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Answer-key & Solution

SSC JE (Electrical)
MOCK -(128)
Date:- 23.12.2017

1. C	26. D	51. D	76. B	101 A	126 B	151 C	176 D
2. D	27. A	52. C	77. A	102 D	127 C	152 B	177 A
3. B	28. C	53. B	78. B	103 C	128 D	153 D	178 C
4. D	29. A	54. B	79. C	104 D	129 A	154 A	179 D
5. B	30. B	55. D	80. B	105 D	130 C	155 C	180 A
6. A	31. B	56. A	81. C	106 A	131 D	156 D	181 A
7. D	32. D	57. D	82. C	107 D	132 C	157 D	182 C
8. D	33. B	58. B	83. B	108 B	133 A	158 A	183 B
9. A	34. C	59. C	84. C	109 D	134 B	159 D	184 D
10. D	35. D	60. C	85. B	110 D	135 B	160 A	185 B
11. C	36. A	61. C	86. C	111 B	136 C	161 A	186 B
12. A	37. B	62. D	87. C	112 C	137 D	162 C	187 A
13. B	38. D	63. D	88. C	113 A	138 B	163 B	188 B
14. D	39. C	64. A	89. C	114 D	139 C	164 C	189 A
15. D	40. B	65. D	90. C	115 A	140 C	165 A	190 C
16. A	41. C	66. A	91. B	116 D	141 B	166 D	191 D
17. C	42. A	67. B	92. D	117 C	142 A	167 C	192 B
18. D	43. D	68. C	93. D	118 B	143 B	168 C	193 A
19. B	44. C	69. B	94. C	119 B	144 C	169 B	194 B
20. D	45. C	70. A	95. D	120 B	145 B	170 A	195 A
21. B	46. D	71. B	96. D	121 A	146 C	171 B	196 C
22. A	47. D	72. A	97. C	122 A	147 A	172 B	197 B
23. D	48. B	73. A	98. B	123 C	148 A	173 D	198 B
24. B	49. A	74. C	99. C	124 B	149 D	174 B	199 B
25. C	50. C	75. C	100. A	125 A	150 D	175 D	200 A

Note : *If your opinion differ regarding any answer, please message the mock test and Question number to 9560620353*

Note : *If you face any problem regarding result or marks scored, please contact : 9313111777*

SOLUTION SSC JE (Elecrtrical) MOCK TEST no. 128

1. (C) Traffic runs on roads, similarly Bloods runs in Veins
2. (D) Pride is antonym of humility. Similarly, desire is opposite to **indifference**.
3. (B) First is moved with the help of second.
4. (D) Much corresponds to measuring and Many correspond to **Counting**.
5. (B) One is antonym of the other.
6. (A) As, $61 = (4)^3 - 3$, $121 = (5)^3 - 4$, $337 = (7)^3 - 6$
Therefore, ? = $(6)^3$ - 5 = 211

7. (D) As, B Reverse Y, L Reverse O, O Reverse L, C Reverse X, K Reverse P, E Reverse V, D Reverse W
Similarly, **L** Reverse O, **A** Reverse Z, **U** Reverse F, **N** Reverse M, **C** Reverse X, **H** Reverse S

8. (D) As, P S Q R : C F E D (−1; +1 +1 : −1 −1; +1)
Similarly, J M K L : **W Z Y X** (−1; +1 +1 : −1 −1; +1)

9. (A) As, Q −4→ M, I +4→ M, O −4→ K, K +4→ O
Similarly, Y −4→ **U**, A +4→ **E**, W −4→ **S**, C +4→ **G**

10. (D) 08 → 0+8 = 8; 28 → 2+8 = 10 (+2)
Similarly, 27 → 2+7 = 9; **65** → 6+5 = 11 (+2)

11. (C) All others are internal organs.

