 20.09.2018 at Vienna, Austria.

• On February 23, 2016, he was appointed as the Director of BARC for his outstanding national and international contributions in nuclear energy.

• Hence, option 4 is correct.

Additional Information

• Dr. Ajit Kumar Mohanty, took over as Director, BARC, on March 12, 2019, at a simple ceremony held at BARC.

• Dr. Mohanty has worked in several areas of nuclear physics covering collision energy from the sub-Coulomb barrier to the relativistic regime.

• It includes experiments using the Pelletron accelerator at Tata Institute of Fundamental Research (TIFR), Pioneering High Energy Nuclear Interaction eXperiment (PHENIX), and Compact Muon Solenoid Experiment (CMS) experiments at Brookhaven National Laboratory (BNL), USA and CERN, Geneva respectively.

Q70. Answer: (b) C (H)

Given,

N U P C H A

The meaningful word is Paunch which means 'a protruding belly'.

Thus the last letter is H.

Hence, the correct answer is H.

Q71. Answer: (b) D

Given :

Z is the midpoint of line XY

XW = WY where W is a different point from Z

Calculations:

Z is the midpoint of XY

To check which option is incorrect we have to go through each option

For option A

XZ = ZY (Z is the midpoint of XY)

For option B

angle XZW = angle YZW = 90° (Property of isosceles triangle-The line segment drawn from opposite vertice towards the midpoint of an unequal side always make an angle of 90° with the unequal side))

For option C

angle XZW = angle YZW = 90°

angle WXZ = angle WYZ (WX = WY)

angle ZWX = angle ZWY (If two angles are equal then 3rd angle will also be equal)

So ΔXWZ is similar to ΔYWZ

For option 4

angle XZW = 90°

Therefore Only option D is incorrect.

Q72. Answer: (a) C

Given :

There are two buses running from opposite directions from a distance of 300 km

Buses meet at 220 km away from one of the stations

Concept used :

Speed is directly proportional to the distance, if time is the same for both the vehicles

Calculations :

Let the distance covered by bus from Pune station be 220 km

So the distance covered by Bus from Mumbai station will be 80 km

Ratio of speeds

Speed of bus from Pune : Speed of bus from Mumbai = Distance from Pune station : Distance from Mumbai station

=> 220 : 80 = 22 : 8

=> 11 : 4

Therefore The ratio of the speed is 11 : 4.

Q73. Answer: (d) B

Given:

0.0043/? = 0.43

Calculation:

Let ? = x

0.0043/x = 0.43

=> 43/10000x = 43/100

=> 1/10000x = 1/100

=> x = 1/100 = 0.01

Therefore 0.01

Q74. Answer: (c) B

Given,

MTQRD is coded as NURSE.

The pattern followed here is,

Similarly,

Hence, the correct answer is B.

Q75. Answer: (a) B

The correct answer is Acetic acid.

Key Points

• Vinegar is made of Acetic acid.

• Vinegar is a solution typically consisting of 4–7% acetic acid and 93–96% water, though types with higher acetic acid content are available for agricultural or cleaning purposes.

• It's most commonly made via the fermentation of grain alcohol.

• Hence, option 1 is correct.

Additional Information

• Vinegar is an acidic liquid produced through the fermentation of ethanol by acetic acid bacteria.

• Health: Vinegar is an antimicrobial agent and may have a positive impact on heart health, weight loss, and cholesterol

• Shelf life: Very long

• Name: From the Old French words for "sour wine"

• Primary component: Acetic acid

• Distinctive flavour: Sour and acidic, with infinite variations

• It is used in cooking not only for its flavour qualities but also for its chemical properties

Q76. Answer: (d) A

The correct answer is Kinetic energy to electrical energy.

Key Points

• Hydropower changes Kinetic energy to electrical energy.

• Hydropower is a clean, renewable, and environmentally friendly source of energy.

• It produces 3930 (TW. h).

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• On the one hand, as an important renewable energy resource, hydropower contributes significantly to the avoidance of greenhouse gas (GHG) emissions and to the mitigation of global warming.
• Hence, option 4 is correct.

