RRB ALP Electronics Mechanic 21 Jan 2019 Official Paper (Shift 2) (Previous Year Paper)

RRB Assistant Loco Pilot (ALP) • 2019 • 175 questions • 150 minutes • Answer key

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PART A

Q1. Find mass (in gm) of a gold coin of radius 2 cm and thickness 0.05 cm. (Density of gold 19.3 gm/cm^3)

(a) 12.1
(b) 0.06
(c) 6.1
(d) 0.03

Q2. _____ affects the atoms in living cells and thereby damages their genetic material (DNA).

(a) Chlorinated water
(b) Chloroform
(c) Benzene vapours
(d) Ionising radiation

Q3. What is the binary equivalent of decimal 413?

(a) 110011101
(b) 100111111
(c) 110110111
(d) 111001001

Q4. _____ was discovered by the Scottish physician Daniel Rutherford in 1772.

(a) Helium
(b) Hydrogen
(c) Chlorine
(d) Nitrogen

Q5. Find the work done (in joules) in moving a charge of 1.6 coulombs across a potential difference of 0.8 V.

(a) 1.28
(b) 2
(c) 2.56
(d) 0.5

Q6. Who founded Project Nanhi Kali in 1996?

(a) Anand Mahindra
(b) Ratan Tata
(c) Narayana Murthy
(d) Azim Premji

Q7. Hawa Mahal is a palace in _____.

(a) Jaipur
(b) Jodhpur
(c) Bikaner

(d) Udaipur

Q8. The difference between the two binary numbers 10010000 and 1111001 is:

(a) 11101
(b) 11011
(c) 10111
(d) 10011

Q9. A/An _____ is a pointing and drawing device shaped like a pen. It is used on a touch screen.

(a) stylus
(b) flag
(c) cursor
(d) index

Q10. Name the author of 'The Incredible Adventure of Professor Shonku'.

(a) Rahul Bose
(b) Ritwik Ghatak
(c) Rabindranath Tagore
(d) Satyajit Ray

Q11. A body of mass 60 kg weighs 222 N on Mars. What is the acceleration due to gravity (in m/s^2) on Mars?

(a) 19.8
(b) 13.32
(c) 3.7
(d) 4.9

Q12. In the finals of Indian Premier League (IPL) in 2018, Chennai Super Kings played against _____.

(a) Royal Challengers Bangalore
(b) Kolkata Knight Riders
(c) Sun Risers Hyderabad
(d) Mumbai Indians

Q13. A drum of mass 'm' kg was rolled down a ramp. At the bottom of the ramp its kinetic energy was 10 kJ and velocity was 20 m/s. With what velocity (in m/s) was it pushed down the ramp if its initial kinetic energy was 625 J?

(a) 5 m/s
(b) 7.5 m/s
(c) 10 m/s
(d) 2.5 m/s

Q14. A common drug in a first aid box is Ibuprofen. When should Ibuprofen be taken?

(a) To ease indigestion and heartburn
(b) To aid in clotting of blood
(c) To bring relief from asthma
(d) To treat pain, fever and inflammation

Q15. Classical musician TR Mahalingam is associated with which musical instrument?

(a) Mridangam
(b) Santoor
(c) Flute
(d) Tabla

Q16. A car of 500 kg mass has a kinetic energy of 64 kJ. Find its speed (in m/s).

(a) 16
(b) 48
(c) 64

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(d) 32

Q17. The electric _____ between two points in an electric circuit carrying some current is the work done to move a unit charge from one point to the other.

(a) resistance
(b) charge
(c) potential difference
(d) current

Q18. Coffee, spinach, onion and tea in our diet mostly provide us with which of the following elements as food?

(a) Fluoride
(b) Chloride
(c) Iodine
(d) Sodium

Q19. Which organisation comprises of two institutions: The International Bank for Reconstruction and Development (IBRD) and The International Development Association (IDA)?

(a) International Chamber of Commerce
(b) The World Bank
(c) The International Monetary Fund
(d) International Finance Corporation

Q20. Find the current (in mA) flowing through a wire of resistance 25 kΩ when a potential difference of 12.5 V is applied across it.

(a) 0.5
(b) 2
(c) 5
(d) 0.2

Q21. _____ is the fibre remaining after the extraction of the sugar-bearing juice from sugarcane.

(a) Forage
(b) Cullet
(c) Bagasse
(d) Compost

Q22. The apparent mass of a piece of metal when fully immersed in water is 60 gm. If the relative density of this metal piece is 2.5, find its actual mass (in gm)?

(a) 300
(b) 40
(c) 400
(d) 100

Q23. Which of the following folk dances is from Punjab?

(a) Bagurumba
(b) Lezim
(c) Nati
(d) Giddha

Q24. The circumference of a planet is 36,000 km. If the planet makes no other movement and takes 20 hours for one complete rotation, what is the speed of a point on its equator?

(a) 400 m/s
(b) 500 m/s
(c) 200 m/s
(d) 300 m/s

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Q25. 200° Celsius = _____ Fahrenheit

(a) -73°
(b) -328°
(c) 392°
(d) 73°

Q26. A/An _____ is a special high-speed storage mechanism.

(a) interface
(b) board
(c) cache
(d) host

Q27. Which singer entered the Guinness World Records for the most single studio recordings?

(a) Asha Bhosale
(b) Mohammad Rafi
(c) Lata Mangeshkar
(d) Kishore Kumar

Q28. If a box of mass 25 kg is pushed 15 m by a force of 'F' N and work done in the process is 480 J. Find F:

(a) 50
(b) 32
(c) 16
(d) 25

Q29. Which of the following gases is NOT a major greenhouse gas that causes climate change?

(a) Carbon dioxide
(b) Methane
(c) Carbon monoxide
(d) Nitrous oxide

Q30. Which of the following is the correct relation between potential difference 'V' across a metal wire of resistivity 'ρ', length 'L', and area of cross-section 'A' through which a charge 'Q' flows in 't' seconds?

