RRB ALP Electrician 23 Jan 2019 Official Paper (Shift 3) (Previous Year Paper)

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

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PART A

Q1. Name the scientist who discovered bacteria ?

(a) Robert Koch
(b) James Chadwick
(c) Eugen Goldstein
(d) A V Leeuwenhoek

Q2. If a body has a specific gravity of less than 1, then it will float in/on _____.

(a) air
(b) water
(c) liquids
(d) mercury

Q3. Which of the following options does not have an SI base unit?

(a) Amount of substance
(b) Frequency
(c) Luminous intensity
(d) Electric current

Q4. How many medals did India win in Rio Olympics, 2016?

(a) 3
(b) 4
(c) 2
(d) 5

Q5. It is mainly due to the gravitational effect of the _____ on the rotating earth that the level of water in the sea rises and falls.

(a) Venus
(b) Mercury
(c) Moon
(d) Sun

Q6. Two resistance of 2Ω and 6Ω are connected in series and this combination is connected across a 12 V battery. Find the current in the 6Ω resistor.

(a) 3.5 A
(b) 1. 5 A
(c) 0.5 A
(d) 2.5 A

Q7. Substances that are broken down by biological processes are said to be _____.

(a) reusable
(b) non-biodegradabl
(c) non-reusable
(d) biodegradable

Q8. A software program that has been developed to harm other computers is called a/an _____.

(a) server
(b) LAN
(c) malware
(d) operating system

Q9. Kuchipudi has its roots in which Indian State?

(a) Arunachal Pradesh
(b) Kerala
(c) Andhra Pradesh
(d) Himachal Pradesh

Q10. Which Indian cricketer received the Padma Bhushan in 2018?

(a) MS Dhoni
(b) Virat Kohli
(c) Sachin Tendulkar
(d) Saurav Ganguly

Q11. JPEG stands for _____.

(a) Joint Program Experts Group
(b) Joint Program Executing Group
(c) Joint Photographic Experts Group
(d) Joint Program Experimental Group.

Q12. Two resistors, one of 12 Ω and the other of 24 Ω are connected in parallel. This combination is connected in series with a 22 Ω resistor and a 12 V battery. The current in the 12 Ω resistor is _____.

(a) (8/15) A
(b) (2/15) A
(c) (6/15) A
(d) (4/15) A

Q13. RK Narayan is famous for his book _____.

(a) The Room on the Roof
(b) Two Livers
(c) Malgudi Days
(d) A suitable Boy

Q14. _____ protection must be worn whenever noise levels exceed the noise exposure standard.

(a) Hearing
(b) Head
(c) Eye
(d) Foot

Q15. A wire of length 1 and radius r has a resistance R. The resistance of another wire made of the same material but having half its length and half its radius will be.

(a) 4R
(b) R/2
(c) 2R
(d) R

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Q16. Safety boots or shoes must be worn in designated areas to protect your _____ from falling objects.

(a) eye
(b) ear
(c) head
(d) feet

Q17. A cylindrical wire of length L and radius r has a resistance of R. The resistance of another wire of the same material but thrice its length and one-third its radius will be _____.

(a) 27R
(b) 9R
(c) R
(d) 3R

Q18. If a body is NOT homogeneous, then its density is a function of its _____.

(a) pressure
(b) acceleration
(c) position
(d) velocity

Q19. Two resistors of 10Ω and 20 Ω area connected in series and this combination is connected across a 30 V supply voltage. Find the voltage across the 10 Ω resistor.

(a) 20 V
(b) 10 V
(c) 5 V
(d) 15 V

Q20. Which one of these is a harvest festival?

(a) Teej
(b) Janmashtami
(c) Deepawali
(d) Onam

Q21. 86°F is equal to _____

(a) 20°C
(b) 30°C
(c) 34°C
(d) 10°C

Q22. Where is the Headquarters of UNESCO located?

(a) New York City
(b) Geneva
(c) Paris
(d) Washington DC

Q23. Name of the painter of famous painting, ‘Mahishasura’.

(a) MF Hussain
(b) Amrita Sher-Gil
(c) Raja Ravi Verma
(d) Tyeb Mehta

Q24. What is the work that needs to be done to increase the speed of a 1 kg ball from 2 m/s to 4 m/s?

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

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Q25. The Ajanta Caves in Maharashtra feature paintings and sculptures that depict _____ tales.

(a) Arabic
(b) Islamic
(c) Buddhist
(d) Maratha

Q26. The volume of a given amount of water _____ between 0°C to 4°C.

(a) is zero
(b) decreases
(c) remains constant
(d) increases

Q27. Two resistance of 2Ω and 6Ω are connected in series and this combination is connected across a 12 V bettery. Find the power supplied by the battery.