Additional Information
• Hydropower is fueled by water, so it's a clean fuel source, meaning it won't pollute the air like power plants that burn fossil fuels, such as coal or natural gas.
• Because hydropower plants can generate power to the grid immediately, they provide essential back-up power during major electricity outages or disruptions.
• Hydropower generators do not directly emit air pollutants
• Dams, reservoirs, and the operation of hydroelectric generators can affect the environment.
• A dam and reservoir can also change natural water temperatures, water chemistry, river flow characteristics, and silt loads.

Q77. Answer: (a) B

Given,
POET will be written as 1947 and YOUR will be written as 8923.
The pattern followed here is,
Similarly,
Hence, the correct answer is B.

Q78. Answer: (d) C

The correct answer is Gymnastics.
Key Points
• Deepa Karmakar is associated with Gymnastics sport.
• Dipa Karmakar (born 9 August 1993) is an Indian artistic gymnastics.
• Karmakar first gained attention when she won a bronze medal at the 2014 Commonwealth Games in Glasgow.
• In July 2018, Karmakar became the first Indian gymnast to win a gold medal at a global event.
• Karmakar failed to qualify for the vault final at the 2018 Asian Games.
• Hence, option 4 is correct.

Additional Information
• Awards received by Dipa Karmakar :
• Arjuna Award (2015)
• Rajiv Gandhi Khel Ratna Award (2016)
• Padma Shri (2017) - fourth highest Indian national honour.
• 2017: Among Forbes' list of super achievers from Asia under the age of 30.
• Dronacharya Award - to her coach Bishweshwar Nandi.
• Gold - FIG Artistic Gymnastics World Challenge Cup at Mersin, Turkey
• Bronze - FIG Artistic Gymnastics World Cup at Cottbus, Germany

Q79. Answer: (d) B

The correct answer is Nek Chand.
Key Points
• Nek Chand developed the rock garden of Chandigarh.
• Nek Chand was in danger of losing his job and having his art destroyed. But his work was so enchanting that they gave him permission to create a garden
• Nek Chand was honoured with a Padma Shri in 1984.
• In 1982, a postage stamp was issued with his work on it.
• He passed away on June 12, 2015.
• The garden is now cared for by his son, Anuj Saini, and the Nek Chand Foundation.
• Hence, option 4 is correct.

Additional Information

• The Rock Garden of Chandigarh is a sculpture garden for Rock enthusiasts in Chandigarh, Punjab.

• It spreads over an area of 40 acres.

• It is completely built from industrial, home waste, and discarded items.

• It consists of man-made interlinked waterfalls and many other sculptures that have been made of scrap and other kinds of waste (bottles, glasses, bangles, tiles, ceramic pots, sinks, electrical waste, broken pipes, etc.) which are placed in walled paths.

• The Rock Garden sits near Sukhna Lake.

Q80. Answer: (c) A

Given,

Assertion (A): Red color of blood is due to haemoglobin.

Reason (R): Hemoglobin is a red pigment.

We know that the Red color of blood is due to haemoglobin and the Hemoglobin is a red-colored pigment.

Therefore Both A and R are true and R is the correct explanation of A.

Hence, the correct answer is A.

Q81. Answer: (b) A

Given,

PqsT : SrpO :: BceF : _____

The pattern followed here is,

Similarly,

Hence, the correct answer is A.

Q82. Answer: (c) B

The correct answer is B.

• The sound made by camels is grunt.

• Often referred to as the “ship of the desert,” a camel, an even-toed ungulate belongs to the Camelus genus and carry a distinctive “hump” on its back. These animals are designed by nature to survive in the harsh arid and semi-arid climates where they live.

• There are currently three extant species of camels living in the world of which two are domesticated species (dromedary camel, and domesticated Bactrian camel) and one is wild (wild Bactrian camel). The wild species is on the verge of extinction.

Additional Information

• https://www.worldatlas.com/articles/how-many-types-of-camels-live-in-the-world-today.html

Animal	Sound
1]Wolf, Jackal	Howl
2]Lambs, Sheep	Bleat
3]Apes	Gibber
4] Bats	Screech
5]Donkeys	Bray
6] Bears	Growl
7] Lions	Roar

Q83. Answer: (b) D

The correct answer is Australia.

Key Points

• Parks Observatory located in Australia.

• The Parkes Observatory is a radio telescope observatory, located 20 kilometers north of the town of Parkes, New South Wales, Australia.

• It was one of several radio antennae used to receive live television images of the Apollo 11 Moon landing.