(a) VρQ = AtL
(b) VLt = AQρ
(c) VAt = QρL
(d) VQt = AρL

Q31. Which of the following substances has the highest density?

(a) Gold
(b) Mercury
(c) Copper
(d) Iron

Q32. Two resistors of R Ω and 20 Ω are connected in parallel to get an effective resistance of 15 Ω. Find R.

(a) 40
(b) 60
(c) 50
(d) 30

Q33. The efficiency of a pump is 50%. It lifts 2 tonnes of water by 60 m in 20 minutes. Find the input power (in kW) of the pump.

(a) 4
(b) 1
(c) 2
(d) 3

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Q34. The ideals of Liberty, Equality and Fraternity enshrined in the Constitution of India are borrowed from the constitution of _____.

(a) Japan
(b) Unites States of America
(c) France
(d) Soviet Union

Q35. Select the option that is related to the third word on the same basis as the second word is related to the first word.
Lawyer : Judge ? Teacher : ?

(a) Student
(b) Classroom
(c) School
(d) Principal

Q36. The weights of 3 boxes are 4, 5 & 11 kilograms. Which of the following CANNOT be the total weight, in kilograms, of any combination of these boxes?

(a) 20
(b) 16
(c) 17
(d) 15

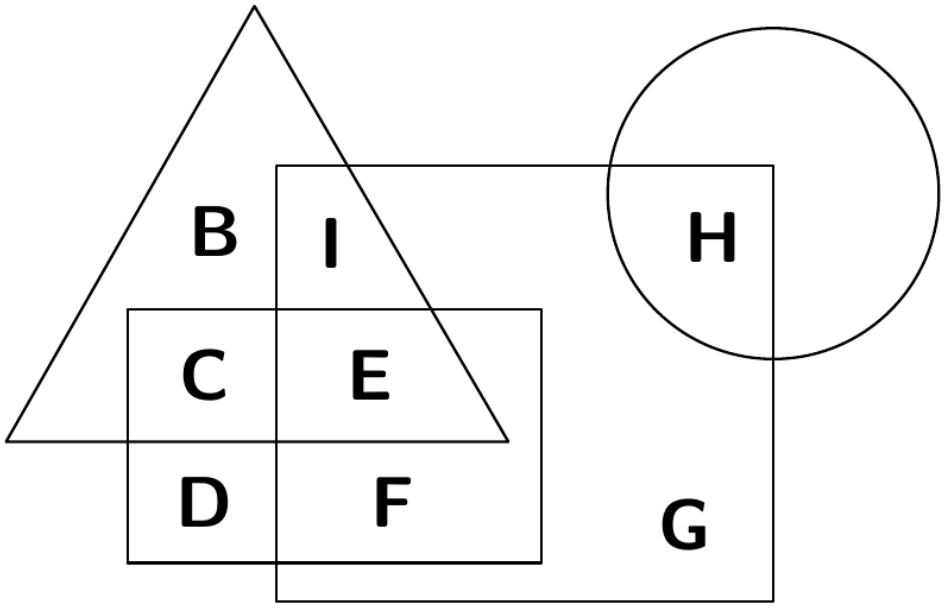
Q37. Select the option that is related to the third word on the same basis as the second word is related to the first word.
Sugarcane : Jaggery ? Coconut : ?

(a) Coir
(b) White
(c) Seashore
(d) Fruit

Q38. E said to F, “You are my son’s wife’s father-in-law.” How is F related to E?

(a) F is the husband of E
(b) F is the wife of E
(c) F is the brother-in-law of E
(d) F is the father of E

Q39. In the following figure, the triangle represents boxers, the square represents priests, the circle represents British and the rectangle represents men. Which set of letters represents men who are either boxers or priests?



(a) EFH

(b) CEI
(c) CEF
(d) FGH

Q40. Here are some words from an artificial language.

Nor usi means bat wing

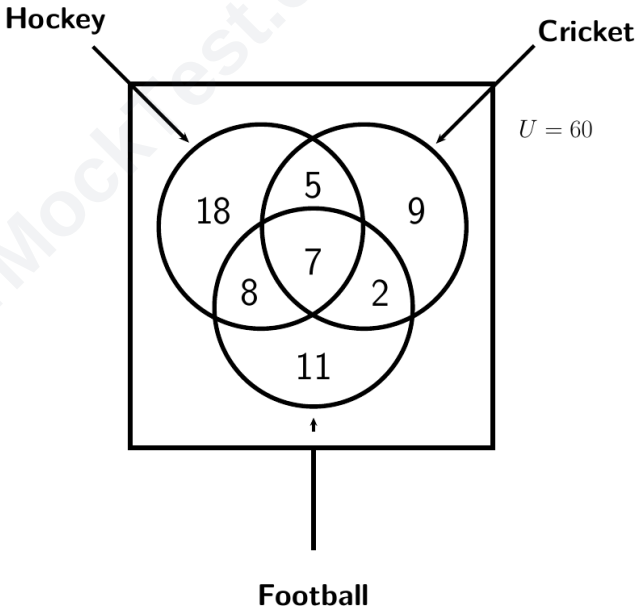
Od usi means bat man

Od zul means super man

Which set of letters would indicate 'superrich' in that artificial language?

(a) gifod
(b) nadzul
(c) ludnor
(d) tudusi

Q41. The given Venn diagram shows the number of students in a class who play a particular sport. How many students play Hockey as well as Football?



(a) 51
(b) 7
(c) 15
(d) 8

Q42. In a certain code language, STOLE is coded as 39468 and RICH is coded as 5271. Using the same code language, word THIS will be coded as:

(a) 7583
(b) 3274
(c) 9283
(d) 9123

Q43. What is the angle between the hour hand and the minute hand at quarter to five?