(a) 10 W
(b) 18 W
(c) 16 W
(d) 14 W

Q28. An object weighs X units on the earth. If we take the same object to the moon, its weight there will be _____.

(a) zero
(b) less than X
(c) equal to X
(d) more than X

Q29. A body starts from rest. Its displacement is proportional to _____ when its acceleration is constant.

(a) time squared
(b) velocity
(c) work
(d) time

Q30. A source of voltage V maintains a current i in a circuit. The energy supplied to the circuit by the source in time t is _____.

(a) Vit
(b) 1/Vit
(c) Vi/t
(d) V/it

Q31. Who was the first governor of the Reserve Bank of India?

(a) Sir James Braid Taylor
(b) KR Puri
(c) HVR Iyengar
(d) Sir Osborne A Smith

Q32. A car covers 400 m in 20 seconds. Find the average speed (in km/hr) of the car.

(a) 72
(b) 124
(c) 108
(d) 36

Q33. If $\sin\theta = 15/17$, then $\cot\theta = ?$

(a) 8/15
(b) 8/17
(c) 15/8
(d) 17/15

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Q34. In an examination, the highest score and the lowest score are different by 55 and the higher one was 9/4 times the lower one. Find the lowest score.

(a) 40
(b) 36
(c) 44
(d) 48

Q35. A number is as much greater than 50 as it is lesser than 84. What is the number?

(a) 65
(b) 66
(c) 68
(d) 67

Q36. If $x = \sqrt{125} \times \sqrt{30} \times \sqrt{6}$, then x is equal to:

(a) 175
(b) 125
(c) 136
(d) 150

Q37. A got Rs. 80 as his share of profit where the total profit was Rs. 240 and the ratio of profit distribution between A and B was x : 2. What is the value of x?

(a) 1
(b) 4
(c) 2
(d) 5

Q38. What is the median of 8, 5, 7, 9, 11, 6, 10?

(a) 9
(b) 8
(c) 10
(d) 7

Q39. If $5050 \times 0.5x = 25250$, then $2505 \div x^2 = ?$

(a) 0.2505
(b) 25.05
(c) 2.505
(d) 250.5

Q40. An article of marked price Rs. 12000 was sold. Had a discount of 15% been offered, a profit of 2% would have been made. What was the cost price?

(a) Rs. 10,200
(b) Rs. 10,000
(c) Rs. 11,000
(d) Rs. 10,800

Q41. A sum of Rs. 2,000 was spent in buying a pair of trousers. The sum spent was 2/5^(th) of the total money Shashi had with her. How much was the total money she had?

(a) Rs. 4,000
(b) Rs. 4, 250
(c) Rs. 4, 750
(d) Rs. 5,000

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Q42. A machine was bought for Rs. 1,500 and a repairing charge of Rs. 100 was paid afterwards. At what price should it be sold to gain a profit of 25%?

(a) Rs. 2,040
(b) Rs. 1,960
(c) Rs. 2,000
(d) Rs. 1, 920

Q43. In angular measurement, one radian is equivalent to _____ degree (approximately).

(a) 65.27
(b) 57.27
(c) 90
(d) 180

Q44. A and B can do a work in 15 days. B and C can do the work in 20 days and A and C can do the work in 10 days. In how many days will they together completed the work?

(a) 10.67 days
(b) 10.91 days
(c) 10.71 days
(d) 9.23 days

Q45. Pipes A and B can fill a tank in 12 minutes and 16 minutes respectively. Both A and B are opened for 4 minutes and then A is closed. How much extra time will B take to fill the tank completely?

(a) 20/3 minutes
(b) 7 minutes
(c) 21/4 minutes
(d) 6 minutes

Q46. A can do 2/5 of a work in 10 days. B can do ½ of the some work in 10 days. They worked together for 5 days and then A left. In how many days will B finish the remaining work?

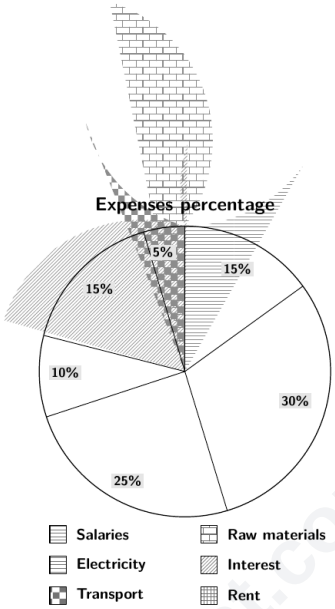
(a) 8
(b) 10
(c) 11
(d) 9

Q47. Reflection of point (-2, -6) on the Y-axis is:

(a) (2, 6)
(b) (-6, -2)
(c) (-2, 6)
(d) (2, -6)

Q48. The pie chart shows the breakup in percentage of the various expenses of a Company. Study the diagram and answer the following question.

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What is the interest expense if total expenses is Rs. 25000.