12. (A) All except **Barber** requires raw material to work.
13. (B) All except **Peel** are different ways of cooking
14. (D) All except **Cabbage** grow underground.
15. (D) All other can be used to answer "**where**".
16. (A) All except cot are the part of bed-spread.
17. (C) Sqr (7) = 49, Rev (49) = 94 Hence 794
Sqr (6) = 36, Rev (36) = 63 Hence 663
Sqr (4) = 16. Rev (49) = 94 Hence 794
Whereas **458** does not follow the same rule.

18. (D) 3134 → 3×4 = 12 ⇒ 12 + 1 = 13; 2157 → 2×7 = 14 ⇒ 14 + 1 = 15; 5163 → 5×3 = 15 ⇒ 15 + 1 = 16; **9384** → 9×4 = 36 ⇒ 36 + 1 = 37 ≠ 38

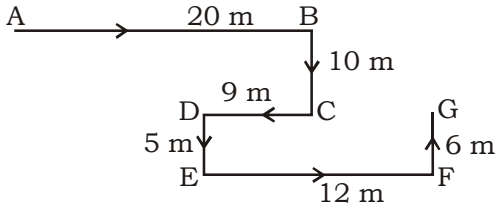
19. (B) Rev (K) = P, Rev (G) ≠ R, Rev (U) = F and Rev (M) = N

20. (D) After reading the question, we have :
B + 8 = C – (i)
A – 8 = C – 3 – (ii)
A + 6 = 2D – (iii)
B + D = 50 – (iv)
Putting C = A -5 from (ii) into (i), we have :
B + 8 = A – 5 or A – B = 13 – (v)
Putting D = 50-B from (iv) and (iii), we have :
A + 6 = 100 – 2B or A + 2B = 94 –(vi)
Solving (v) and (vi), we get
B = 27 and A = 40

21. (B) After changing the signs we have,
91 ÷ 7 – 4 × 2 + 3 = 13 – 4 × 2 + 3
= 13 – 8 + 3 = 16 – 8 = **8**

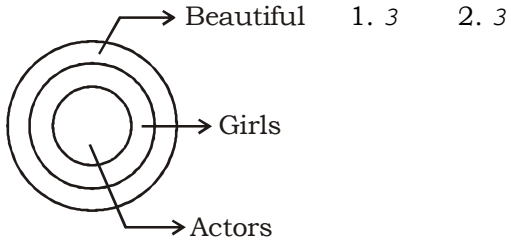
22. (A) Harsh is the single child of parent.
Wife of father's son means his wife
His wife is the mother of the person whose portrait is there.
So, the portrait is of his child.

23. (D) S I K K I M T H L J J L (+1 −1 +1 −1 +1 −1)
Similarly,
T R A I N I N G **U Q B H O H O F** (+1 −1 +1 −1 +1 −1 +1 −1)

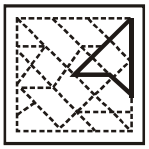
24. (B) 

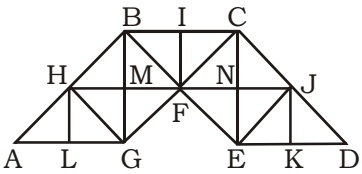
Now the dog is facing the North direction.

25. (C) Clearly, from 1 to 100, there are ten numbers with 3 as the unit's digit (3, 13, 23, 33, 43, 53, 63, 73, 83, 93).
Ten numbers with 3 as the ten's digit (30, 31, 32, 33, 34, 35, 36, 37, 38, 39).
So, required number = 10 + 10 = 20.