(a) 135.5°
(b) 115.5°
(c) 147.5°
(d) 127.5°

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Q44. Consider that 5 # 11 = 4; 13 # 7 = 5; 10 # 22 = 8. Then what is the value of 10 # 2 = ?

(a) 3
(b) 8
(c) 12
(d) 20

Q45. A statement is given, followed by two conclusions. Decide which of the given conclusions can definitely be drawn from the given statement.

Statement: Quality food is expensive. The restaurant owners are renovating the restaurant as the furniture had become old.

Conclusion:

I. The quality of the restaurant's food will improve.

II. All restaurants have to be renovated when their furniture becomes old.

(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Both I and II follows
(d) Neither I nor II follows

Q46. In the question, two statements are given, followed by three conclusions I, II and III. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follow(s) from the given statements.

Statement:

1. Some huts are cabins.

2. No cabins are cottages.

Conclusion:

I. Some cabins are huts.

II. Some cottages are huts.

III. All huts are cottages.

(a) Only conclusion III follows
(b) Only conclusion I follows
(c) All conclusions I, II and III follow
(d) Only conclusion I and III follow

Q47. Rearrange the parts of the sentence in the order to form a meaningful English sentence.

Till a few years back, I used

X-used to intermingle with literature and humanism

Y-to admire at the great and insightful language used in

Z-some of the judgements of the higher judiciary, where law

(a) YZX
(b) XZY
(c) ZYX
(d) YXZ

Q48. Choose the word that is different from the rest.

(a) Coir
(b) Cotton
(c) Wool
(d) Jute

Q49. In the question, two statements are given, followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance with commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statement:

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1. All boots are sneakers.
2. All sneakers are shoes.

Conclusion:

I. Some shoes are boots.

II. Some sneakers are boots.

(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Both I and II follow
(d) Neither I nor II follows

Q50. A seller starts on her daily routine. She walks 7 km north, then turns west and walks 6 km, then turns south and walks 2 km, then turns west and walks 3 km, then turns to her left and walks 5 km. Where is she now with reference to her starting position?

(a) 3 km west
(b) 9 km west
(c) 3 km east
(d) 9 km east

Q51. The sentences given in the question, which properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.

Patty the milkmaid had just finished milking her cow and had two full pails of fresh creamy milk.

A-'Once I get the money, I'll buy a chicken', she thought.

B-She put both pails on a stick and set off to the market to sell her pails of milk.

C-This chicken will lay tens of eggs.

D-Along the way she started to think of all the milk in her pails and all the money she would get for them.

(a) BDCA
(b) BDAC
(c) DBAC
(d) DBCA

Q52. If A $ B means A is the sister of B, A # B means A is the mother of B and if A × B means A is the father of B, then what does P × Q $ R # S mean?

(a) P is the father of S
(b) P is the son of S
(c) P is the son-in-law of S
(d) P is the grandfather of S

Q53. In a certain code language, '+' represents '×', '÷' represents '+', '-' represents '÷' and '×' represents '-'. Find out the answer to the following question considering that language as base.

9 × 3 ÷ 4 + 10 - 8 = ?

(a) 11
(b) 13
(c) 30
(d) 12

Q54. In the following question, which set of letters will logically complete the below letter series when the letters in the set are placed in the gap sequentially from left to right.

c_ax_za_cz_xc_a

(a) bbyyc
(b) bybyb
(c) bbyyb
(d) bbxyc

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Q55. 5 years ago, father's age was 8 times Rohan's age. 5 years hence, the ratio of father's age to Rohan's age will be 10 : 3. What is Rohan's present age?

(a) 10 years
(b) 12 years
(c) 15 years
(d) 8 years

Q56. One statement is given followed by two assumptions, I & II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given assumptions is/are implicit in the given statement.

Statement: Teachers should never scold students who make repeated mistakes.

Assumptions:

I. Students do not make repeated mistakes intentionally.

II. Negative reinforcements are NOT a good method to improve student performance.

(a) Only assumption II is implicit
(b) Both I and II are implicit
(c) Only assumption I is implicit
(d) Neither I nor II is implicit

Q57. Find the missing number in the given series.

-3.4, -2.7, -2, -1.3, -0.6, ?

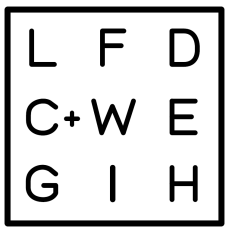
(a) 0.3
(b) 0.2
(c) 0.1
(d) 0

Q58. Choose the set of letters that is different from the rest.

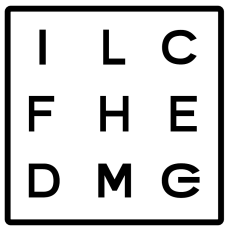
(a) NQT
(b) DGJ
(c) EHK
(d) TQN

Q59. Choose the figure that is different from the rest.

(a)

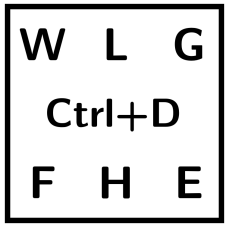


(b)

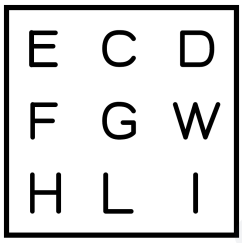


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(c)



(d)



Q60. Pipe A can fill a tank in X hours. Pipe B can empty it in 15 hours. If both the pipes are opened together, then the tank will be filled in 7 hours and 30 minutes. Find X.

(a) 10
(b) 5
(c) 9
(d) 8

Q61. The mean of the numbers 1, 4, 9, X, 12, 14, 15 and 16 is 10. Find the mode.

(a) 11
(b) 10
(c) 12
(d) 9

Q62. What is the area (in cm^2) of a rhombus if the lengths of its diagonals are 18 cm and 14 cm?