(a) Rs. 2, 500
(b) Rs. 1, 800
(c) Rs. 9, 000
(d) Rs. 5, 000

Q49. A motorcycle travelled 1000 m at 36 km/hr. Find the time (in seconds) taken by the motorcycle to cover this distance.

(a) 300
(b) 100
(c) 400
(d) 200

Q50. A 4-digit number 1xy7 is divisible by 11. What is the value of x - y?

(a) -8
(b) -2
(c) -4
(d) -6

Q51. Tap M and N can together fill a cistern in 48/13 minutes. N alone can fill it in 6 minutes. How much time will M alone take to fill the cistern?

(a) 9.6 minutes
(b) 9 minutes
(c) 9.4 minutes
(d) 8.6 minutes

Q52. What is the curved surface area of a hemisphere whose radius is 7 cm? (take π = 22/7)

(a) 616 cm^2
(b) 154 cm^2
(c) 308 cm^2
(d) 924 cm^2

Q53. An airplane flies at the speed of 50 m/s. How much distance (in km) will it cover in a flight of 5 hours?

(a) 895
(b) 850
(c) 880
(d) 900

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Q54. What is the distance between the points (4, 3) and (3, -2)?

(a) √26
(b) √24
(c) 6
(d) 5

Q55. sec 45° - tan 60° = ?

(a) • √3 + √2
(b) • √3 - √2
(c) (√3)/2
(d) √3 + √2

Q56. What is the least number which when doubled is perfectly divisible by 7, 12 and 15?

(a) 420
(b) 210
(c) 214
(d) 220

Q57. A sum of Rs. 10,000 amounts to Rs. 11, 449 in 2 years, when the interest is compounded annually. The interest rate percent per annum is:

(a) 6%
(b) 1%
(c) 7%
(d) 8%

Q58. The ages of X and Y are in the ratio 4 : 7. Three years earlier, the ratio of their ages was 1 : 2. What is the difference between their current ages (Y - X)?

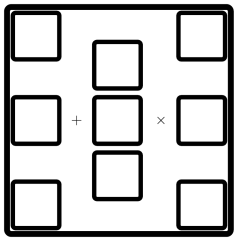
(a) 3
(b) 6
(c) 9
(d) 7.5

Q59. What is 80% of 50% of 90?

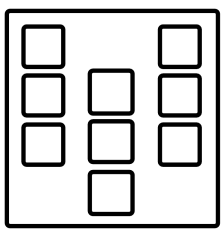
(a) 30
(b) 34
(c) 32
(d) 36

Q60. Choose the figure that is different from the rest.

(a)

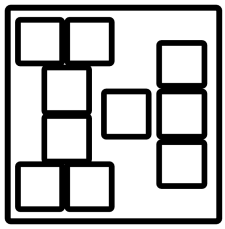


(b)

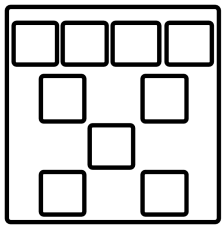


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(c)



(d)



Q61. A series is given, with one number missing. Choose the correct alternative from the given ones that will complete the series.

1.14, 1.28, 1.42, ?, 1.70, 1.84

(a) 1.56
(b) 1.54
(c) 1.68
(d) 1.62

Q62. Two planes E and F start flying from the same point. E flies 7 km west, then turns to its left and flies 15 km. Meanwhile F flies 11 km east and turns right and flies 15 km. Where is F with respect to E?

(a) F is 18 km west of E
(b) F is 4 km east of E
(c) F is 18 km east of E
(d) F is 4 km west of E

Q63. Given below are some letters, that each of these letters has a corresponding number. Select the combination of numbers from the option so that the jumbled letters arranged accordingly will form a meaningful English word.

H T R U O A

1 2 3 4 5 6

(a) 6, 4, 2, 1, 5, 3
(b) 3, 4, 5, 2, 1, 6
(c) 1, 6, 2, 4, 5, 3
(d) 2, 1, 5, 3, 4, 6

Q64. I, J, K and L are sitting in a row. L and I are sitting next to each other and I and K are the ends. Who is sitting next to J?

(a) Only K
(b) L and I
(c) K and L
(d) Only L

Q65. Select the option that is related to the third term in the same way as the second term is related to the first term.

Tall : Short ? Glad : ?

(a) Sad
(b) Happy
(c) Emotion
(d) Smile

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Q66. If, '+' represents '×', '-' represents '+', '×' represents '÷' and '÷' represents '-' then find the value of the following expression.

9 × 3 + 6 ÷ 2 = ?

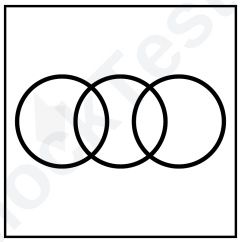
(a) 20
(b) 10
(c) 12
(d) 16

Q67. If G + H means G is daughter of H, G- H means G is sister H and G * H means G is husband of H, which of the following shows that I is the daughter of H?

