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Lockdown Period
Open Practice Test Series
(Also useful for ESE & Other Exams)

EE : ELECTRICAL ENGINEERING

TEST No. - 6 | GENERAL APTITUDE

Read the following instructions carefully

1. This question paper contains 33 MCQ's & NAQ's. Bifurcation of the questions are given below:

Subjectwise Test Pattern

Questions	Question Type	No. of Questions	Marks	Total Marks	Negative Marking
1 to 14	Multiple Choice Ques.	14	1	14	0.33
15 to 16	Numerical Data Type Ques.	2	1	2	None
17 to 30	Multiple Choice Ques.	14	2	28	0.66
31 to 33	Numerical Data Type Ques.	3	2	6	None
Total Questions : 33		**Total Marks : 50**		**Total Duration : 90 min**	

2. Choose the closest numerical answer among the choices given.

Multiple Choice Questions : Q.1 to Q.14 carry 1 mark each

Q.1 Bill gates said, _____ is the key element of success.

(a) pertinence (b) patient
(c) patience (d) impatience

1. (c)

Q.2 The bus will arrive _____ five minutes.

(a) in (b) within
(c) for (d) into

2. (b)

Q.3 Select the most suitable synonym, from the choices given below.
RECLUSE

(a) hermit (b) fugitive
(c) bemuse (d) disjoined

3. (a)

Q.4 The meaning of the expression IN SITU is

(a) to suppress (b) to forment
(c) a necessary condition (d) in the appropriate position

4. (d)

Q.5 Identify the correct meaning of the underlined idiom.
The car hit by a truck coming from the opposite direction <u>turned turtle</u>

(a) destroyed (b) badly damaged
(c) turned upside down (d) was safe

5. (c)

Q.6 In a polygon, the number of diagonals are 170. The number of sides of the polygon are

(a) 16 (b) 20
(c) 24 (d) 34

6. (b)

The number of polygons = ${}^{n}C_2 - n$, where n is number of sides

$${}^{n}C_2 - n = 170$$

$$\frac{(n)(n-1)}{1.2} - n = 170$$

$$n^2 - n - 2n = 340$$

$$n^2 - 3n - 340 = 0$$

$$n = 20, -17$$

n can't be negative, so $n = 20$

Q.7 It has been such a wonderful evening (a), I look forward to meet you again (b), after the vacations (c). No error (d)

Which of the above part contains error? If there is no error, mark '*d*' as answer.

7. (c)

Vacation in place of vacations.

Q.8 Choose the correct option.

Prices **shoot down wherever** there is a shortage.

(a) shoot down whenever
(b) shoot up wherever
(c) shoot up whenever
(d) shoot upwards if

8. (c)

Q.9 DOUGH : BREAD

(a) SUGAR : DESSERT
(b) GRAPHITE : PENCIL
(c) TACITORN : INFLEXIBLE
(d) ICE : ICE CREAM

9. (b)

Q.10 From the choices, choose the option which best compliments the idea given in the original sentence.

Indian women are far behind western women in their knowledge of the web.

(a) most Indian women are confined to the four walls of the their home
(b) knowledge will give them edge over men
(c) very few Indian women have access to the internet
(d) the websites are useful to western women than Indian women

10. (c)

Q.11 A dog pursues a cat and take 5 leaps for every 6 leaps of the cat, but 4 leaps of the dog are equal to 5 leaps of the cat. The ratio of speed of dog to the speed of cat is

(a) 5 : 4
(b) 6 : 5
(c) 25 : 18
(d) 25 : 24

11. (d)

$$4 \text{ leaps of dog} = 5 \text{ leaps of cat}$$

$$5 \text{ leaps of dog} = \frac{25}{4} \text{ leaps of cat}$$

$$\frac{\text{speed of dog}}{\text{speed of cat}} = \frac{\frac{25}{4}}{6} = \frac{25}{24}$$

Q.12 0, _____ , 8, 15, 24, 35, 48

(a) 2 (b) 3

(c) 4 (d) 5

12. (b)

$0 = 1^2 - 1$

$3 = 2^2 - 1$

$8 = 3^2 - 1$

$15 = 4^2 - 1$

$24 = 5^2 - 1$

$35 = 6^2 - 1$

$48 = 7^2 - 1$

Q.13 If $Z = 52$ and ACT = 48, then BAT will be equal to

(a) 24 (b) 36

(c) 46 (d) 48

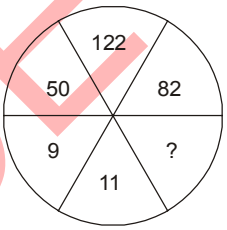
13. (c)

$$\left.\begin{matrix} A \to 1 \\ C \to 3 \\ T \to 20 \end{matrix}\right\} \to \text{ACT} = (1+3+20)\times 2 = 48$$

