Answer-key & Solution

SSC JE (Electrical)
MOCK - (136)
Date:- 07.4.2018

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

Note : *If your opinion differ regarding any answer, please message the mock test and Question number to 9821756838*

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

SOLUTION SSC JE (Elecrtrical) MOCK TEST no. 136

1. (C) First is the Antonym of second
2. (A) $2 \times 3 \times 4 = 24$, $3 \times 2 \times 5 =$ **30**
3. (A) $7 + 2 + 3 = 12 \Rightarrow 1 + 2 = 3$
$8 + 2 + 4 = 14 \Rightarrow 1 + 4 =$ **5**
4. (B)

S R T K   M O P S
$\downarrow$+1 $\downarrow$+1
T S U L   **N P Q T**

5. (D) Temple, Mosque and Gurudwara are places to **Worship.**
6. (C) Except **(28,54)**, others are multiple of 8
7. (D)

A B C E   M N O Q
+1 +1 +2   +1 +1 +2

D E F H   **P Q R U**
+1 +1 +2   +1 +1 +3

8. (B) Except 'O', all are vowels.
9. (C) M I N I S T **E** R (letter E not present)
10. (C)

D $\xleftarrow{Couple}$ B $\xrightarrow{Sister}$ A
Daughter
G $\leftarrow$ Niece

So, 'G' is the niece of 'A'.
11. (B) $4 \times 8 = 32$
$6 \times 3 = 18$
$5 \times 4 =$ **20**
12. (B) $4 \times 6 + 5 = 29$
$3 \times 5 + 3 = 18$
$2 \times 6 + 4 =$ **16**
13. (C) $12 + 24 + 36 = 18 + 30 + 24 = 19 + 13 +$ **40** $= 72$
14. (D)
15. (C)

R A T F O G
+3 +2 +2 +3 +2 +2
U C V **I Q I**

16. (A)

3   6   9   18   36   42   **48**
  +3 +3 ×2   ×2   +6   +6

17. (D)

12   24   72   **288**   1440
   ×2   ×3   ×4   ×5

18. (C) NEAR $\rightarrow$ NEAT $\rightarrow$ **NECK** $\rightarrow$ NEED $\rightarrow$ NEST
19. (C) **R** > G > M > S or R > M > G > S
So, Ram is the oldest among them.
20. (D) $I = 9 \Rightarrow 9 \times 2 = 18$
$G = 7 \Rightarrow 7 \times 2 = 14$
$B + E + D = 2 \times 2 + 2 \times 5 + 2 \times 4$
$= 4 + 10 + 8 =$ **22**
22. (B) Average Speed
$= \dfrac{2 \times 30 \times 20}{30 + 20}$
$=$ **24km/hr**
23. (B) $8 A 8 B 8 C 8 = 8 + 8 - 8 \times 8$
$= 8 + 8 - 64$

$= -48$
Hence, option (B) is correct.
26. (D) Fail and Pass are opposite to each other and, Disease and **Healthy** are opposite to each other.
27. (C) As $95 \times 11 = 1045$.
Similarly, $85 \times 11 =$ **935**
28. (C) As, A F J Similarly, **D J N**
$\downarrow$+5 $\downarrow$+5 $\downarrow$+5 $\downarrow$+5 $\downarrow$+5 $\downarrow$+5
F K O   I O S
29. (C) As, INDIA is a country of ASIA. Similarly, **BRAZIL** is a country of SOUTH AMERICA.
30. (D) **Physics** is different from others.
31. (C)