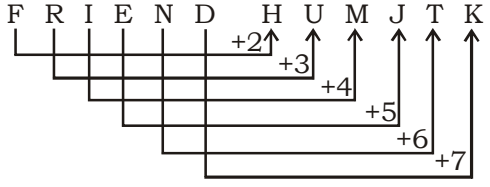
26. (D) 

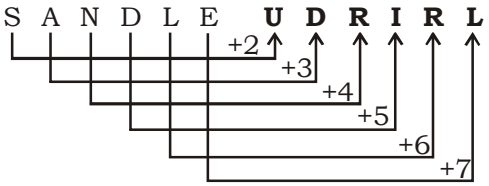
Both (1) and (2) follows

27. (A) 

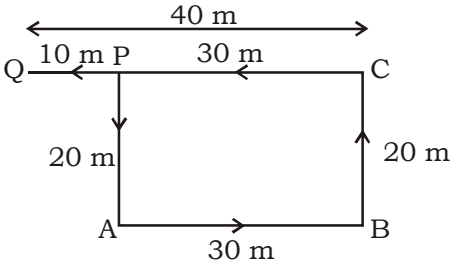
28. (C) The figure may be marked as shown.


The simplest triangles are AHL, LHG, GHM, HMB, GMF, BMF, BIF, CIF, FNC, CNJ, FNE, NEJ, EKJ and JKD i.e. 14 in number.
Triangles composed of two components are AGH, BHG, HBF, BFG, HFG, BCF, CJF, CJE, JEF, CFE and JED i.e. 11 in number.
Triangles composed of four components are ABG, CBG, BCE and CED i.e. 4 in number.
Total number of triangles in the given figure = 14 + 11 + 4 = 29.

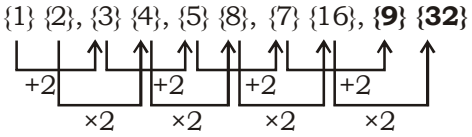
29. (A) 

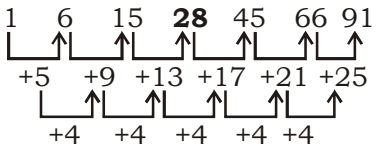
Similarly,


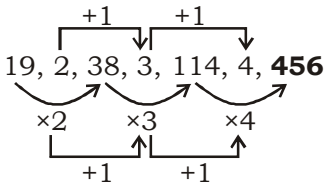
30. (B) Capitain is also one of the member of a group.
So, we can say that in 16 persons one captain is also included.
∴ The number of captains = 1200/16 = 75

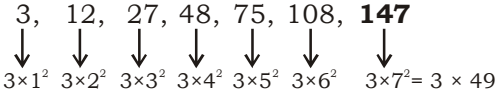
31. (B) 

Distance from the P to Q is 10 metres and direction of Q with reference to to P is West.

32. (D) Below mentioned are the two series which we can observe here :–


33. (B) 

34. (C) 

35. (D) 

36. (A) From Ist and IVth dice, after moving in a clockwise direction we have,
Yellow Blue Orange
↓ ↓ ↓
Yellow Rose Red
Here, violet colour is missing as it is opposite to yellow.

37. (B) Let Sunita's present age = x years
Then Reena present age = $2x$ years
Three years ago
$(2x - 3) = 3(x - 3)$
$2x - 3 = 3x - 9$
$\Rightarrow x = 6$
Reena's age = $2x = 2 \times 6 = 12$ years.

38. (D) Use the formula $\frac{M_1D_1H_1}{W_1} = \frac{M_2D_2H_2}{W_2}$.

Where M = Number of cats.
D = Number of days.
W = Number of mice. (Here 'eating mice' is the a work)
Now, Let 4 cats would kill 4 mice in x days.

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

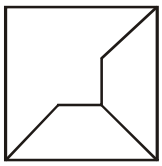
So, 4 cats would kill 4 mice in 100 days.

39. (C) $(6 + 5) - (7 + 4) =$ **0**
and $(7 + 6) - (8 + 4) =$ **1**
Therefore $(11 + 2) - (2 + 0) =$ **11**.

40. (B) $(15 + 12)/9 =$ **3**
and $(44 + 28)/9 =$ **8**
Therefore, $(64 + 53)/9 =$ **13**.