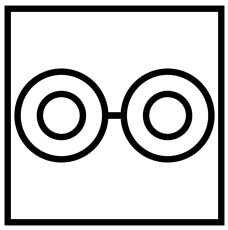
(a) I – J + F * H
(b) I + J - F * H
(c) I – J * F + H
(d) I * J - F + H

Q68. Which of the following Venn diagrams best represents the relationship between Indians, doctors and women?

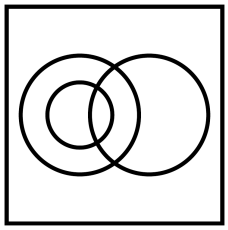
(a)



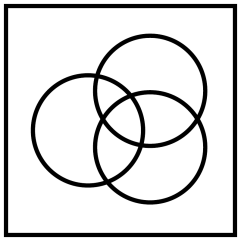
(b)



(c)



(d)



Q69. Given below are two statement, followed by two conclusion, I and II. You have to consider the statement 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: No quadrilaterals are polygons.

Statement 2: All polygons are rhombuses.

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Conclusion I: Some rhombuses are quadrilaterals.

Conclusion II: Some rhombuses are polygons.

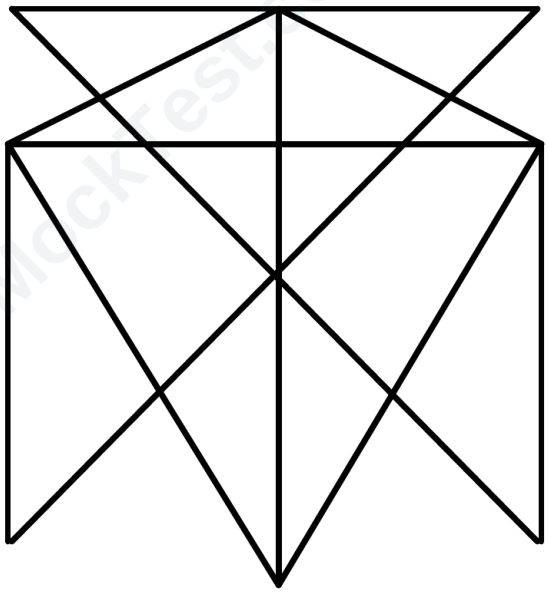
(a) Neither I nor II follows
(b) Only conclusion II follows
(c) Only conclusion I follows
(d) Both I and II follow

Q70. Which two signs should be interchanged to make the given equation correct?

9 ÷ 3 + 8 × 2 – 15 = 2

(a) × and -
(b) ÷ and -
(c) • and ×
(d) • and -

Q71. What is the minimum number of lines required to make the given image?



(a) 13
(b) 12
(c) 10
(d) 9

Q72. A series is give, with one term missing. Choose the correct alternative from the given ones that will complete the series.

OOOOOX, OOOOXX, OOOXXX, OOXXXX, ?

(a) XXXXXX
(b) OOXXXXX
(c) OOXXXX
(d) OXXXXX

Q73. If C $ D means C is daughter of D, C & D means C is mother of D and C % D means C is son of D, then what does W $ X & Y % Z mean?

(a) Z is wife of W
(b) Z is mother of W
(c) Z is father of W
(d) Z is daughter of W

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Q74. Given below is a question, followed by two arguments, I and II. You have to decide which of the given arguments, if any, is a strong argument, with respect to the question.

Question: Should advertisements be banned on television?

Argument I: Yes, advertisements are immoral.

Argument II: No, advertisements bring in revenue which helps reduce cost for viewers.

(a) Only argument II is strong.
(b) Only argument I is strong.
(c) Neither I nor II is strong.
(d) Both I and II are strong.

Q75. Select the option that is related to the third number in the same way as the second number is related to the first number.

-9/11 : 11/9 ? 13/2 : ?

(a) 3/7
(b) 2/13
(c) -2/13
(d) -7/3

Q76. Given below is a statement followed by two assumption numbered I and II. You have to decide which of the assumptions is/are implicit in the statement.

Statement: The human body produces Vitamin D when exposed to sunlight.

Assumption I: The human body will have Vitamin D even if it is not consumed via food.

Assumption II: A large portion of the global population suffers from Vitamin D deficiency.

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

Q77. A salesperson starts from his office and drives 2 km east, then turns north and drives 7 km, then turns to his right and drives 6 km, then turns south and drives 7 km. Where is he now with respect to his starting position?

(a) 8 km east
(b) 4 km west
(c) 4 km east
(d) 8 km west

Q78. Unscramble the letters in the words given below and find the odd word out.

