THE GATE ACADEMY
A Forum of IIT / IISc Graduates

ECE

ANALYSIS OF GATE 2021
Memory Based

Electronics and Communication Engineering

Pie chart — Electronics and Communication Engineering:
- General Aptitude 15%
- Computer Organization 2%
- Electronic Devices & Circuits 7%
- Electro-Magnetic Theory 8%
- Communications 14%
- Analog Electronics 13%
- Network Theory 11%
- Signal and System 8%
- Control System 4%
- Digital Circuits 7%
- Engineering Mathematics 11%
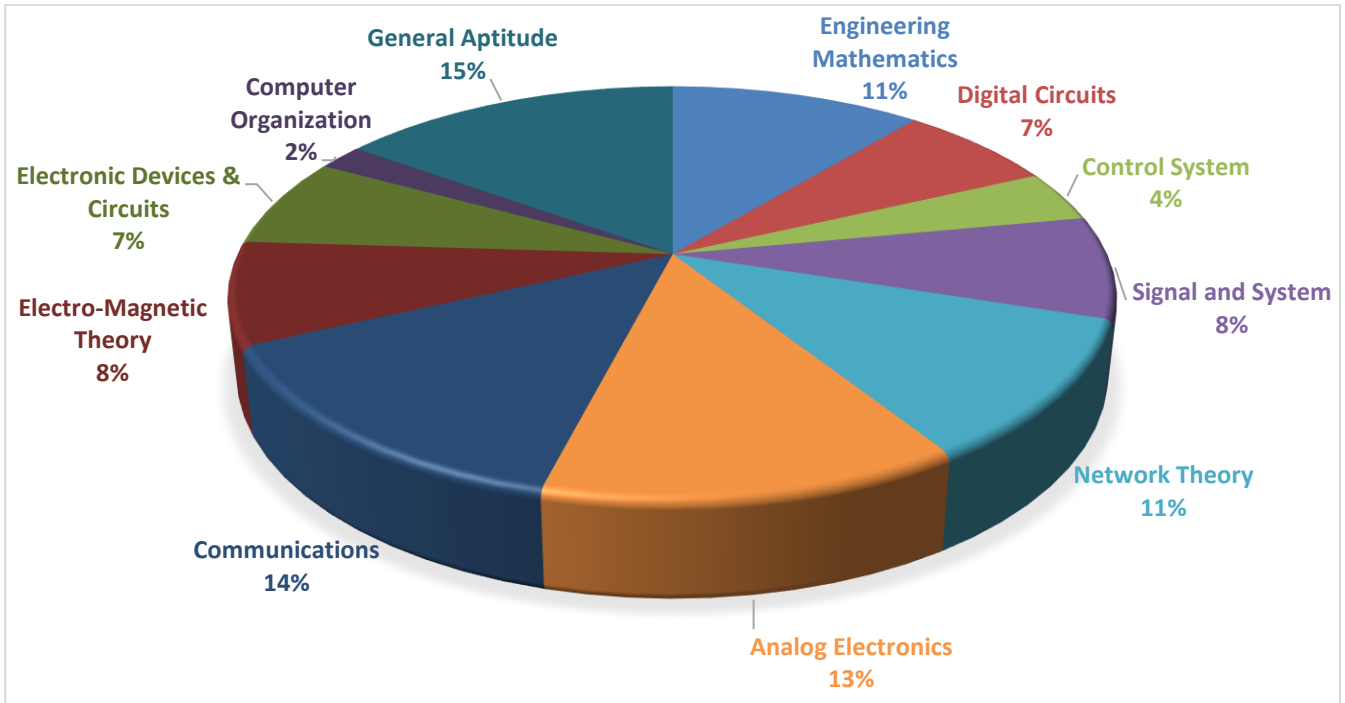
ECE ANALYSIS-2021_Feb-7_ Afternoon