41. (C) $(30 - 24) \times 8 =$ **48**
and $(23 - 12) \times 8 =$ **88**
Therefore, $(92 - 86) \times 8 =$ **48**.

42. (A) Wheat and Paddy are different from each other but Wheat is a Rabi-Crop.

44. (C) 

51. (D) Ujjain (Avanti, Avantikapuri), an ancient city of Malwa region is in central India on the eastern bank of the Kshipra River. Today it is the part of the state of Madhya Pradesh. Avanti with its capital at Ujjaini is mentioned in Buddhist literature as one of the four great powers along with Vatsa, Kosala and Magadha.

52. (C) In Haryana, the Bharatiya Janata Party and the Indian National Lok Dal won all the ten seats, with each party winning 5 each.

53. (B) Nandgaon is a city and a municipal council in Nashik district in the Indian state of Maharashtra. There are two important dams in Nandgaon taluka. One is Girana Dam under major project and another is Nagya-sakya under medium project.

54. (B) The preamble to the Constitution of India is a brief introductory statement that sets out the guiding purpose and principles of the document. As originally enacted the preamble described the state as a "sovereign democratic republic". In 1976 the Forty second Amendment changed this to read "sovereign socialist secular democratic republic".

55. (D) Jim Corbett National Park is the oldest national park in India. The park has been named after the hunter and conservationist Jim Corbett who played a key role in its establishment. It was established in 1936 as Hailey National Park which is situated in Nainital district of Uttarakhand. The park acts as a protected area for the endangered Bengal tiger of India, the secure survival of which is the main objective of Project Tiger, an Indian wildlife protection initiative.

56. (A) The Ajanta Caves is in Aurangabad district of Maharashtra. The caves include paintings and sculptures considered to be masterpieces of Buddhist religious art (which depict the Jatak tales). The Ajanta cave paintings depict the life of Gautam Buddha.

57. (D) Steel Authority of India Limited is one of the largest state-owned steel-making company based in New Delhi (India) and it is one of the top steel makers in World. Major plants owned by SAIL are located at Bhilai, Bokaro, Durgapur, Rourkela, Burnpur (near Asansol) and Salem.

58. (B) The money bill originates only in the Lok Sabha. No money bill can be introduced in the Lok Sabha without the prior approval of the president.

59. (C) English education was officially introduced in India in 1935 by Governor-General William Bentinck. The English Education Act was a legislative Act of the Council of India in 1835 giving effect to a decision in 1835 by William Bentinck.

60. (C) 'Part III - Fundamental Rights' is a charter of rights contained in the Constitution of India. It guarantees civil liberties such that all Indians can lead their lives in peace and harmony as citizens of India. These include individual rights which is common to most liberal democracies such as equality before law, freedom of speech, expression and peaceful assembly, freedom to practice one's own religion, and the rights by means of writs such as habeas corpus.

62. (D) Disposable income is total personal income minus personal current taxes. In national accounts definitions, personal income minus direct taxes equals disposable personal income.

64. (A) The modern Indian Forest Service was created on 1st July 1966 under the All India Services Act 1951 for protection, conservation and regeneration of forest resources. It is one of the three All India Services of the Government of India.

67. (B) Ibn Batuta (also known as Shams-ud-din) was a Berber Muslim Moroccan explorer. He was known for his extensive travelling.

74. (C) The Reserve Bank has introduced banknotes in the Mahatma Gandhi Series since 1996 and has so far issued notes in the denominations of Rs. 5, Rs. 10, Rs. 20, Rs. 50, Rs. 100, Rs. 500 and Rs. 1000 in this series. Mahatma Gandhi series of Rs. 50 notes has the picture of Parliament of India on its reverse.

78. (B) The 'NOSHADE' attribute in HTML specifies that a horizontal line should render in one solid color (on shaded), instead of a shaded color. So, it displays the line in red.