(a) FLOW
(b) ILNO
(c) ERTIG
(d) WCO

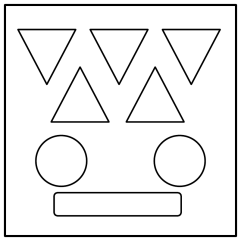
Q79. Find the odd group of letters from the given alternatives.

(a) EFG
(b) PQR
(c) VWX
(d) HJL

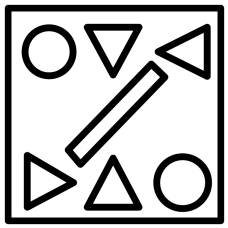
Q80. Choose the figure that is different from the rest.

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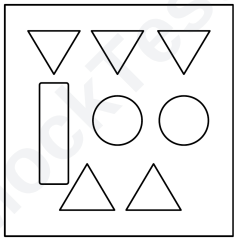
(a)



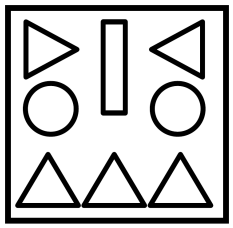
(b)



(c)



(d)

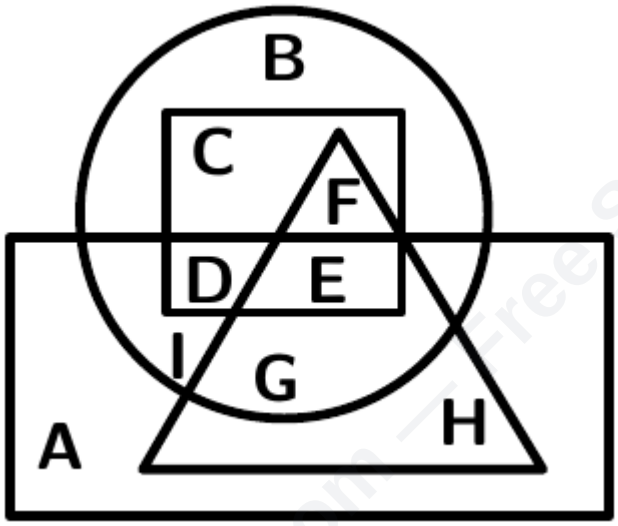


Q81. In a code language, 295 means ‘water is liquid’, 549 means ‘oil is liquid’ and 824 means ‘oil on water.’ Find the code for ‘on’.

(a) 4
(b) 2
(c) 8
(d) 5

Q82. In the following figure, square represents Chinese, triangle represents dancers, circle represents male and rectangle represents architects. Which set of letters represents dancers who are male?

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(a) DEIG
(b) DEF
(c) IGH
(d) GEF

Q83. The abbreviation AC in an engineering drawing stands for _____.
(a) Across Corners
(b) Aerial Cut
(c) Attached Circle
(d) Air Conditioning

Q84. Greater the value of _____ of a material, the more rapidly it will conduct heat.
(a) melting point
(b) latent heat
(c) regelation
(d) thermal conductivity

Q85. The effort applied to move a load is 15 units and the mechanical advantage is observed to be 3. Find the load.
(a) 5 units
(b) 3 units
(c) 15 units
(d) 45 units

Q86. What is the unit's digit in 3^(66)× 6^(41) × 7^(53)
(a) 8
(b) 3
(c) 6
(d) 7

Q87. If the width of a standard engineering drawing sheet is 841 mm, then its length would be _____ mm.
(a) 1189
(b) 1250
(c) 1000
(d) 1216

Q88. A 200 g block of iron was heated from 30°C to 60°C. How much heat was transferred to the block (specific heat of iron is 450 Jkg^(-1)K^(-1))?
(a) 6000 J
(b) 27 J

(c) 2700 J
(d) 270 J

Q89. If a machine overcomes a load 'L' and the distance travelled by the load is 'Ld', the work done by the load will be _____.
(a) L × Ld
(b) L/Ld
(c) Ld/L
(d) 1/(L × Ld)

Q90. A brass rod (thermal conductivity 109 J/s m K) has an area of cross section 0.04 m² and length 20 cm. If the two end of the rod are maintained at a temperature difference of 200°C, the rate of heat flow through the rod is _____.
(a) 3.42 kJ/s
(b) 2.32 kJ/s
(c) 4.36 kJ/s
(d) 5.80 kJ/s

Q91. The effort in a class 1 lever is in _____ direction(s).
(a) three
(b) multiple
(c) two
(d) one

Q92. The velocity ratio of a simple machine is the ratio of distance traveled by the _____ to the distance traveled by the _____ in the machine.
(a) load; load
(b) effort; load
(c) load; effort
(d) effort; effort

Q93. If straight lines are drawn from various points on the contour of an object to meet a plane, the figure obtained on the plane is called the _____ of the object.
(a) development
(b) dimensioning
(c) projection
(d) animation