A B C D   P Q R S
+1 +1 +1   +1 +1 +1

W X Y Z   **I J K M**
+1 +1 +1   +1 +1 **+2**

32. (D) **126** is not multiple of 13.
33. (C) The sum of **97998** is not equal to 44.
34. (A) Adminiculum $\rightarrow$ Administer $\rightarrow$ Administraction $\rightarrow$ Administrate.
35. (A) $\dfrac{(32 \div 8) - 5 + 10}{9 + 2 \div 2}$
Change the sign as per the given details,
$\dfrac{(32 + 8) \div 5 \times 10}{9 \times 2 + 2} =$ **4**
36. (B) $150 - 30 = 120$
$120 - 29 = 91$
$91 - 28 = 63$
$63 - 27 =$ **36**
37. (C) $(99/9)^2 = 121$
$(95/5)^2 = 361$
$(105/\mathbf{3})^2 = 1225$
38. (A) $9 \times 9 - 5 \times 5 = 56$
$8 \times 8 - 4 \times 4 = 48$
$5 \times 5 - 2 \times 2 =$ **21**
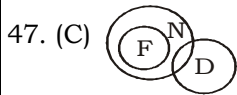39. (D) From fig. (ii) and (iii),
5 1 3
5 6 4
$\therefore$ "**3**" is opposite to the "4"
40. (A) As in INTERNET, all letters are arranged in alphabetical order i.e. EEINNRTT. Similarly, in NATIONAL, **AAILNNO** is the correct answer.
41. (D) **NOTION**
42. (B) $105 + 100 = 205$
$205 + 90 = 295$

295 + 80 = 375
375 + 70 = **445**

43. (A) 1 × 2 = 2
2 × 2 = 4
4 × 2 = 8
8 × 4 = **32**

44. (A)

45. (D)

46. (C) A B C D **E** F

47. (C)
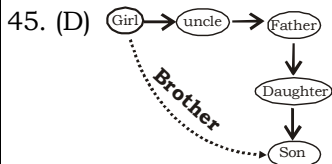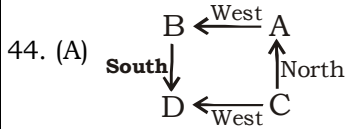
F = Fruit
N = Night
D = Days
I False
II True

49. (A)

51. (C) The world famous one of the largest herbarium in India is situated at the Indian Botanical Garden, Kalkaska. This herbarium is the largest herbarium of east. It is famous for the 'Great Banyan tree.' The largest herbarium in the world, at the museum national d'histoire naturally is in Paris, France.

52. (D) Srishti Kaur from India has been crowned Miss Teen Universe 2017 at the Ruben Dario National Theater in Managua, the capital of Central American country Nicaragua. She also won the Best National Costume Award at the prestigious pageant, which featured a peacock – the Indian national bird. Kaur succeeded Nieveles Gonzalez from Puerto Rico as the Miss Teen Universe. Apart from her, Xirelle Agustin from the Philippines won in the Teen Popularity category, while Nicole Obando from Costa Rica won the award for Teen Charm. The pageant is organized by the Miss Universe organization for teens aged 15 to 19.

53. (C) The Constituent Assembly met for the first time in New Delhi on 9 December, 1946 in the Constitution Hall which is now known as the Central Hall of Parliament House. On 29 August, 1947, the Constituent Assembly set up a Drafting Committee under the Chairmanship of Dr. B.R. Ambedkar to prepare a Draft Constitution for India.

54. (B) Consumer Price Index Number for Industrial Workers (CPI (IW)) is released by the Labour Bureau. Labour Bureau is responsible for the collation, collection and publication of statistics and related information on wages, earnings, productivity, absenteeism, labour turn-over, industrial relations, working and living conditions and evaluation of working of various labour enactments etc.

55. (A) The World Day for Animals in Laboratories (also known as World Lab Animal Day (WLAD)) is observed every year on April 24 to mark the birthday of former National Anti-Vivisection Society (NAVS) president Hugh Dowding. Today the event is marked by demonstrations and protests by groups opposed to the use of animals in research. The day is not included on the official list of United Nations observances.

56. (D) The corona is the outermost layer of the Sun, starting at about 1300 miles (2100 km) above the solar surface (the photosphere). The temperature in the corona is 500,000 K (900,000 degrees F, 500,000 degrees C) or more, up to a few million K. The corona cannot be seen with the naked eye except during a total solar eclipse, or with the use of a coronagraph.

57. (B) Eight of the water-soluble vitamins are known as the vitamin B-complex group: thiamin (vitamin B1), riboflavin (vitamin B2), niacin (vitamin B3), vitamin B6 (pyridoxine), folate (folic acid), vitamin B12, biotin and pantothenic acid. The B vitamins are widely distributed in foods, and their influence is felt in many parts of the body. They function as coenzymes that help the body obtain energy from food. Vitamin (A), (D), (E) and (K) are fat soluble.

58. (C) Hydrogen Peroxide is a total chlorine free (TCF) bleaching agent. The chemical formula of this bleach is H_2O_2. Pure hydrogen peroxide is very light blue color but colorless in solution. It is the use of this bleaching agent increased

significantly in the pulp and paper industry due to easy to use, lower production costs, improved paper quality, increased yield percentage and environmental friendly.