79. (C) The first Law Commission was established in 1834 under the Charter Act of 1833 under the Chairmanship of Lord Macaulay which recommended codification of the Penal Code, the Criminal Procedure Code and a few other matters. Thereafter, the second, third and fourth Law Commissions were constituted in 1853, 1861 and 1879 respectively.

80. (B) The Minimum Wages Act, 1948 was enacted to safeguard the interests of workers, mostly in the unorganised sector for the fixation of minimum wages in certain specified employments. It binds the employers to pay their workers the minimum wages fixed under the Act from time to time. Under the Act, both the Central Government and the State Governments are the appropriate Governments to fix, revise, review and enforce the payment of minimum wages to workers in respect of 'scheduled employments' under their respective jurisdictions.

81. (C) Changes in weather involve air movements, formation of clouds, and precipitation. Energy is needed to make all these things happen. The energy comes from the sun. Heat energy enters and moves through the atmosphere in three different ways. One of the way through which heat energy is transferred is radiation. Hot bodies (The sun) radiate their energy mainly in the form of short waves. These short waves are seen as visible light. Cooler bodies such as Earth radiate their energy as longer waves.

82. (C) A continent sized hole has been formed over Antarctica as a result of damage to the ozone layer. Most of the ozone is formed in the stratosphere over the equator and spreads by winds around the globe. Icy particles in polar stratospheric clouds catalyse the release of chlorine (from CFC) which destroys ozone. The formation of Ozone hole is maximum because in winter there is exceptionally cold.

83. (B) Eugen Steinach discovered the sex hormones in 1922. He conducted experiments in the transplantation of a male guinea pig's, testes into a female and the castration of the male. Now the testes secretion is known as testosterone resulted in the female guinea pig developing male sexual behaviour such as mounting the partner. This led steinach to theorize that the gland's secretions were responsible for sexuality.

84. (C) The most prevalent bulk material for solar cells is crystalline silicon (abbreviated in a group as c-Si,). It is also known as "solar grade silicon".

85. (B) All true crabs have 10 legs that are arranged in pairs. The front most is modified into pincers and other four pairs are used for locomotion. For some swimming crabs, the hindmost pair of legs is flattened to form paddles.

86. (C) A hydrogen balloon floats up because weight of balloon is less than the weight of air displaced by it. When an object is less dense than a fluid, then the object will float as the buoyant force exerted on the object by the fluid is greater than the force of gravity on the object.

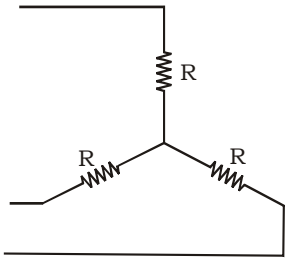
89. (C) Robert Koch was a German physician. He became famous for isolating Bacillus anthracis (1877), the Tuberculosis bacillus (1882) and Vibrio cholerate (1883) and his development of Koch's postulates. He was awarded the Nobel Prize in Physiology or Medicine in 1905 for his findings in tuberculosis. He is considered one of the founders of microbiology.

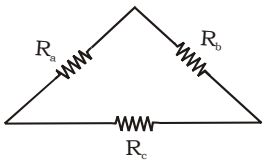
93. (D) Open circulatory system is the one in which blood does not circulate only inside blood vessels, but it also falls in cavities that irrigate tissues. The internal organs are suspended in a network of blood-filled sinuses or open spaces which collectively form the haemocoel.

97. (C) Polytetrafluoroethylene (PTFE) is a synthetic fluoropolymer of tetrafluoroethylene that finds numerous applications. The best known brand name of PTFE is Teflon. PTFE is used as a non-stick coating for pans and other cookware as it is hydrophobic and possesses fairly high heat resistance.

99. (C) It is because the night side of Earth will radiate infra-red radiation (heat) back into the space. When there is cloud cover, the clouds act like a blanket and trap the heat just like a blanket traps heat close to our body.