(a) 504
(b) 63
(c) 126
(d) 252

Q63. What is the difference between the compound interests on a sum Rs. 10,000 for 1 year at 10% per annum, when compounded yearly and half-yearly?

(a) Rs. 10
(b) Rs. 25
(c) Rs. 5
(d) Rs. 50

Q64. Two trains start at the same time. Train A travelling at an average speed of 54 km goes from city M to city N, while Train B goes from city N to city M. The distance between the two cities is 960 km. Find the average speed (in km/hr) of train B, if both trains cross each other after 8 hours?

(a) 66
(b) 60
(c) 72
(d) 76

Q65. Working together, if A, B and C can finish a task in 4 days. However, after starting the task, B quits and A and C finish the remaining task in 6 days. How many days would B take to finish if he had to perform the task alone?

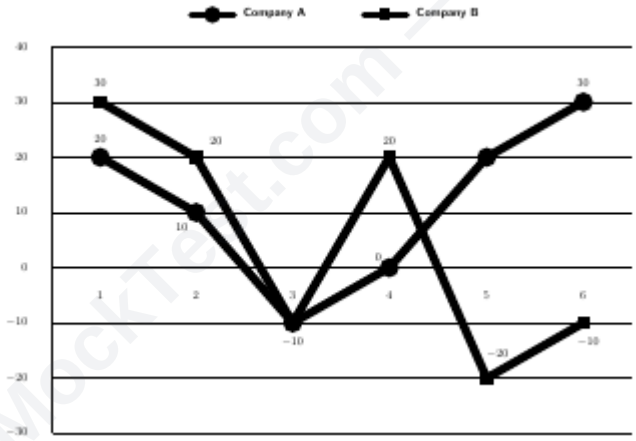
(a) 9
(b) 8

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(c) 12
(d) 15

Q66. A can finish 25% of a task in 3 days and B can finish half of the task in 18 days. If they work on it together, in how many days can they finish the task?
(a) 12
(b) 9
(c) 6
(d) 15

Q67. The line graphs show the profit (in lakh rupees), for 6 years, of two companies A and B. The ratio of the cumulative profits for these 6 years of Company B to Company A is:



(a) 7 : 3
(b) 3 : 7
(c) 8 : 7
(d) 7 : 8

Q68. Find the slope of the line given by the equation 4x + 6y = 9.
(a) (-3)/2
(b) 2/3
(c) (-2)/3
(d) 3/2

Q69. If 25% of a = b, then b% of 160 is same as:
(a) 80% of a
(b) 60% of a
(c) 40% of a
(d) 50% of a

Q70. Find the least common multiple of 48 and 54.
(a) 144
(b) 432
(c) 342
(d) 234

Q71. If a + b = 9 and $a^2 + b^2 = 53$, then find the value of ab.
(a) 20
(b) 8
(c) 14
(d) 18

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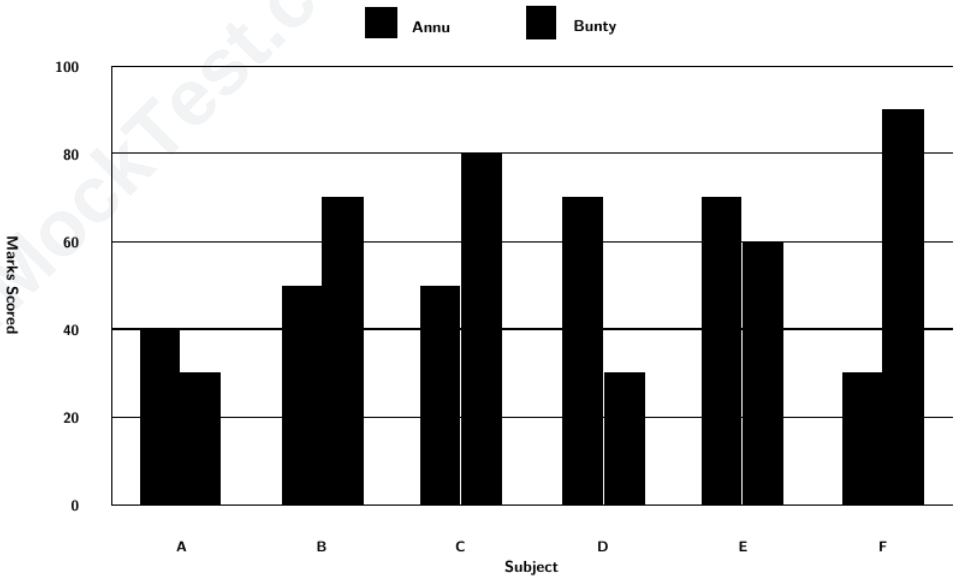
Q72. (0.1 × 0.1 × 0.1 + 0.04 × 0.04 × 0.04) ÷ (0.2 × 0.2 × 0.2 + 0.08 × 0.08 × 0.08) = _____.

(a) 0.08
(b) 0.125
(c) 0.025
(d) 0.02

Q73. Due to engine trouble, an Express train goes at 9/10^(th) of its usual speed and arrives at 2 : 34 pm instead of 2 : 28 pm. At what time did it start?

(a) 1:32 pm
(b) 1:34 pm
(c) 1:36 pm
(d) 1:40 pm

Q74. The bar graph shows the marks scored by Annu and Bunty in their exam, which had 6 papers of 100 marks each. If Bunty had scored 25% less in Paper C and 10 marks more in paper A, then he would have scored how much more than Annu in the exam?



(a) 16.67%
(b) 10%
(c) 12.25%
(d) 15%

Q75. A trader buys 200 kg of grain for Rs. 8,000. 4% of this grain is lost in transportation. At what rate should he sell the rest to earn 20% profit?