• The Parks observatory was included on the Australian National Heritage List on 10 August 2020.

• Hence, option 2 is correct.

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Additional Information

• The Parkes radio telescope is a gigantic measuring instrument.

• It used to examine a wide range of radio energies from our galaxy and other parts of the universe.

• Objects such as pulsars, galaxies, and quasars broadcast enormous quantities of radio energy into space.

• The Parkes radio telescope.

• One or more antennas to collect the incoming radio waves.

• Most antennas are parabolic dishes that reflect the radio waves to a receiver, in the same way as a curved mirror can focus visible light to a point.

• In 1962 it tracked the first interplanetary space mission, Mariner 2, as it flew by the planet, Venus.

Q84. Answer: (b) A

The correct answer is Pufferfish.

Key Points

• Pufferfish is the most poisonous fish.

• Tetraodontidae is a family of primarily marine and estuarine fish of the order Tetraodontiformes.

• The family includes many familiar species variously called pufferfish, puffers, balloonfish, blowfish, blowies, bubble fish, globefish, swellfish, toadfish, toadies, honey toads, sugar toads, and sea squab.

• The puffer, which is also called swellfish and blowfish.

• Pufferfish may contain the potent and deadly toxins tetrodotoxin and saxitoxin which can cause severe illness and death.

• These are central nervous system toxins and are more deadly than cyanide.

• Symptoms start within 20 minutes to 2 hours after eating the toxic fish.

• Hence, option 2 is correct.

Additional Information

• Venomous fish are species of fish that produce strong mixtures of toxins harmful to humans (called venom) which they deliberately deliver by means of a bite, sting, or stab, resulting in an envenomation.

• The most venomous known fish is the reef stonefish.

• Lionfishes fishes have enlarged pectoral fins and elongated dorsal fin spines, and each species bears a particular pattern of bold, zebralike stripes.

• The Candiru fish feeds on blood and is commonly found in the gill cavities of other fishes. It sometimes also attacks humans and has been known to enter the urethras of bathers and swimming animals.

Q85. Answer: (c) A

Given:

The price ratio of a Samsung mobile and LG mobile = 10 : 7

Price of Samsung = Price of LG + Rs 3000

Calculation:

Let the price of Samsung and LG mobiles be 10x and 7x.

Price of Samsung, 10x = Price of LG, 7x + Rs 3000

3x = 3000

Or, x = Rs 1000

Price of LG = 7x = Rs 7000

Therefore The price of LG mobile is Rs 7,000.

Q86. Answer: (d) A

Given,

19 : 361 :: ____ : ___

The relation here is,

19 : 361 (19^2)

Similarly,

13 : 169 (13^2)

Hence, the correct answer is A.

Q87. Answer: (d) B

The correct answer is Mamnoon Hussain.

Key Points

• Mamnoon Hussain is the current President of Pakistan (2013 to 2018).

• Mamnoon Hussain is a Pakistani politician and industrialist who served as the 12th President of Pakistan, in office from 2013 to 2018.

• He was first appointed as Governor of Sindh in June 1999 by President Rafiq Tarar, but was removed from the post a few months later due to the 1999 military coup d'état

• Hence, option 4 is correct.

Additional Information

• Arif-ur-Rehman Alvi is a Pakistani politician serving as the current President of Pakistan, in office since 9 September 2018.

• He was a member of the National Assembly of Pakistan from June 2013 to May 2018 and again from August to September 2018.

• In 2006, he was elected as the President of the Asia Pacific Dental Federation.

• In 2007, he was elected as a Councillor of the FDI World Dental Federation.

• He also served as Chairman of the 28th Asia Pacific Dental Congress.

• He served as Dean of the Faculty of Orthodontics of the College of Physicians and Surgeons Pakistan.

• Mian Muhammad Nawaz Sharif is a Pakistani businessman and politician who served as the prime minister of Pakistan for three non-consecutive terms.

• Sharif is the longest-serving prime minister of Pakistan has served a total of more than 9 years.

Q88. Answer: (b) C

Given:

Number of ladies soaps sold = 48

The profit obtained on selling 48 ladies soaps = selling price of 12 soaps

Formula used:

Profit % = (SP - CP)/CP × 100

Calculation:

Let the profit obtained on selling one soap be P.