101. (A)





$$R_a = R + R + \frac{R \times R}{R} = 3R$$

Similarly $R_a = R_b = R_c = 3R$

107. (D)

$R_2 \times 10\text{ mA} = R_3 \times 40\text{ mA}$

$100 \times 10^3 \times 10 \times 10^{-3} = R_3 \times 40 \times 10^{-3}$

$\boxed{R_3 = 25\ \text{k}\Omega}$

108. (B)

As per Millman's theorem :

$$E_{eq.} = \frac{\Sigma E_i Y_i}{\Sigma Y_i}$$

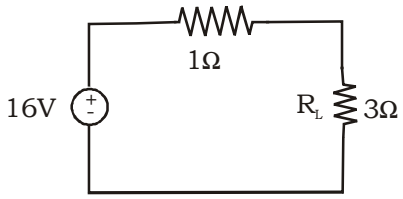
$$E_{eq.} = \frac{(8 \times 1/3 + 16 \times 1/3 + 24 \times 1/3)}{(1/3 + 1/3 + 1/3)}$$

$$E_{eq.} = \frac{1}{3}(8 + 16 + 24) = 48/3 = 16\ \text{V}$$

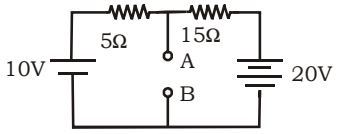
$$Y_{eq} = \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1\ \Omega$$

$$Z_{eq} = \frac{1}{Y_{eq}} = 1\ \Omega$$

$R_L = 3\ \Omega$ (Given)



112. (C)



$V_{th} = V_{AB} = V_{AB;10V} + V_{AB;20V}$

$= (7.5 + 5) = 12.5\ \text{V}$

$$R_{th} = \frac{15 \times 5}{15 + 5} = \frac{75}{20} = 3.75\ \Omega$$

113. (A)

$i(t) = i(\infty) + [i(0) - i(\infty)]e^{-t/\tau}$

Where $\tau = L/R$

at t = 0 ; Inductor $\rightarrow$ O.C.

at t = ∞ ; Inductor $\rightarrow$ S.C.

$i(t) = 10 + [0 - 10]e^{-t \times \frac{1}{0.01}}$

$\boxed{i(t) = 10 - 10e^{-100t}}$

114. (D)

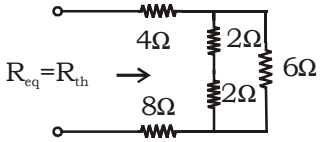
Energy, E = I × V × t

1 kwh = 1 unit

$1000 \times h = 15 \times 230 \times t$

$t = 0.289\ h \simeq 0.29\ h$

115. (A)

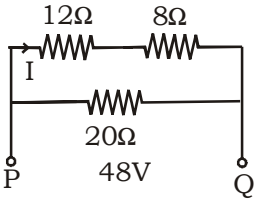


$R_{eq} = R_{th}\ (4\ ||\ 6) + 4 + 8 = 14.4\ \Omega$

117. (C)

$$V_{14.5\Omega} = 200 \times \frac{14.5}{14.5 + 25.5 + 60} = 29 \text{ V}$$

118. (B)



$$I = \frac{48}{20} = 2.4\ A$$

$$\boxed{I_{8\Omega} = 2.4\ A}$$

122. (A)

$$R_{eq} = \frac{1}{\frac{1}{2} + \frac{1}{4} + \frac{1}{5} + \frac{1}{20}} = \frac{1}{\frac{10 + 5 + 4 + 1}{20}}$$

$$R_{eq} = 1\ \Omega$$

123. (C)

$$8 = \frac{100}{(5 + R)}$$

$40 + 8\ R = 100$

$8\ R = 60$

$$\boxed{R = 7.5\ \Omega}$$

124. (B)

$R_{eq} = 20\ \Omega$; $I = 10/20 = 0.5$

$P_{consumed} = I^2R = (0.5)^2 \times 20 = 0.25 \times 20$

$= 5.00 = 5$ Watts

130. (C)

The alternator will contribute its rated power which has lower drop.