(a) Rs. 45/kg
(b) Rs. 48/kg
(c) Rs. 54/kg
(d) Rs. 50/kg

Q76. A retailer sells an item for Rs. 486 and he makes 8% profit. If he were to sell that item for Rs. 414, then he would make:

(a) 10% loss
(b) 8% loss
(c) 12% loss
(d) 4% loss

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Q77. If the curved surface area of a cone of radius 14 cm is 2200 cm², find its height (in cm).

(a) 48
(b) 56
(c) 49
(d) 50

Q78. 12 – 20% of (42 × 5 ÷ 15 – 18 × 10 ÷ 15 + 8) = _____

(a) 8
(b) 12
(c) 6
(d) 10

Q79. The ratio of the present salaries of Vinod and Manoj is 6 : 7. If both of them get their salaries increased by Rs. 16,000, then the ratio becomes 8 : 9. What is the present salary of Manoj?

(a) Rs. 48,000
(b) Rs. 72,000
(c) Rs. 56,000
(d) Rs. 64,000

Q80. √0.015625 × √0.0256 = ?

(a) 0.004
(b) 0.04
(c) 0.02
(d) 0.002

Q81. If 5x/2 - 5/3(3/2 + 4x/3) = 5/6 then the value of x is:

(a) 4
(b) 12
(c) 3
(d) 6

Q82. A pilgrim travelled a distance of 50 km in 7.5 hours. He travelled partly on foot at 4 km/hr and partly on a bullock cart at 12 km/hr. The distance travelled on foot is _____ km.

(a) 20
(b) 30
(c) 26
(d) 24

Q83. A man willed 2/7^(th) of his wealth to his wife. 1/3^(rd) of the remaining wealth to his son, and the rest was divided equally between the three daughters. If each daughter gets 2/3^(rd) of the son's share and each of the three daughters gets Rs. 2,00,000, then what was the man's wealth?

(a) Rs. 8,60,000
(b) Rs. 10,50,000
(c) Rs. 12,60,000
(d) Rs. 15,75,000

Q84. Specific heat capacity of lead is 125 Jkg^(-1)K^(-1). If the temperature of a block of 250 g of lead rises by 10°C on absorbing 5 kJ of heat, then find its heat capacity.

(a) 250 Jkg^(-1)K^(-1)
(b) 200 JK-1
(c) 325 Jkg-1K-1
(d) 500 JK-1

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Q85. A/an _____ circle is a circular centre line on a drawing containing the centres of holes about a common centre.

(a) axis
(b) bolt
(c) concentric
(d) peripheral

Q86. The ratio of the shorter side of an A4 sheet to the longer side of an A3 sheet is _____.

(a) 1 : 1
(b) 1 : √2
(c) 1 : 4
(d) 1 : 2

Q87. Which of the following is an example of a third-class lever?

(a) Nut cracker
(b) See-saw
(c) Ice tongs
(d) Wheel barrow

Q88. If 2.5 l of hot water at 85°C is mixed with 4.5 l of cold water then the temperature of the cold water rises by 15°C when equilibrium is reached. Find the initial temperature (in °C) of the cold water assuming no heat is lost.

(a) 25
(b) 48
(c) 43
(d) 15

Q89. A/an _____ is an inclined edge that is NOT at right angle to the joining surface.

(a) bevel
(b) ogee
(c) bullnose
(d) dupont

Q90. By how many degrees celsius should an 800 g calorimeter made of aluminium be heated so that it absorbs 43.2 kJ of heat? Specific heat capacity of aluminium is 0.9 Jg^(-1)K^(-1).

(a) 42.5
(b) 60
(c) 120
(d) 67.5

Q91. _____ is the distance from the pitch circle to the bottom of the tooth space in a gear.

(a) Hub
(b) Addendum
(c) Dedendum
(d) Bore

Q92. Find the velocity ratio of a pulley system if it has an efficiency of 50%. It lifts a load of 250 N on applying an effort of 100 N.

(a) 2.5
(b) 7.5
(c) 10
(d) 5

Q93. The notation φ7 means _____.

(a) depth of wall 7 units
(b) radius 7 units
(c) diameter 7 units

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(d) length of edge 7 units

Q94. The specific latent heat of fusion of lead is 23 Jg^(-1). Find the mass of a piece of lead if it releases 2116 J of heat when it freezes at its freezing point of 327°C.

(a) 62
(b) 92
(c) 600
(d) 460

Q95. Find the volume (in cm^3) of a piece of metal of density 5000 kg/m^3 and which weighs 10.8 N. (Use g = $10m/s^2$)

(a) 216
(b) 21.6
(c) 54
(d) 540

Q96. A uniform meter scale weighs 75 g. It is pivoted at the 50 cm mark. A 40 g mass is placed at the 20 cm mark and a 50 g mass is placed at the 90 cm mark. Where should a 20 g mass be placed so that the scale is in equilibrium?

(a) At the 54 cm mark
(b) At the 96 cm mark
(c) At the 4 cm mark
(d) At the 10 cm mark

Q97. cot 30° - 1over2 × cosec 60° =

(a) √2over√3
(b) 2over3
(c) 2over√3
(d) √2over3

Q98. In a certain gear train, the driver has _____ teeth while the follower has 10 teeth. For every 16 turns of the driver, the follower turns 40 times.

(a) 15
(b) 25
(c) 32
(d) 8

Q99. Watt/steradian is the unit of _____.

(a) electric conductance
(b) permeability
(c) permittivity
(d) radiant intensity

Q100. Siemens is the unit of _____.

(a) electric conductance
(b) permittivity
(c) watt per steradian
(d) permeability

PART B

Q101. TRIAC is similar to

(a) two SCR connected in series back to back
(b) two diodes connected in parallel
(c) two SCR connected in anti-parallel
(d) two diodes connected in series back to back

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Q102. What is the size of internal data memory in an 8051 microcontroller?