Let the selling price of each soap be SP.

The profit obtained on selling 48 soaps = 48 × P

Selling price of 12 soaps = 12 × SP

48P = 12SP

P/SP = 12/48 = 1/4

Then, P/CP = P/(SP - P) = 1/(4 - 1)

P/CP = 1/3

P% = 1/3 × 100 = 33.33%

Therefore The profit percentage is 33.33%.

Q89. Answer: (d) D

Given,

L represents 'add', M represents 'minus', N represents 'division' and P represents 'fold'

Therefore

L → +

M → -

N → ÷

P → ×

Therefore 10 P 2 L 5 M 5 = 10 × 2 + 5 - 5

→ 20 + 5 - 5 = 20

Hence, the correct answer is D.

Q90. Answer: (d) B

The correct answer is Barometer.

Key Points

• The barometer is used to measure atmospheric pressure.

• A barometer is a scientific instrument used to measure atmospheric pressure, also called barometric pressure.

• A simple barometer consists of a long glass tube (closed at one end, open at the other) filled with mercury and turned upside down into a container of mercury.

• The barometer works by balancing the mercury in the glass tube against the outside air pressure, just like a set of scales.

Hence, option 4 is correct.

Additional Information

• lactometer

• An instrument used in measuring the volume of cream in a sample of milk, and the probable amount of water, if any, which has been added to it.

• A Thermometer is a device that measures temperature or a temperature gradient (the degree of hotness or coldness of an object).

• A thermometer has two important elements:

• Temperature sensor

• Some means of converting this change into a numerical value.

• A Multimeter, also known as a VOM (volt-ohm-milliammeter), is an electronic measuring instrument that combines several measurement functions in one unit.

• A typical multimeter can measure voltage, current, and resistance.

• Analog multimeters use a microammeter with a moving pointer to display readings.

• Digital multimeters (DMM, DVOM) have a numeric display, and may also show a graphical bar representing the measured value.

Q91. Answer: (d) C

Calculation:

7342015 × 9999 = 7342015 × (10000 - 1)

7342015 × (10000 - 1) = 73420150000 - 7342015

7342015 × 9999 = 73412807985

Therefore The value is 73412807985.

Q92. Answer: (a) C

Given:

Distance between Madhubani and Patna = 300 km

Train starts from Madhubani with 30 km/hr at = 9 am

Train starting from Patna with 20 km/hr at = 10 am

Concept used:

Relative speed = Speed of train A + speed of train B

When both are moving in opposite direction.

Calculation:

Distance travelled by train from Madhubani from 9 am to 10 am = 30 km

Now, distance between trains = 300 - 30 = 270 Km

Time at which the two trains meet = distance/ relative speed

Time of meeting = 270/(30 + 20) = 5 hour 24 min.

That of meeting = 5 hours 24 mins from 10 am

Therefore The two trains will meets at 3:24 pm.

Q93. Answer: (b) C

Given,

P represents "÷", Q represents "×", R represents "-" and S represents "+"

Therefore

A. 11 Q 34 P 17 R 8 P 3 = 38/3

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11 × 34 ÷ 17 - 8 ÷ 3 = 58/3

B. 32 S 8 P 16 R 4 = - 3/2

32 + 8 ÷ 16 - 4 = 28.5

C. 9 S 9 P 9 R 9 Q 9 = - 71

9 + 9 ÷ 9 - 9 × 9 = - 71

D. 6 Q 18 R 26 P 13 S 7 = 172/11

6 × 18 - 26 ÷ 13 + 7 = 113

Hence, the correct answer is C.

Q94. Answer: (d) D

Key Points

• Heera is a strict form of Carbon.

• Heera is a solid form of the element carbon with its atoms arranged in a crystal structure called diamond cubic.

• At room temperature and pressure, another solid form of carbon known as graphite is the chemically stable form of carbon, but diamond almost never converts to it.

• The diamond is a transparent gemstone.

• Each carbon atom in a diamond is joined by co-joining bonds with four other carbon atoms.

• All four electrons present in the outer orbit of carbon atoms participate in the co-valence bond and there is not a single electron independent.

• Hence, option 4 is correct.

Additional Information

• Oxygen is the chemical element with the symbol O and atomic number 8.

• It is a member of the chalcogen group in the periodic table.