60. (D) Kasinadhuni Viswanath (87), the renowned actor-director, has been named for the prestigious 2016 Dada Saheb Phalke award for his outstanding contribution to the film industry. He is an icon in the film industry and known for classical and traditional art, music and dance. The award will be conferred by President Pranab Mukherjee at a function on May 3 at Vigyan Bhawan in New Delhi.

61. (B) Gandhara School was based on Greco-Roman norms encapsulating foreign techniques and an alien spirit. It is also known as Graeco-Buddhist School of art.

The foreign influence is evident from the sculptures of Buddha in which they bear resemblance to the Greek sculptures. Grey sandstone (Blue-grey Mica schist to be precise) is used in Gandhara School of Art.

63. (C) The Constitution of India provides Fundamental Rights under Chapter III. Article 21. Protection of Life and Personal Liberty: No person shall be deprived of his life or personal liberty except according to procedure established by law.

64. (C) The food manufactured in the leaves is translocated upwards, downwards and laterally to all parts of the plant through the phloem. The phloem also conducts some other substances such as amino acids. The conducting cells of the phloem are cylindrical cells called sieve tubes, which have sieve like partitions at both ends. These partitions are called sieve plates.

65. (C) The National Development Council (NDC) or the Rashtriya Vikas Parishad is the apex body for decision making and deliberations on development matters in India, presided over by the Prime Minister. It was set up on 6th August 1952 to strengthen and mobilize the effort and resources of the nation in support of the plan to promote common economic policies in all vital spheres. The Council comprises the Prime Minister, the Union Cabinet Ministers, and Chief Ministers of all States or their substitutes, representatives of the Union Territories and the members of the NITI Aayog.

67. (D) Net neutrality is the principle that Internet service providers and governments regulating the Internet should treat all data on the Internet the same, not discriminating or charging differentially by user, content, website, platform, application, type of attached equipment, or mode of communication.

68. (C) The Central Armed Police Forces (CAPF) refers to uniform nomenclature of five security forces in India under the authority of Ministry of Home Affairs (MHA). They are the Border Security Force (BSF), Central Reserve Police Force (CRPF), Central Industrial Security Force (CISF), Indo-Tibetan Border Police (ITBP) and Sashastra Seema Bal (SSB). Recently, Rajiv Rai Bhatnagar, the 1983 batch of the Uttar Pradesh cadre IPS officer, has been appointed the new Director General of the CRPF.

69. (C) There was no official language as such during the period of Akbar the Great because there was no country called India.Then, it was called Mughal Sultanate. Coming to the language, Persian was used in the Court of Akbar for all the administrative purposes.

70. (B) The Param Vir Chakra (PVC) is India's highest military decoration awarded for the highest degree of valour or self-sacrifice in the presence of the enemy, similar to the British Victoria Cross, US Medal of Honour, Pakistani Nishan-e-Haider, or French Legion of Honor or Russian Cross of St. George.

74. (D) The definition and meaning of general equilibrium in economics is a perfect state, when demand and supply are equal to each other, they are in balance – in perfect harmony. The term is also known as Walrasian general equilibrium. The general equilibrium analysis was developed by Leon Walras (1834-1910), a French mathematical economist and Georgist.

76. (B) The geostationary satellite is a satellite having a time-period of 24 hours. Using this time-period, the height of the satellite comes out to be approximately 35,800 km. FM broadcasting is a broadcast technology pioneered by Edwin Howard Armstrong that uses frequency modulation (FM) to provide high-fidelity sound over broadcast radio. FM transmission is quite immune to noise as compared to AM transmission. Noise is a form of amplitude variations in the transmitted signal due to atmosphere, industries, etc.

77. (D) Anthony Lianzuala, a 1982-batch Indian Civil Accounts Service (ICAS) Officer, took

over as the new Controller General of Accounts (CGA) in New Delhi on May 1, 2017. With this, he became the first person from the North-Eastern Region to hold this position. The CGA is the apex Accounting Authority of the Central Government and exercises the powers of the President under Article 150 of the constitution for prescribing the forms of Accounts of the Union and State Governments on the advice of the Comptroller & Auditor General of India.