(a) 2048 bytes
(b) 1024 bytes
(c) 256 bytes
(d) 128 bytes

Q103. How many dual-purpose ports are there in the 8051 microcontroller?

(a) 2
(b) 3
(c) 4
(d) 1

Q104. By using AC coupling mode in a CRO _____.

(a) any signal cannot be viewed on the display
(b) only AC signal can be viewed on the display
(c) only DC signal can be viewed on the display
(d) both AC and DC signals can be viewed on the display

Q105. Which of the following is not a type of optocoupler?

(a) Photo TRIAC type
(b) Photoresistor type
(c) Phototransistor type
(d) Photo SCR type

Q106. Which of the following is used in domestic fan speed control circuits?

(a) DIAC
(b) TRIAC
(c) SCS
(d) SCR

Q107. Online UPS requires

(a) Only battery
(b) Both rectifier and inverter
(c) Only rectifier
(d) Only inverter

Q108. The ratio of root mean square value (R.M.S.) and the average value of a particular waveform is called _____ of the wave.

(a) Mean value
(b) Crest factor
(c) Peak factor
(d) Form factor

Q109. Which one of the gates mentioned below works as 'parity checker'?

(a) AND
(b) Ex-OR
(c) OR
(d) NAND

Q110. Optical Time domain Reflectometer is used to measure:

(a) Wavelength
(b) Dispersion in optical fibre
(c) Eye Pattern
(d) Loss in optical Communication

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Q111. Which among the following is NOT the function of an Operating System?

(a) File Management
(b) Device Management
(c) Data Analysis
(d) Memory Management

Q112. If two 'equal' resistances are connected in parallel configuration, then the resultant resistance will be:

(a) Multiplication of both the resistances
(b) Half of the resistance value
(c) Double of the resistance value
(d) Zero

Q113. Which of the following rectifiers needs a 'Centre tapped transformer'?

(a) Two-phase Full Wave Rectifier
(b) Half Wave Rectifier
(c) Full Wave Bridge Rectifier
(d) Full Wave two-diode Rectifier

Q114. Power loss in a transformer is known as the _____.

(a) Difference of current between the secondary and the primary coils.
(b) Addition of power in the secondary and the primary coils.
(c) difference of voltage between the secondary and the primary coils.
(d) Difference of power between the primary and the secondary coils

Q115. When the LED lights need a range of voltages to operate, Which of the following drivers is best suited for the job?

(a) Constant frequency
(b) Constant Voltage
(c) Constant Impedance
(d) Constant Current

Q116. The emitter of which of the below mentioned transistors has electrons as the majority carriers?

(a) N Channel
(b) PNP
(c) NPN
(d) PNPN

Q117. The principle of magnetic attraction and repulsion works in:

(a) MI instruments
(b) PMMC instruments.
(c) Digital multimeter
(d) CRO

Q118. The present state of the output of an SR flip flop is HIGH. If both its inputs become LOW, what would be the new state of the output?

(a) Unpredictable
(b) LOW
(c) Toggles
(d) HIGH

Q119. What is the purpose of using bypass diodes in the series connected solar panels?

(a) Increasing the current through shaded cells
(b) To increase the resistance of shaded cells
(c) Protection of shaded cells
(d) To redirect light for shaded cells

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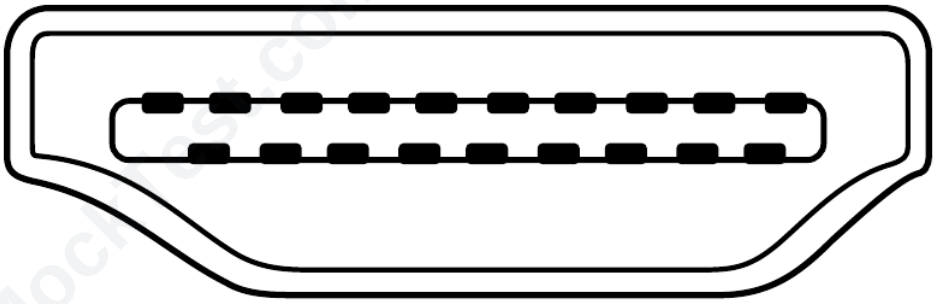
Q120. The synchronous speed of an induction motor is 1,000 RPM. Find the percentage slip if its actual rotation speed is 980 RPM?

(a) 4
(b) 8
(c) 2
(d) 20

Q121. What is the length of the antenna needed to a signal of 500 KHz frequency?

(a) 6 km
(b) 150 m
(c) 600 m
(d) 1 km

Q122. Identify the port shown in the image below.



(a) HDMI
(b) DVI
(c) MIDI
(d) FireWire

Q123. Which frequency range is used for TV?

(a) HF
(b) ULF
(c) VLF
(d) UHF

Q124. FET is a _____.

(a) Current and voltage controlled device
(b) Power controlled device
(c) Voltage controlled device
(d) Current controlled device

Q125. Which of the following is NOT a type of trigger in Digital storage Oscilloscope?

(a) Level
(b) Pulse Width
(c) Video
(d) Edge

Q126. Push-pull amplifiers are_____.

(a) Class AB amplifiers
(b) Class C amplifiers
(c) Class B amplifiers
(d) Class A amplifier

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Q127. A stable multivibrator operating at 100 Hz has a discharge time 2 ms. Find the duty cycle of the circuit

(a) 10%
(b) 20%
(c) 80%
(d) 50%

Q128. Based on which principle does a Moving Coil meter work?

(a) Faraday's Current law
(b) Faraday's Voltage law
(c) Ohm's law
(d) Maxwell's law

Q129. Identify the frequency of the crystal used for outgoing calls in mobile phones.

(a) 26 MHz
(b) 99 MHz
(c) 108 MHz
(d) 5.5 MHz

Q130. Which one of the following can be used as a photo detector in Fiber Optic Communication?