• A highly reactive nonmetal, and an oxidizing agent that readily forms oxides with most elements as well as with other compounds.

• Nitrogen is the chemical element with the symbol N and atomic number 7.

• It was first discovered and isolated by Scottish physician Daniel Rutherford in 1772.

• It is a colourless, odourless, tasteless gas that is the most plentiful element in Earth's atmosphere.

• Mercury has a unique electron configuration that strongly resists the removal of an electron, making it behave similarly to noble gas elements.

• As a result, mercury forms weak bonds and is a liquid at room temperature.

• Mercury dissolves to form amalgams with gold, zinc, and many other metals.

• Mercury is a chemical element with the symbol Hg and atomic number 80.

Q95. Answer: (c) A

The correct answer is Levi Strauss.

Key Points

• Levi Strauss is credited for manufacturing and marketing jeans.

• Levi Strauss, as a young man in 1851, went from Germany to New York to join his older brothers who ran a goods store.

• In 1853, he moved to San Francisco to open his own dry goods business. Jacob Davis was a tailor who often bought bolts of cloth from the Levi Strauss & Co. wholesale house.

• In 1872, Davis wrote to Strauss asking partner with him to patent and sell clothing reinforced with rivets.

• Levi Strauss patented trousers, the term "blue jeans" had been long in use for various garments (including trousers, overalls, and coats), constructed from blue-coloured denim.

• Hence, option 3 is correct.

Additional Information

• Field Marshal Arthur Wellesley, 1st Duke of Wellington, KG, GCB, GCH, PC, FRS was an Anglo-Irish soldier and Tory statesman who was one of the leading military and political figures of 19th-century Britain, serving twice as prime minister.

• Arthur Wellesley 1st Duke of Wellington is today more famous as a soldier than as a politician.

• In fact, as the Prime Minister, he was known for his measures to repress reform, and his popularity sank a little during his time in office.

• Mary Phelps Jacob (20 April 1891 - 24 January 1970), better known as Caresse Crosby.

• She was the first recipient of a patent for the modern bra.

• She was also an American patron of the arts, publisher, and peace activist.

• She and her second husband Harry Crosby founded the Black Sun Press which was instrumental in publishing some of the early works of many emerging modernist authors including James Joyce, Kay Boyle, Ernest Hemingway, Hart Crane, D. H. Lawrence, and René Crevel, among others.

• Lyman Reed Blake was an American inventor who devised the sewing machine for sewing the soles of shoes to the vamp of the shoe.

• Born in South Abington, Massachusetts, Blake started off in the shoemaker business at a young age, first working for his brother Samuel.

Q96. Answer: (c) B

The correct answer is the Portable Document Format.

Key Points

• Portable Document Format is the extension of PDF.

• PDF stands for Portable Document Format and was developed by Adobe.

• PDF files present a document in a fixed layout (much like an image) which translates the same throughout various programs, hardware, and operating systems.

• It allows the user to utilize various images, fonts, and text formats (sometimes search-able and containing hyperlinks) in a single document that is print-ready and easy to share from any device.

• Most PDF readers are royalty-free for ease of access and use.

• These files can be password-protected, encrypted, edited, and 3D artwork has been supported since 2004.

• Hence, option 3 is correct.

Additional Information

• Print Document (File/Print), which prints a document using the current print configuration (defined using the Setup and Print command).

• The button on the button bar. On Linux platforms, this is a shortcut to the Print command.

• Open the folder that contains the Word documents you want to print.

• Press [Ctrl], and select the files you want to print. ...

• Right-click the selection, and select Print from the shortcut menu.

• Select the desired print options, and click OK.

• Destination Folders

• When you add files to your installation, you do so by placing them in a destination folder.

• The following predefined destination folders are provided by default in the Files view.

• Each one is dynamic, meaning that they do not rely upon hard-coded paths.

• Instead, the value for each destination folder is obtained from the operating system of the target machine.

• Some predefined folders are hidden by default. For information on displaying hidden folders, see Displaying Predefined Folders in the Files View.

Q97. Answer: (a) C

The correct answer is a Classical musician.

Key Points

• Pandit Jasraj

• Pandit Jasraj (28 January 1930 – 17 August 2020) was an Indian classical vocalist, belonging to the Mewati Gharana (musical apprenticeship lineage).