79. (A) According to the Swachh Bharat survey 2017, Indore city of Madhya Pradesh has bagged the first position in the top ten clean cities of the country. Bhopal has acquired second position, followed by Visakhapatnam, Surat, Mysuru, Tiruchirapally, New Delhi Municipal Council, Navi Mumbai, Vadodara and Chandigarh. The survey was carried out by the Quality Council of India (QCI), which had deployed 421 assessors for on the spot assessment of 17,500 locations in 434 cities and towns.

80. (D) The world's highest railway bridge will come up over Chenab River in Jammu and Kashmir (J& K), which is expected to be completed in 2019. The bridge will form a crucial link in the 111-km stretch between Katra and Banihal, which is part of the Udhampur- Srinagar-Baramu rail link project. Once completed, it will surpass the record of the Beipan river Shuibai railway bridge (275 m) in China.

81. (C) Salmon is a large fish with silver skin and pink flesh that is used for food. Salmons live in the sea but swims up rivers to lay their eggs. A fish with reddish or pinkish flesh that is often caught for sport or food and lives most of its life in the ocean but swims up rivers or streams as an adult to deposit or fertilize eggs.

82. (C) A hydrogen vehicle is an alternative fuel vehicle that uses hydrogen as its onboard fuel for motive power. The hydrogen vehicle use hydrogen fuel cell for generation of motive power. These fuel cell in which hydrogen serves as a fuel and oxygen as an oxidant emits exhaust of water.

83. (B) Henry Cavendish is credited with discovering hydrogen in 1766 in London, though alchemist Paracelsus in the 1500s and Robert Boyle in 1671 did preliminary work on the subject. However, Cavendish identified hydrogen gas as a discrete substance. In 1783 Antoine Lavoisier provided the name hydrogen, Greek for water former. Hydrogen's atomic number is 1, and its chemical symbol is H. Of all elements on the periodic table, hydrogen is the lightest.

84. (B) The Sualgiri and Swalgiri communities of Odisha have been notified as Scheduled Castes (SC) after President Pranab Mukherjee gave the nod to the Constitution (Scheduled Castes) Order (Amendment) Act, 2017. Now, the SC category status will entitle these communities to reservation in government jobs and admission in educational institutions, besides some other financial benefits. As per the modified list for Odisha, the "Sabakhia, Sualgiri, Swalgiri" are notified Scheduled Castes. The Constitution empowers the president to specify the scheduled castes in states and union territories in a list of notified scheduled castes. It also allows the list to be modified by Parliament. The new law has also replaced the term Union Territory of Pondicherry to Puducherry in the Constitution (Pondicherry) Scheduled Castes Order, 1964.

86. (C) According to the definition adopted by the IAU in 2006, a dwarf planet is, "a celestial body orbiting a star that is massive enough to be rounded by its own gravity but has not cleared its neighbouring region of planetesimals and is not a satellite. It is estimated that there may be 200 dwarf planets in the Kuiper belt of the outer Solar System and possibly more than 10,000 in the region beyond. The International Astronomical Union (IAU) has accepted four: Pluto, Eris, Haumea, and Makemake, as well as Ceres in the inner Solar System.

87. (A) Repo rate also known as the benchmark interest rate is the rate at which the RBI lends money to the banks for a short term. When the repo rate increases, borrowing from RBI becomes more expensive. If RBI wants to make it more expensive for the banks to borrow money, it increases the repo rate. Similarly, if it wants to make it cheaper for banks to borrow money it reduces the repo rate. Current repo rate is 6.25%

Latest RBI Bank Rates in Indian Banking - 2017

SLR	20.5%
CRR	4%
MSF	6.75%
Repo Rate	6.25%
Reverse Repo Rate	5.75%
Base Rate	9.3% - 9.7%

89. (C) • Iron deficiency is the most common nutritional deficiency in the world. Untreated iron deficiency can lead to iron deficiency Anemia. Anemia is a condition characterized by inadequate red blood cells or hemoglobin.

- Vitamin A is important for Eyesight because it is needed to form the pigment rhodopsin. Cells in the retina, known as the rods and cones, need rhodopsin in order to absorb light rays. Rhodopsin is important for all kinds of vision, including "night vision," which allows you to see in low light conditions.

- Vitamin C cannot be made by the human body and so is an essential component of the diet, It is needed for the health and repair of various tissues in your body, including skin bone, teeth and cartilage.