(a) Tunnel diode
(b) LED
(c) PIN diode
(d) LASER diode

Q131. Which of the following statements is true for Bi Colour LEDs?

(a) Two different colour LEDs are connected in series in the reverse direction
(b) Two different colour LEDs are connected in series in the same direction
(c) Two different colour LEDs are connected in inverse parallel
(d) A special dopant is used for producing two colours in on LED

Q132. Which of the following is used with LED lamps to focus its entire lighting output in one direction?

(a) Aluminum Channels
(b) Aluminum Panels
(c) Parabolized Aluminum Refractor
(d) Parabolized Aluminum Reflector

Q133. Identify the WRONG statement from the options given below.

(a) In LED TV, the LEDs can be placed on the edges too.
(b) Both LCD and LED TVs use an LCD screen for display.
(c) LEDs are used for backlighting the LCD screen of LED TV.
(d) CFLs are used for backlighting the LCD screen of LED TV

Q134. Ten cells, each of 2 volts emf and 1 ohm internal resistance are connected in series. What is the current flowing through a resistance of 10 ohms connected across this combination of cells?

(a) 1 A
(b) 100 mA
(c) 1 mA
(d) 10 mA

Q135. Identify the main feature of power amplifiers from the options given below.

(a) They have voltage amplifiers in the preceding stage.
(b) They cannot be operated without transformers.
(c) Their output voltage is high.
(d) Their output impedance is high.

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Q136. In an Op Amp integrator circuit, what is done to, limit the gain at 'Low Frequencies'?

(a) A large resistor is connected in series with the input.
(b) A large resistor is connected across the feedback capacitor.
(c) A small capacitor is connected in series with the input.
(d) A large capacitor is connected across the output.

Q137. The number of Flip Flops required for constructing a MOD 12 counter is_____.

(a) 3
(b) 6
(c) 4
(d) 5

Q138. An Op amp has Gain Bandwidth Product of 1 MHz. At what frequency will gain of this Op amp be equal to unity? Identify from the options given below.

(a) 100 kHz
(b) 1000 kHz
(c) 10 kHz
(d) 10 MHz

Q139. The primary voltage of a transformer is 200 volts and the secondary voltage is 50 volts. If the number of turns in the secondary winding is 100, the number of turns in the primary is_____.

(a) 400
(b) 100
(c) 200
(d) 800

Q140. Which system allows the entire bandwidth to be available to each user at the same time?

(a) CSMA
(b) GSM
(c) CDMA
(d) FDMA

Q141. The IC 74LS138 is a ____.

(a) 8 bit adder
(b) 8 line demultiplexer
(c) 8 bit subtractor
(d) 8 line multiplexer

Q142. What is the peak to peak value of a sine waveform whose average value is 12.74 volts?

(a) 40 V
(b) 30 V
(c) 20 V
(d) 10 V

Q143. Proximity sensors are used to _____.

(a) Detect non-magnetic but conductive materials
(b) Measure strain
(c) Measure distance
(d) Measure temperature

Q144. Which one of the following instructions is used to "Move Immediate Data to Register" in 8051?

(a) MOV direct, R_n
(b) MOV R_n, #data
(c) MOV R_(n,) direct
(d) MOV A, R_n

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Q145. Refractive Index of the medium is the ratio of _____.

(a) Velocity of light in the medium to the Velocity of light in the vacuum
(b) Velocity of light in water to the velocity of light in air
(c) Velocity of light in the water to the velocity of light in the vacuum
(d) Velocity of light in the vacuum to the velocity of light in the medium

Q146. In the voltage amplifier _____.

(a) Output voltage is zero.
(b) Output voltage is lower than the input voltage.
(c) Output voltage is equal to the input voltage.
(d) Output voltage is larger than the input voltage.

Q147. In mobile phones, when a user puts the phone to his/her ears, the screen goes off. Which is the sensor used for this?

(a) Motion sensor
(b) Proximity sensor
(c) Vibration sensor
(d) Temperature sensor

Q148. An LCR meter is used to measure _____.

(a) current
(b) power
(c) inductance
(d) voltage

Q149. Why is the transformer of an SMPS smaller in size when compared to a transformer in a Linear power Supply of similar rating?

(a) Because of smaller currents
(b) Because of lower PF
(c) Because of higher efficiency
(d) Because of HF operation

Q150. What is the frequency and type of modulation used in an IR Remote controls for TV?

(a) 108.1 kHz, FM
(b) 38 kHz, PCM
(c) 98 kHz, PM
(d) 98.1 MHz, AM

Q151. In the full-wave rectifier, relation between peak value and rms value is:

(a) $V_p=\sqrt{4}\ V_{(rms)}$
(b) $V_p=\sqrt{3}\ V_{(rms)}$
(c) $V_p=\sqrt{2}\ V_{(rms)}$
(d) $V_p=\sqrt{1.2}\ V_{(rms)}$

Q152. Which of the following is NOT a function of the LED driver?

(a) Preventing damage against EMI
(b) Preventing damage to LEDs by Regulating the forward voltage (VF)
(c) Avoiding thermal runaway
(d) Delivering a constant current to the LED

Q153. Identify the main reason why an Ammeter should have very low internal resistance

(a) It should provide damping
(b) It should decrease the circuit resistance.
(c) It should not affect the circuit resistance.
(d) It should not burn

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Q154. The carrier of an AM signal has power of 1,000 Watts. If the percentage of modulation is 80, what is the power in the upper sideband?

(a) 800 Watts
(b) 160 Watts
(c) 320 Watts
(d) 640 Watts

Q155. The number of input lines in a common BCD to seven segment decoder is _____.

(a) 8
(b) 2
(c) 16
(d) 4

Q156. Which of the following modulation techniques uses two carriers?