Q94. A _____ is a theoretical exact plane, axis or point location that GD & T or dimensional tolerances are referenced to.
(a) flange
(b) frame
(c) section
(d) datum

Q95. Molar specific heat capacity of a substance is _____.
(a) (1/μ)((Δ Q)/(Δ T))
(b) μ ((Δ Q)/(Δ T))
(c) (1/μ)((Δ T)/(Δ Q))
(d) μ ((Δ T)/(Δ Q))

Q96. In engineering drawing, the letters LH signifies _____.
(a) Level Hide
(b) Left Hand
(c) Low Heat
(d) Limit of Height

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Q97. Identify the material having high coefficient of volume expansion.

(a) Brass
(b) Alcohol
(c) Glass
(d) Water

Q98. An object starts from rest at x = 0 m and moves with a constant acceleration of 1.6 m/s² along the x-axis. During its journey from x = 12.8 m to x = 20.0 m, its average velocity will be _____.

(a) 7.2 m/s
(b) 3.6 m/s
(c) 8.8 m/s
(d) 2.4 m/s

Q99. You are given a question and two statements. Identify which of the statements is/are necessary/sufficient to answer the question.

Question: What was the discount percent offered on the soap by the store?

Statements:

I) The store is giving 1 soap free on purchase of three.

II) Rs. 10 discount is offered on purchase of soap worth 36.

(a) II alone is sufficient while I alone is not sufficient
(b) I alone is sufficient while II alone is not sufficient
(c) Neither I nor II is sufficient
(d) Either I or II is sufficient

Q100. Identify the material having low coefficient of volume expansion

(a) Iron
(b) Mercury
(c) Brass
(d) Aluminium

PART B

Q101. In an induction motor, if the air gap is increased

(a) Speed will reduce
(b) Efficiency will improve
(c) Power factor will be lowered
(d) Breakdown torque will reduce

Q102. A feeder, in a transmission system, feeds power to

(a) Distributors
(b) Service mains
(c) Substation
(d) All options are correct

Q103. Iron loss of a transformer can be measured by:

(a) Any type of watt meter
(b) Unity power factor watt meter
(c) Low power factor watt meter
(d) None of these

Q104. Which material is used for the construction of the power transformer core?

(a) Mild steel
(b) High carbon steel
(c) Silicon steel

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(d) Copper

Q105. Three-point starter can be used for

(a) Series motor only
(b) Shunt motor only
(c) Both shunt and compound motor
(d) Compound motor only

Q106. A common method of cooling a power transformer is

(a) Natural air cooling
(b) Air blast cooling
(c) Oil cooling
(d) Any of the above

Q107. Which among the following, remains same in a series circuit?

(a) Power
(b) Current
(c) Voltage
(d) Resistance

Q108. The electric motor used in portable drills is _____.

(a) Capacitor run motor
(b) Hysteresis motor
(c) Universal motor
(d) Repulsion motor

Q109. For transmission and distribution of electrical power, which one of the following materials is NOT used?

(a) Copper
(b) Tungsten
(c) Steel
(d) Aluminium

Q110. The characteristics of patterns that appear on a CRT screen when sinusoidal voltages are simultaneously applied to horizontal and vertical plates are called _____.

(a) Phase patterns
(b) Lissajous patterns
(c) Colour patterns
(d) Eye patterns

Q111. The resistance of an ideal voltmeter is always _____.

(a) Infinity
(b) Zero
(c) Positive
(d) Negative

Q112. In the current transformer, the number of primary turns is always:

(a) less than the number of secondary turns
(b) zero
(c) greater than the number of secondary turns
(d) equals the number of secondary turns

Q113. Which of the following device is bidirectional?

(a) TRIAC
(b) SCR
(c) GTO

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(d) BJT

Q114. In a three-phase system, the order in which the voltages attain their maximum positive value is called _____.

(a) RMS voltage
(b) peak-to-peak voltage
(c) a phase sequence
(d) power factor

Q115. In electrical machines, laminated cores are used to reduce

(a) Copper losses
(b) Eddy current losses
(c) Hysteresis losses
(d) All of the above

Q116. The average power dissipated in a pure inductor is

(a) Infinite
(b) VI²
(c) fracVI²4
(d) Zero

Q117. The condition for maximum efficiency in transformer is

(a) Copper loss = 0
(b) Core loss = 0
(c) Copper loss = Core loss
(d) Copper loss = 2 × Core loss

Q118. Which of the following is NOT a trivalent impurity?

(a) Boron
(b) Phosphorus
(c) Indium
(d) Gallium

Q119. In a Fleming's right-hand rule, the thumb indicates the:

(a) Direction of current flow
(b) Direction of induced voltage
(c) Direction of motion of conductor
(d) Direction of magnetic field

Q120. The loss that takes place due to winding resistance is called _____.