- Calcium deficiency occurs when your body is not receiving enough minerals such as calcium and goes through a process called demineralization. Without this vital alkaline mineral, your body relies on the existing calcium in your bones, teeth, and organs, which leads to calcium deficiency. As we age, our bone density decreases naturally; and since most of our calcium is stored in our bones, our daily requirement for calcium increases.

90. (C) Water hardness can be easily measured using a simple soap test kit that will measure in "grains of hardness" (a little bottle with a line marked on it which you fill to the line with water, add a drop of soap, and shake to look for suds. More drops of soap - more degrees of hardness).

92. (D) Kinetic energy is dependent on the object's mass and velocity. Since kinetic energy is the energy of motion, all objects that have motion have potential kinetic energy. This energy is determined by the size of the object, where the object is and the speed or velocity it is moving at. Kinetic energy is directly proportional to the square of its velocity or speed.

94. (C) The President of India, Pranab Mukherjee has recently attended the 8th Convocation of the Lovely Professional University (LPU) at Phagwara, Punjab on May 2, 2017. The LPU is a semi-residential university college in North India created under the Punjab State Private University Act 2005 and recognized by UGC under Section 2(f) of UGC Act 1956. LPU offers around 200 programmes and courses at diploma, undergraduate, graduate, postgraduate, and doctoral levels. The university has more than 30,000 students graduating every year.

95. (D) The Siachen glacier's melting waters are the main source of the Nubra River in the Indian region of Ladakh, which drains into the Shyok River. The Shyok in turn joins the 3000 kilometre-long Indus River which flows through Pakistan. Thus, the glacier is a major source of the Indus and feeds the largest irrigation system in the world.

96. (D) The projection of a line of force of the geomagnetic field on the earth's surface. All the magnetic meridians are complicated curves that converge at the north and south magnetic poles of the earth. The vertical plane that passes through the point at which the observer (instrument) is situated and that contains the vector of the geomagnetic field intensity at this point is called the plane of the magnetic meridian.

98. (D) Since 1957, the Reserve Bank of India is required to maintain gold and foreign exchange reserves of 200 crore, of which at least 115 crore should be in gold and 85 crore in the form of Government Securities. The system as it's exists today is known as the minimum reserve system.

100. (A) The implementation of Factory Legislation in India in the 19th century was a result of the trade unions in India that created the pressure on the government of India.

102. (C) $P = I^2R$
$$= (2)^2 \times 5$$
$$= 20 \text{ Watt}$$

104. (A) $R = \rho \dfrac{l}{A} = \rho \dfrac{l}{\pi\left(\dfrac{D}{2}\right)^2}$

$$\rho = \dfrac{R \times \pi\left(\dfrac{D}{2}\right)^2}{l}$$

$$= \dfrac{2 \times 3.14 \times (.2)^2}{10}$$

$$= 0.025 \text{ ohms} - m$$

106. (B) $C_{eq} = \left(C_1 \parallel C_2 + C_3\right)\parallel C_4 \parallel C_5$

$$= \left(\dfrac{20 \times 30}{50} + 20\right)\parallel 10 \parallel 10$$

$= 32 \| 5$

$= \dfrac{32 \times 5}{37}$

$= 4.32\ \mu F$

107.(D) $P = \dfrac{V^2}{R}$

$R = \dfrac{V^2}{P}$

$= \dfrac{220 \times 220}{200}$

$= 242\ ohm$

108.(B) $R_{xy} = \left(\left(\left(\left(R_8 + R_9 \| R_{10} + R_7\right)\| R_6 + R_5\right)\| R_4 + R_3\right)\| R_2 + R_1\right.$