(a) QAM
(b) TDM
(c) FSK
(d) ASK

Q157. In which frequency band does a 2GHz signal lie?

(a) VHF
(b) HF
(c) UHF
(d) EHF

Q158. What are the logic levels in case of TTL logic using +5V as V_(CC)?

(a) 0 to 0.8 V for logic 0 and 2 V to VCC for logic 1
(b) – 0.3 to 0.3 V for logic 0 and 2.8 v to VCC for logic 1
(c) -0.1 to 0.6 V for logic 0 and 1.7 v to VCC for logic 1
(d) 0 to 0.3 v for logic 0 and 0 V to VCC for logic 1

Q159. Which one of the following circuits allows control of the SMPS output?

(a) LCL filter circuit
(b) PWM circuit
(c) EMI Filter circuit
(d) LC filter circuit

Q160. If a JK FF toggles more than once during one clock cycle, it is called_____

(a) Bouncing
(b) Racing
(c) Pinging
(d) Spiking

Q161. Which of the following connectors is used for telephone/ modem interface?

(a) RJ45
(b) RJ32
(c) RJ67
(d) RJ11

Q162. Which type of proximity sensor is not suitable of detecting ‘Glass Bottles’?

(a) Photoelectric type
(b) Inductive type
(c) Capacitive type
(d) Ultrasonic type

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Q163. When a Star Delta Starter is used with 3 – phase squirrel cage motors, in which sequence is the connection made?

(a) First Delta, then Star modes
(b) First delta, then Star and again Delta modes
(c) First Star, then Delta modes
(d) First Star, then Delta and again Star mode

Q164. Three capacitors each of 1μF, 2μF and 3μF are connected in series. Identify the statement which holds TRUE for this combination

(a) The charge stored by each capacitor is same.
(b) Current flowing through each capacitor is different
(c) The voltage across each capacitor is same
(d) Each capacitor stores a different charge

Q165. Which one of the following sensors produces a voltage output upon sensing temperature?

(a) RTD
(b) Thermocouple
(c) Strain gauge
(d) Thermostat

Q166. In which type of network topology computers are connected to a centralise Hub/switch

(a) Star topology
(b) Ring topology
(c) Bus topology
(d) Mesh topology

Q167. Which one of the following can be used to test the characteristics of an OFC?

(a) OTMM (Optical Transceiver Monitoring Module)
(b) DTDR (Digital Time Domain Reflectometer)
(c) OTDR (Optical Time Domain Reflectometer)
(d) OFCM (Optical Fiber Communication Module)

Q168. In computers, some area in the memory is reserved for high speed operations and storing frequently used instructions. What is the name of this type of memory?

(a) Flash
(b) Cache
(c) SRAM
(d) Northbridge

Q169. For currents as high as 2,000 Amps, which of the following types of fuses is the best choice?

(a) LRC Fuse
(b) HRC Fuse
(c) Nichrome Wire Fuse
(d) Glass Cartridge Fuse

Q170. _____ is used to describe the information about the hue and saturation of a color.

(a) Phosphorescence
(b) Sharpness
(c) Chrominance
(d) Luminance

Q171. The hexadecimal equivalent of the decimal number 4096 is ____.

(a) 1000
(b) F100
(c) F0
(d) 1F0

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Q172. The Octal equivalent of the hexadecimal number 100 is _____.

(a) 400
(b) 600
(c) 300
(d) 200

Q173. A PC consuming 100 Watts is to be operated on a UPS. The UPS uses a 12 Volts, 100 AH battery. Assuming unity PF, what is the backup time of this unit?

(a) 8 hours
(b) 16 hours
(c) 24 hours
(d) 12 hours

Q174. The deflection torque in moving iron meter is_____

(a) Inversely proportional to square of the current
(b) Proportional to the square of the current
(c) Proportional to the square of the voltage
(d) Inversely proportional to the current

Q175. 180 Coulombs of charge passes in a given time “t” through a wire of 1 ohm when connected to a 3 V DC supply. Identify the value of “t” from the options given

(a) 1 Minute
(b) 2 Minute
(c) 1.5 Minute
(d) 0.5 Minute

ANSWER KEY

1	a	2	a	3	a	4	a	5	a	6	a	7	a	8	a	9	a	10	a
11	a	12	a	13	a	14	a	15	a	16	a	17	a	18	a	19	a	20	a
21	a	22	a	23	a	24	a	25	a	26	a	27	a	28	a	29	a	30	a
31	a	32	a	33	a	34	a	35	a	36	a	37	a	38	a	39	a	40	a
41	a	42	a	43	a	44	a	45	a	46	a	47	a	48	a	49	a	50	a
51	a	52	a	53	a	54	a	55	a	56	a	57	a	58	a	59	a	60	a
61	a	62	a	63	a	64	a	65	a	66	a	67	a	68	a	69	a	70	a
71	a	72	a	73	a	74	a	75	a	76	a	77	a	78	a	79	a	80	a
81	a	82	a	83	a	84	a	85	a	86	a	87	a	88	a	89	a	90	a
91	a	92	a	93	a	94	a	95	a	96	a	97	a	98	a	99	a	100	a
101	a	102	a	103	a	104	a	105	a	106	a	107	a	108	a	109	a	110	a
111	a	112	a	113	a	114	a	115	a	116	a	117	a	118	a	119	a	120	a
121	a	122	a	123	a	124	a	125	a	126	a	127	a	128	a	129	a	130	a
131	a	132	a	133	a	134	a	135	a	136	a	137	a	138	a	139	a	140	a
141	a	142	a	143	a	144	a	145	a	146	a	147	a	148	a	149	a	150	a
151	a	152	a	153	a	154	a	155	a	156	a	157	a	158	a	159	a	160	a
161	a	162	a	163	a	164	a	165	a	166	a	167	a	168	a	169	a	170	a
171	a	172	a	173	a	174	a	175	a										

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