(a) Iron loss
(b) Hysteresis loss
(c) Eddy current loss
(d) Copper loss

Q121. The function of inverter in an UPS is to:

(a) Convert DC to AC
(b) Convert AC to DC
(c) Convert DC to DC
(d) Convert AC to AC

Q122. A DC generator works on the principle of:

(a) Faraday's law
(b) Steinmetz's law
(c) Lenz's law
(d) Ampere's law

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Q123. Choppers are _____ converters.

(a) DC to DC
(b) AC to AC
(c) AC to DC
(d) DC to AC

Q124. Which of the following material is NOT used as fuse wire?

(a) Copper
(b) Aluminium
(c) Paper
(d) Silver

Q125. In which type of power amplifier does the output current flow for the entire cycle of input signal?

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

Q126. For an ideal transformer, if I2/ I1 = 2 and E2 = 100 V, E1 will be:

(a) 200 V
(b) 100 V
(c) 25 V
(d) 50 V

Q127. Power transmission for long distance is carried out at:

(a) High voltage
(b) Low voltage
(c) Low current
(d) High current

Q128. In the case of direct current:

(a) Magnitude and direction of current changes with time
(b) Magnitude of current changes with time
(c) Magnitude and direction of current remains constant
(d) Magnitude of current remains constant

Q129. Which of the following protects a cable against mechanical injury?

(a) Bedding
(b) Sheath
(c) Core
(d) Armouring

Q130. In actual practice, the rating of transformer is specified in:

(a) kW
(b) kVA
(c) kVAR
(d) kA

Q131. In the _____ region, a transistor act as closed switch.

(a) Inverse active region
(b) Saturation
(c) Cut-off region
(d) Active region

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Q132. For switching applications, a transistor needs to be biased to operate in which of the following regions?

(a) Inverse active region
(b) Active region
(c) Active or inverse active region
(d) Saturation or cut-off region

Q133. UJT is used for which of the following applications?

(a) Attenuation
(b) Sawtooth waveform generation
(c) Amplification
(d) Rectification

Q134. In a DC shunt motor, the torque produced is proportional to:

(a) Armature current
(b) (Armature current)2
(c) Ampere-turn
(d) (Ampere-turn)2

Q135. Which of the following motor is self-starting?

(a) Single-phase induction motor
(b) Low horse power motor
(c) Three-phase induction motor
(d) Variable speed motor

Q136. Among the following, which method is NOT preferred to measure low resistances?

(a) Potentiometer method
(b) Ammeter-voltmeter method
(c) Kelvin bridge method
(d) Mega ohm bridge

Q137. Hysteresis loss is given by:

(a) $W_e = K B^2_{(max)} f^2 t^2 W$
(b) W_h= η B_m^(1.6) f V W
(c) $W_{(cu)} = (I1^2 R1 + I2^2 R2) W$
(d) $W_{(cu)} = (I1^2 R1) W$

Q138. For amplifier application, a transistor needs to be biased to operate in which of the following regions?

(a) Cut-off region
(b) Depletion region
(c) Active region
(d) Saturation region

Q139. Among the following, which material is a good conductor of electricity?

(a) Silver
(b) Glass
(c) Porcelain
(d) Rubber

Q140. A 3- point starter is used to:

(a) Minimize back emf
(b) Minimize armature current
(c) Maximize armature current
(d) Maximize back emf

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Q141. Which of the following two losses are together called core loss?

(a) Connectors loss and transmission loss
(b) Copper loss and hysteresis loss
(c) Eddy current loss and hysteresis loss
(d) Primary copper loss and secondary copper loss

Q142. Copper loss is negligible at _____.

(a) Half load
(b) No load
(c) 1/4 load
(d) Full load

Q143. In lap winding, the number of parallel paths are always:

(a) Same as the number of poles
(b) Half the number of poles
(c) Double the number of poles
(d) Two

Q144. Three identical resistors are first connected in a star and then in a delta configuration. The ratio of power consumption in the first combination to the second will be:

(a) 1/√3
(b) 1
(c) 1/3
(d) 3

Q145. The complement of (A.B) is:

(a) Complement of A + Complement of B
(b) A.B
(c) A + B
(d) Complement of A. Complement of B

Q146. If a 4 –pole induction motor has a speed of 1800 rpm, then the frequency at which the motor is operating is:

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

Q147. From the following parameters, which parameter's variation will not affect the capacitance of the capacitor?