$= \left(6 \| 8 + 10\right)\| 6 + 8)\| 6 + 2)\| 6 + 4$

$= \left(\dfrac{6 \times 8}{14} + 10\right)\| 6 + 8)\| 6 + 2)\| 6 + 4$

$= \left((13.43)\| 6 + 8\right)\| 6 + 2)\| 6 + 4$

$= \left((4.14 + 8)\| 6 + 2\| 6 + 4\right.$

$= \left(\dfrac{12.14 \times 6}{18.14} + 2\right)\| 6 + 4$

$= 6 \| 6 + 4$

$= 3 + 4$

$= 7\ ohm$

109.(D) $R \propto \dfrac{1}{A}$

$\dfrac{R_1}{R_2} = \dfrac{A_2}{A_1}$

$\dfrac{20}{R_2} = \dfrac{2A}{A}$

$R_2 = 10\ ohm$

114.(C) $I_4 = I_1 - I_2 - I_3 - I_6 + I_5$
$= 4 - 2 + 3 - 7 + 8$
$= 15 - 9$
$= 6A$

115.(C) $R_{th} = \dfrac{4 \times 8}{12} + 2 = 4.66$

116.(B) By superposition theorem
Case (I) when 20 V source acting.
I_1 = 2A in same direction mean (+Ve) sign
I_2 = 1 A in same direction mean (+Ve) sign
Case (II) when 10V source acting
I_1 = 0
I_2 = 0.5A in same direction (+Ve)
So total current
I_1 = 2A I_2 = 1.5A

119.(D) $R_{th} = \dfrac{1 \times 8}{9}$ $V_{th} = 11.11\ Volt$

$R_L = R_{th} = \dfrac{8}{9}$

$P_{max} = \dfrac{V_{th}^2}{4R_L} = \dfrac{11.11 \times 11.11 \times 9}{4 \times 8}$

$= 34.71\,Watt$

$\cong 35\,Watt$

120.(A) R_{th} = 7.67 ohm

$V_{th} = 24 \times \dfrac{8}{12}$

$= 16\ Volt$

$I_N = \dfrac{16}{7.67}$

$= 2.09\ A$

125.(D) Intensity of magnetization

$= \dfrac{\text{Strength of pole}}{\text{Pole area}}$

$= \dfrac{60}{20}$

$= 3\ A/m$

126.(B) $e = N\left(\dfrac{d\phi}{dt}\right)$

$= 200\left(4 \times 25 \times 10^{-4}\right)$

$= 2\ Volt$

127.(C) $B = \dfrac{\mu_0 NI}{l}$

$I = \dfrac{Bl}{\mu_0 N}$

$= \dfrac{4 \times 10^{-3} \times 40 \times 10^{-2}}{4 \times 3.14 \times 10^{-7} \times 400}$

$= 3.18A$

128.(A) $L = \dfrac{\mu_0 N^2 A}{l}$

$= \dfrac{4 \times 3.14 \times 10^{-7} \times 600 \times 600 \times 3.14 \times 12.5 \times 12.5 \times 10^{-4}}{2}$

$= 0.11\ H$

129.(C) $|e| = m\dfrac{di}{dt}$

$m = \dfrac{e}{\dfrac{di}{dt}}$

$= \dfrac{10\pi}{[200\pi \cos(100\pi t)]}$

$M = \dfrac{10\pi}{200\pi}$

$= 50\,mH$

131.(C) $i(t) = 20 \sin(13t - 20)$
$= 20 \sin(13 \times 5 - 20)$
$= 14.14\ A$

132.(B) $V_{avg} = \dfrac{2V_m}{\pi}$

$V_m = \dfrac{180 \times 3.14}{2}$

$= 282.57$

133.(A) $X_C \propto \dfrac{1}{f}$

$\dfrac{X_{C_1}}{X_{C_2}} = \dfrac{f_2}{f_1}$

$X_{C_2} = \dfrac{60 \times 50}{60} = 50\,ohm$

135.(D) $\phi = \tan^{-1}\left(\dfrac{X_C}{R}\right)$

$\phi = 60$

137.(C) Time taken by a series RL circuit to reach a steady state value (t)

$= 5 \times \dfrac{L}{R}$

$= 5 \times \dfrac{0.6}{30}$

$= 0.1\ Sec$

139.(B) $P = \sqrt{3}\,V_L I_L \cos\phi$

$= \sqrt{3} \times 400 \times \sqrt{3} \times 70 \cos 60°$

$= 3 \times 400 \times 70 \times \dfrac{1}{2}$

$= 3 \times 200 \times 70$

$= 42\,KW$

142.(C) $P_t = 30 \times 8 + 15 \times 8 + 25 \times 8$
$= 240 + 120 + 200$
$= 560\ Watt$

148.(C) Percentage Voltage error of a

$PT = \dfrac{V_T - V_m}{V_T} \times 100$

$= \dfrac{110 - 105}{110} \times 100$

$= 4.54$

150.(B) $\cos\phi = 0.8$
$\sin\phi = 0.6$
$P = 20\ W$
$Q = S \sin\phi$

$= \dfrac{20}{0.8} \times 0.6$

$Q = 15\ VAR$