So, Power contributed by A_2 (alternator 2) will be 200 kW.

At 3% speed regulation,

System frequency = 48.5 Hz (if supply frequency = 50 Hz)

At this frequency load contribution by alternator 1 (A_1),

$$P = P_{rated}\left(\frac{F_{no\text{-}load} - f}{F_{no\text{-}load} - f\ f_{ull\text{-}load}}\right)$$

$$= 300\ kW \times \left(\frac{50 - 48.5}{50 - 48}\right)$$

$$= 300\ kW \times \frac{1.5}{2}$$

$$= 300\ kW \times \frac{3}{4} = 225\ kW$$

So, Total load that can be taken

= 200 kW + 225 kW = 425 kW

137. (D)

$$\frac{\Delta_{Phase}}{Y_{Phase}} = \frac{a}{1}$$

So, $\frac{\Delta_{Line}}{Y_{Line}} = \frac{\Delta_{Phase}}{\sqrt{3}\ \lambda_{Phase}} = \frac{a}{\sqrt{3}}$

So, $\frac{Y_{Line}}{\Delta_{Line}} = \frac{\sqrt{3}}{a}$

140. (C)

$V_t = 150$

$E_b = 142$

$R_a = 0.4$

$$I = \frac{V_t - E_b}{R_a} = \frac{8}{0.4} = 20\ A$$

169. (B)

PMMC reads average value,

$$V_{PMMC} = \frac{1}{T}\int_0^T V(t)dt$$

$$= \frac{1}{16} \times (4 \times 10)$$

= 2.5 Volt

PMMC rectifier will read,

V_{PR} = 1.11 × avg value of PMMC

= 1.11 × 2.5

= 2.75

M.I. instrument will read rms value,

$$V_{MI} = V_{rms} = \frac{10}{2} = 5 \text{ Volt}$$

173. (D)

Actual power in the circuit

= Multiplier factor × Meter reading

$= m_1 \times m_2 \times P_m$

$= 2 \times 2 \times 2000$

= 8000 Watts

174. (B)

Given, W_1 = 11 kW, W_2 = 0 kW

We know,

$$\tan\phi = \frac{\sqrt{3}(W_1 - W_2)}{(W_1 + W_2)}$$

$$\tan\phi = \frac{\sqrt{3}(11 - 0)}{(11 + 0)}$$

$$\tan\phi = \sqrt{3}$$

$$\boxed{\phi = 60^\circ}$$

Power factor of load,

$\cos\cos\phi = \cos 60^\circ$

$$\boxed{\cos\phi = 0.5}$$

175. (D)

The value of unknown resistance X,

$$\frac{\text{Voltmeter reading (new)}}{\text{Voltmeter reading (old)}} = \frac{\text{Meter Resistance}}{\text{Meter Resistance + Unknown Resistance}}$$

$$\frac{4}{24} = \frac{50K}{50K + X}$$

$$X = 50K \times \frac{124}{4} - 50K$$

$$X = 1500\ K\Omega \text{ or } 1.5\ M\Omega$$

176. (D)

Sensitivity = 1000 Ω/Volt

Full scale voltage = 100 Volt

Hay scale voltage = $\frac{100}{2}$ = 50 Volt

Resistance of voltmeter = 1000 Ω/Volt × 100 Volt = 100 kΩ

Current through the voltmeter at half scale,

$$I = \frac{50}{100\ K\Omega}$$

$$\boxed{I = 0.5\ m \text{ Amp}}$$

178. (C)

For 3 bit, 000-999 will be the range.

For $\frac{1}{2}$ bit, MSB will be 1 or 0.

So, the largest number that can be measured by $3\frac{1}{2}$ volt meter, will be 1999.