$Z \to 26 \} \; Z = 26 \times 2$

BAT $\to$ (2 + 1 + 20) $\times$ 2 = 46

Q.14 Consider the following diagram, the missing number is



(a) 7 (b) 8

(c) 16 (d) 18

14. (a)

$122 = 11^2 + 1$

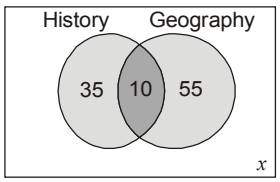
$82 = 9^2 + 1$

$50 = 7^2 + 1$

Numerical Answer Type Questions : Q. 15 to Q. 16 carry 1 mark each

Q.15 In a class of 150 students, 45 study history, 65 study geography, 10 study both History and geography. The number of students who study neither History nor Geography is _____.

15. (50)



$x = 150 - 35 - 10 - 55 = 50$

Q.16 Two men *P* and *Q* start simultaneously from a place walking at speeds 5 km/hr and 6.5 km/hr respectively. If they are moving in opposite direction, then they will be 92 km apart after _____ hours.

16. (8)

$$\text{Time} = \frac{\text{relative distance}}{\text{relative speed}}$$

$$= \frac{92}{5+6.5}$$

$$= \frac{92}{11.5} = 8 \text{ hours}$$

Multiple Choice Questions : Q.17 to Q.30 carry 2 marks each

Q.17 The value of the expression $\frac{1}{1+\sqrt{2}} + \frac{1}{\sqrt{2}+\sqrt{3}} \ldots\ldots \frac{1}{\sqrt{15}+\sqrt{16}}$ is

(a) 3 (b) 4
(c) 0.5 (d) 1

17. (a)

$$\frac{1}{1+\sqrt{2}} + \frac{1}{\sqrt{2}+\sqrt{3}} \ldots\ldots \frac{1}{\sqrt{15}+\sqrt{16}}$$

Rationalising each term

$$= \frac{1-\sqrt{2}}{1-2} + \frac{\sqrt{2}-\sqrt{3}}{2-3} + \frac{\sqrt{3}-\sqrt{4}}{3-4} \ldots\ldots \frac{\sqrt{15}-\sqrt{16}}{15-16}$$

$$= -1\left[1-\sqrt{2}+\sqrt{2}-\sqrt{3} \ldots\ldots +\sqrt{15}-\sqrt{16}\right]$$

$$= -1[1-4] = 3$$

Q.18 If $5^x = 25^6 = 125^y$, then the value of expression $\frac{xy}{x+y}$ is _____.

(a) $\frac{1}{3}$ (b) $\frac{1}{6}$

(c) 3 (d) 6

18. (c)

$$5^x = 25^6$$

$$\Rightarrow \quad 5^x = 5^{2\times 6}$$

$$\Rightarrow \quad x = 12$$

$$5^x = 125^y = 5^{3y}$$

$$\Rightarrow \quad x = 3y$$

$$\Rightarrow \quad y = 4$$

$$\frac{xy}{x+y} = \frac{12\times 4}{16} = 3$$

Q.19 A person spends ₹75 to buy pencils. Due to reduction in price by 33.33%, the person get 25 more pencils. The price of pencil after reduction is _____.

(a) ₹ 1.5 (b) ₹ 1

(c) ₹ 2.5 (d) ₹ 2

19. (b)

Price of 1 pencil = ₹ P

Quantity bought before reduction = Q

$$PQ = 75 \quad \text{...(i)}$$

$$\text{reduced price} = P - \frac{P\times 33.33}{100} = \frac{2}{3}P$$

$$\frac{2}{3}P(Q+25) = 75$$

$$PQ + 25P = 75\times\frac{3}{2}$$

$$25P = \frac{75}{2}$$

$$\text{Original price } P = \frac{3}{2} = ₹1.5$$

$$\text{Reduced price} = \frac{2}{3}\times P = ₹1$$

Q.20 If $r^{1/3}+\frac{1}{r^{1/3}}=3$ for a real number $r\neq 0$, then the value of $r+\frac{1}{r}$ is _____.