• His musical career spanned 75 years resulting in national and international fame, respect, and numerous major awards and accolades.

• Awards and honours:

• Padma Shri (1975)

• Sangeet Natak Akademi Award (1987)

• Padma Bhushan (1990)

• Padma Vibhushan (2000)

• Swathi Sangeetha Puraskaram (2008)

• Sangeet Natak Akademi Fellowship (2010)

• Hence, option 1 is correct.

Additional Information

• String instruments and Indian musicians who play them:

• Santoor: Pt Shiv Kumar Sharma, Bhajan Sopori

• Sarod: Allauddin Khan, Ali Akbar Khan, Amjad Ali Khan, Buddhadev Dasgupta, Bahadur Khan, Sharan Rani, Zarin S Sharma

• Sitar: Pt Ravi Shankar, Shahid Parvez Khan, Budhaditya Mukherjee, Anushka Shankar, Hara Shankar Bhattacharya, Nikhil Banerjee, Vilayat Khan, Mushtaq Ali Khan

• Surbahar: Annapurna Devi, Sajjad Hussain

• Been: Asad Ali Khan, Zia Moin-ud-din Khan

• Veena: Zia Mohiuddin Dagar, Ayyagari Syamasundaram, Doraiswamy Iyengar, Chittibabu, Emani Sankara Shastri, Dhanammal, KR Kumaraswamy, Sundaram Balachandrer

• Rudra Veena: Asad Ali Khan

Q98. Answer: (a) A

The correct answer is Zohra Sehgal.

Key Points

• Zohra Sehgal, a quintessential Bollywood diva who essayed character roles with aplomb in a career spanning over seven decades in both theatre and cinema, died here today at the age of 102.

• Sehgal, a vivacious personality, started her career as a dancer with Uday Shankar in 1935.

• She had appeared in many Bollywood films as a character actor as well as in English language films besides television series and plays.

• Often called the grand old lady of Bollywood, she last appeared in Sanjay Leela Bhansali's Saawariya in 2007.

• A Padma Shri awardee, she also received the Padma Vibhshan in 2010.

• Sehgal called the "laadli" of entertainment and the doyenne of Indian theatre was part of many a film and stage production over the past seven decades.

• She starred in films like "Hum Dil De Chuke Sanam", "Dil Se" and "Cheeni Kum" (with Amitabh Bachchan).

• Hence, option 1 is correct.

Additional Information

• Nargis Dutt was an Indian film actress, who starred in classic films of Bollywood.

• Regarded as one of the greatest actresses in the history of Hindi cinema, she made her screen debut in a minor role at the age of 5 with Talash-E-Haq, but her acting career actually began with the film Tamanna.

• Suraiya Jamal Sheikh (15 June 1929 – 31 January 2004), popularly known by the mononym Suraiya, was a popular actress and playback singer in India's Hindi language films. She was active from 1936 to 1963.

• In a career spanning from 1936 to 1963, Suraiya acted in 67 films and sang 338 songs.

Q99. Answer: (a) C

The correct answer is Job promotion.

Key Points

• Job promotion

• Job Enrichment or Job promotion is a job design technique that varies the concept of job enlargement.

• Job enrichment adds new sources of job satisfaction by increasing the level of responsibility of the employee in an organization.

• While job enlargement is considered as a horizontal restructuring method, job enrichment or Job promotion is considered as a vertical restructuring method of the moral excellence of giving the employee additional authority, autonomy, and control over the way the job is accomplished.

• Also called job enhancement or vertical job expansion.

• Hence, option 1 is correct.

Additional Information

• Methods or Techniques of Job Design

• Job Rotation

• Job Enrichment

• Job Enlargement

• Advantages of job enrichment

• Interesting and challenging job:-

• When a certain amount of power is given to employees it makes the job more challenging for them, we can say that job enrichment is a method of employee empowerment.

• Improves decision making:-

• Through job enrichment, we can improve the decision-making ability of the employee.

• Reduces workload of superiors:-

• Job enrichment reduces the workload of senior staff. When decisions are taken by juniors the senior's workload is reduced.

Q100. Answer: (c) A

Calculation:

'?' % OF 40 = 1.20

(?/100) × 40 = 1.20

(?/100) = 1.20/40

? = 1.20/40 × 100 = 3

Therefore The value of '?' is 3.

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