(a) Thickness of the plates
(b) Distance between the plates
(c) Nature of the dielectric
(d) Area of the plates

Q148. The input power of an electric heater that draws 10 A at 230 V supply source is:

(a) 230 W
(b) 2300 W
(c) 23 W
(d) 0 W

Q149. Conduit elbows are usually located at:

(a) The tappings of the connection
(b) Away from walls
(c) Straight runs
(d) Sharp ends

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Q150. Three Identical bulbs are connected in series and these together dissipate power ‘M’. If now the bulbs are connected in parallel, then the power dissipated will be:

(a) M/3
(b) 3M
(c) 9M
(d) m/9

Q151. Overheating of DC motors is mainly due to:

(a) Rough commutator
(b) Overloads
(c) Loose parts
(d) Absence of brushes

Q152. Which of the following is a valid grade for which electric cables are commercially manufactured?

(a) 230/400V
(b) 100/200V
(c) 270/300V
(d) 50/100V

Q153. A three-phase power system with three voltages E_A, E_B and E_C have an equal magnitude and are displaced at ____ from each other.

(a) 100°
(b) 180°
(c) 90°
(d) 120°

Q154. An SCR consists of:

(a) Three PN junction
(b) One PN junction
(c) Two PN junction
(d) No PN junction

Q155. The expression for inductive reactance (X_L) of an AC circuit is:

(a) 2πL
(b) 2πfL
(c) 1/(2π fL)
(d) 2πf

Q156. Among the following, which feature is best suited for insulating materials?

(a) Low melting point
(b) Good current conductivity
(c) High dielectric strength
(d) Low mechanical strength

Q157. Hysteresis loss can be minimized by selecting a material for the core that has:

(a) Low hysteresis coefficient
(b) Low transmission coefficient
(c) Unit hysteresis coefficient
(d) High hysteresis coefficient

Q158. Which one of the following motors is identical to an induction motor?

(a) Synchronous motor
(b) DC series motor
(c) DC compound motor
(d) Asynchronous motor

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Q159. The ripple factor for a full-wave rectifier with capacitor is given by:

(a) frac14√3 fR_L
(b) frac12√3 fCR_L
(c) frac14√3 fCR_L
(d) frac14√3 fC

Q160. In a capacitor start single-phase motor, the motor will continue to run in same direction if the capacitor is replaced by a:

(a) Resistor and inductor
(b) Inductor
(c) None of these
(d) Resistor

Q161. Power consumed in a series RLC circuit can be calculated using:

(a) P = VI cosφ
(b) P = VI
(c) P = IR
(d) P = IR cos φ

Q162. Three resistances of 2 ohms, 3 ohms and 6 ohms are connected in parallel. The total resistance of the combination is:

(a) 11 ohms
(b) 1 ohm
(c) 36 ohms
(d) 3 ohm

Q163. If the voltage drop across individual resistors R1, R2 and R3 connected to a battery are 10 V, 20 V and 30 V respectively. Then the total battery voltage is:

(a) 20 V
(b) 30 V
(c) 60 V
(d) Zero

Q164. A circuit in which resistances are connected end to end so that there is only one path for current to flow is called a _____.

(a) Neither series nor parallel circuit
(b) Series-parallel circuit
(c) Series circuit
(d) Parallel circuit

Q165. In a series R-C circuit, the AC current is:

(a) Lagging behind the applied voltage
(b) Leading the applied voltage
(c) Out of phase with applied voltage
(d) In phase with the applied voltage

Q166. A transformer transfers which of the following parameters?

(a) Current
(b) Frequency
(c) Voltage
(d) Both 1 & 3

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Q167. In the _____ region, a transistor act as an open switch.

(a) Active Region
(b) Saturation
(c) Cut-off region
(d) Inverse active region

Q168. If a resistance of 10 ohms and a capacitance of 1 μF is connected across a 230 V, 50 Hz AC supply, the capacitive reactance of the circuit is

(a) 31.83 Ω
(b) 3.183 Ω
(c) 0.0318 Ω
(d) 3183 Ω

Q169. The ripple factor for a half-wave rectifier with capacitor is given by:

(a) r=frac1√3 fCR_L
(b) r=frac14√3 fR_L
(c) r=frac14√3 fCR_L
(d) r=frac12√3 fCR_L

Q170. In a balanced three-phase star connected system, if the line current is 30 A, then its phase current is:

(a) 15 A
(b) 17.3 A
(c) 30 A
(d) 51.9 A

Q171. What is the surge impedance of cable?

(a) 5 Ω
(b) 20 Ω
(c) 10 Ω
(d) 50 Ω

Q172. Conductance is defined as reciprocal of:

(a) Resistance
(b) Capacitance
(c) Susceptance
(d) Inductance

Q173. The unit of sensitivity of an instrument is:

(a) ampere/sec
(b) volt/ohm
(c) volt-amp
(d) ohm/volt

Q174. Form factor is the ratio of

(a) Average value to peak value
(b) Peak value to Average value
(c) Average value to RMS value
(d) RMS value to Average value

Q175. Peak inverse voltage for a full wave rectifier is

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

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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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