(a) 16 (b) 18

(c) 20 (d) 24

20. (b)

$$r^{1/3}+\frac{1}{r^{1/3}} = 3$$

Taking cube both sides

$$\left(r^{1/3}+\frac{1}{r^{1/3}}\right)^3 = 3^3$$

$$r+\frac{1}{r}+3r^{1/3}\cdot\frac{1}{r^{1/3}}\left(r^{1/3}+\frac{1}{r^{1/3}}\right) = 27$$

$$r+\frac{1}{r}+3\times 3 = 27$$

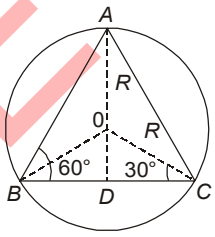
$$r+\frac{1}{r} = 18$$

Q.21 An equilateral triangle is drawn in a circle of radius R. The ratio of area of triangle to the area of circle is

(a) $3:4\pi$ (b) $3\sqrt{3}:\pi$

(c) $3\sqrt{3}:4\pi$ (d) $3\sqrt{3}:2\pi$

21. (c)



$$BD = CD = R\cos 30^\circ$$

$$= R\times\frac{\sqrt{3}}{2}$$

$$BC = AB = CA = 2\times CD$$

$$= 2R\times\frac{\sqrt{3}}{2} = R\sqrt{3}$$

$$\text{Area of triangle} = \frac{\sqrt{3}}{4}\times a^2 = \frac{\sqrt{3}}{4}\times(R\sqrt{3})^2$$

$$= \frac{3\sqrt{3}}{4}\times R^2$$

$$\text{Area of circle} = \pi R^2$$

$$\text{Ratio} = \frac{3\sqrt{3}}{4}\times R^2 : \pi R^2$$

$$= 3\sqrt{3}:4\pi$$

Q.22 You will find four ways of phrasing the sentence. The first of these repeats the original sentence; the other three are different. If you think that the original is best, choose the first answer; otherwise choose one of the others.

If you had asked him, he would tell you.

(a) If you had asked him, he would tell you.
(b) If you had asked him, he would have told you.
(c) If you had asked him, he would be telling you.
(d) If you had asked him, he would have been told you.

22. (b)

Q.23 A milestone on Kalka Kasauli road read '19' on the side facing the cyclist and '21' on the reverse side. He reasoned that the next milestone on the way forward would read '20' and '20' on both sides. However, to his utter dismay, he noticed that the next milestone read '18' as he approached it and '22' on the reverse. Which of the following, if true, would explain the discrepancy given above?

(a) The numbers on the milestones are interchanged.
(b) The number on the side facing the cyclist indicate the distance remaining to be covered.
(c) One milestone was missing between the 2 milestones seen by the cyclist.
(d) The distance indicated is in miles not in Kilometers.

23. (b)

Since the numbers are increasing/decreasing in a direction which is opposite to that of movement implies that the distance indicated is not the distance covered BUT the distance remaining.

Q.24 The statement given below has two (2) blanks. Choose the pair of words from the given options which best fits meaning of the sentence as a whole.

With West Asia in turmoil and a _____ cold war between Russia and the West, rising nationalism in China may be just the _____ for India. If we play our cards well, India can become a haven for global companies hungry for growth and looking for the next China.

(a) rising, opportunity
(b) growing, chance
(c) growing, moment
(d) growing, opportunity

24. (d)

Option (d) will lead to the formation of a complete and meaningful sentence.

Q.25 Identify the choice which best expresses the meaning of the **idiom/phrase** in **bold** letters:

Ramakant used very uncivilized words against his kind uncle; he **threw down the gauntlet before him**.

(a) he abused and insulted him
(b) he put multiple conditions for negotiation
(c) he behaved in a very arrogant manner
(d) he threw the challenge

25. (d)

Q.26 Consider the following statements followed by two conclusions:

Statements : Some men are great.
Some men are wise.

Conclusions 1: Men are either great or wise.

Conclusions 2: Some men are neither great nor wise.

Which one of the following is correct?

(a) Only Conclusion 1 is valid
(b) Only Conclusion 2 is valid
(c) Both the Conclusions are valid
(d) Neither of the Conclusion is valid

26. (d)

Both the conclusions cannot be drawn from the given statements. Even though, it is given that some men are great and some men are wise but it doesn't mean that men are either great or wise. Similarly, it doesn't mean that men are neither great nor wise.

Q.27 A floor of dimensions 5 m 78 cm × 3 m 74 cm is to be covered with tiles of square shape. The minimum number of tiles required are

(a) 198
(b) 187
(c) 216
(d) 168

27. (b)

Floor has size 578 cm × 374 cm

HCF of 578 and 374 = 34

Side of square = 34 cm

Number of such square marbles = $\frac{578\times374}{34\times34}$ = 187 marbles

Q.28 If $x^{x\sqrt{x}} = (x\sqrt{x})^x$. Then value of x is

(a) 1.50
(b) 2.00
(c) 2.25
(d) 2.50

28. (c)

$$x^{x\sqrt{x}} = (x\sqrt{x})^x$$

Taking Log both sides

$$x\sqrt{x}\,\text{Log}x = x\,\text{Log}(x\sqrt{x})$$

$$x\sqrt{x}\,\text{Log}x = x\,\text{Log}x^{3/2}$$

$$x^{3/2}\,\text{Log}x = \frac{3x}{2}\,\text{Log}x$$

$$\frac{2}{3}\frac{x^{3/2}}{x} = 1$$

$$\Rightarrow \quad x^{1/2} = \frac{3}{2}$$

$$x = \frac{9}{4} = 2.25$$

Q.29 Group of workers can do a piece of work in 24 days. However as 7 of them were absent, it took rest of them 30 days to complete the work. The number of people who actually worked on the job to complete it is

(a) 35
(b) 32
(c) 30
(d) 28

29. (d)

Let original workers be x

actual number of workers $x - 7$

Man days required in both cases

$$x(24) = (x-7)30$$

$$\Rightarrow \quad x = 35$$

Actual number of workers $= 35 - 7 = 28$

Q.30 Consider the following statements:

1. A primary group is relatively smaller in size.
2. Intimacy is an essential characteristic of a primary group.
3. A family may be an example of a primary group.

In the light of the above statements, which one of the following is true?

(a) All families are primary group

(b) All primary groups are families

(c) A group of smaller size is always a primary group

(d) Members of a primary group know each other intimately.

30. (d)

Intimacy means close friendship. Since intimacy is an essential characteristic of the primary group, it implies that they know each other well. Since family may be an example of primary group, but it is not necessary that all the families are primary groups. Hence 'a' is incorrect. All primary groups are smaller in size but it doesn't mean that all smaller groups are primary groups. Hence 'c' is also incorrect.

Numerical Data Type Questions : Q. 31 to Q. 33 carry 2 marks each

Q.31 Given two numbers

$$P = \left(1+\frac{1}{2}\right)\left(1+\frac{1}{3}\right).....\left(1+\frac{1}{49}\right)$$

$$Q = \left(1-\frac{1}{2}\right)\left(1-\frac{1}{3}\right).....\left(1-\frac{1}{50}\right)$$

The value of $\frac{P}{Q}$ is _____.

31. (1250)

$$P = \frac{3}{2}\times\frac{4}{3}\times\frac{5}{4}.....\frac{50}{49}$$

$$= \frac{50}{2} = 25$$

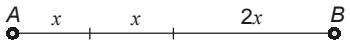
$$Q = \frac{1}{2}\times\frac{2}{3}\times\frac{3}{4}.....\frac{49}{50}$$

$$= \frac{1}{50}$$

$$\frac{P}{Q} = \frac{25}{1/50} = 1250$$

Q.32 Total distance between two stations is divided in 3 parts in the ratio 1 : 1 : 2. If the speed with which the three sections are covered is in the ratio 1 : 2 : 4. If the first part of the journey was completed in 20 minutes, then total time taken to complete the journey is _____ min.

32. (40)



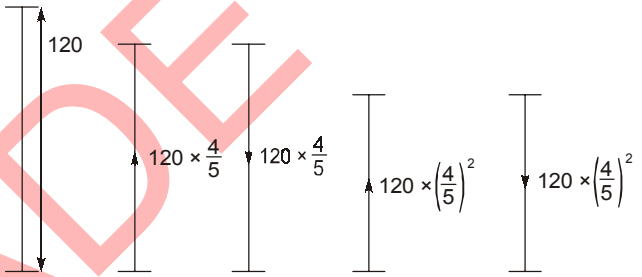
Distance	x	x	$2x$
speed	s	$2s$	$4s$
time	$\frac{x}{s}$	$\frac{x}{2s}$	$\frac{2x}{4s}$

Given that $\frac{x}{s} = 20$

$$\text{total time} = \frac{x}{s}+\frac{x}{2s}+\frac{2x}{4s}$$
$$= \frac{x}{s}\left(1+\frac{1}{2}+\frac{2}{4}\right) = 20 \times 2$$
$$= 40 \text{ min}$$

Q.33 After striking the floor a certain ball rebounds to $\left(\frac{4}{5}\right)^{th}$ of height from which it has fallen. The total distance travelled before coming to rest, if it is gently dropped from a height of 120 m is _____ m.

33. (1080)



$$\text{Total distance} = 120+2\times120\times\frac{4}{5}+2\times120\times\left(\frac{4}{5}\right)^2+.....+\infty$$
$$= 2\times120+2\times120\times\left(\frac{4}{5}\right)+2\times120\times\left(\frac{4}{5}\right)^2.....-120$$
$$= 2\times120\left(1+\frac{4}{5}\times\left(\frac{4}{5}\right)^2+....+\infty\right)-120$$
$$= 2\times120\times\frac{1}{1-\frac{4}{5}}-120$$
$$= 1200-120 = 1080 \text{ m}$$

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