SUBJECT	No. of Ques.	Topics Asked in Paper (Memory Based)	Level of Ques.	Total Marks
Engineering Mathematics	1 Marks: 5 2 Marks: 3	First order differential equations, Eigen values, Complex integral, Probability	Medium	11
Digital Circuits	1 Marks: 3 2 Marks: 2	Number system, Sequential circuit. Mux	Easy	7
Control System	1 Marks: 2 2 Marks: 1	Transfer function, state space, Nyquist plot	Easy	4
Signal and System	1 Marks: 2 2 Marks: 3	Fourier series, convolution,	Medium	8
Network Theory	1 Marks: 1 2 Marks: 5	Transient analysis, KCL and KVL,	Medium	11
Analog Electronics	1 Marks: 3 2 Marks: 4	Operational amplifier, diode circuit, MOSFET	Medium	13
Communications	1 Marks: 4 2 Marks: 5	Amplitude modulation, phase modulation, PCM	Medium	14
Electro-Magnetic Theory	1 Marks: 2 2 Marks: 3	Wave guide, impedance matching, divergence theorem	Medium	8
Electronic Devices & Circuits	1 Marks: 3 2 Marks: 2	MOSFET(body effect), reverse bias, optical excitation	Medium	7
Computer Organization	1 Marks: 0 2 Marks: 1			2
General Aptitude	1 Marks: 2 Marks:	Geometry, Syllogism		15
Total	65			100
Faculty Feedback	25 -MCQ, 30-NAT No MSQ Questions, overall paper was Medium level			

GATE 2021 Examination* (Memory Based)

Electronics and Communication Engineering

Test Date: 7th Feb 2021

Test Time: 3-00 pm to 6-00 pm

Stream Name: Electronics and Communication Engineering

General Aptitude

1. Nostalgia is to anticipation as _____ is to _____.
   Which one of the following options maintains a similar logical relation in the above sentence?
   (A) Future, Past
   (B) Future, Present
   (C) Past, Future
   (D) Present, Past
   [Ans. *]

2. The current population of a city is 1102500. If it has been increasing at the rate of 5% per annum, what was its population 2 years ago?
   (A) 1000000
   (B) 995006
   (C) 1251506
   (D) 992500
   [Ans. *]

3. Consider the following sentences: -
   (i)   I woke up from sleep.
   (ii) I woked up from sleep.
   (iii) I was woken up from sleep
   (iv) I was wakened up from sleep
   Which are grammatically correct?
   (A) (i) and (ii)
   (B) (ii) and (iii)
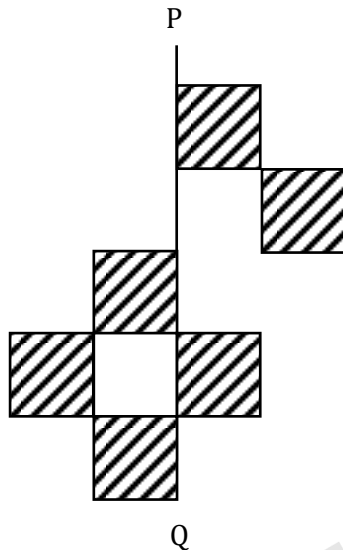   (C) (i) and (iii)
   (D) (i) and (iv)
   [Ans. *]

4. p and q are positive integers and
$\frac{p}{1} + \frac{q}{p} = 3$, then $\frac{p^2}{q^2} + \frac{q^2}{p^2} =$
   (A) 7
   (B) 11
   (C) 3
   (D) 9
   [Ans. A]

5. The least number of squares that must be added so that the line P-Q becomes the line of symmetry is

   (A) 4
   (B) 7
   (C) 6
   (D) 3
   [Ans. *]

6. Computers are ubiquitous. They are used to improve efficiency in almost all field from agriculture to space exploration. AI is currently a hot topic. AI enables computer to kam, given enough training data. For humans, sitting in front of a computer for long hours can lead to health issues.

   Which of the following can be deduced from the above message?
   (i) Now a days, computers are present in almost all places.
   (ii) Computer cannot be used for solving problems in engineering.
   (iii) For humans, there are positive and negative effects of using computers.
   (iv) Artificial Intelligence can be done without data.
   (A) (i) and (iii)
   (B) (ii) and (iv)
   (C) (i), (ii), (iv)
   (D) (i) and (ii)
   [Ans. A]

7. Consider a square sheet of side 1 unit. In the first step, it is cut along the main diagonal to get two triangles. In the next step, one of the cut triangles is revolved about its short edge to from solid cone. The volume of a resulting cone in a cube unit
   (A) 3π
   (B) $\pi/3$
   (C) $3\pi/2$
   (D) $2\pi/3$
   [Ans. *]

8. Given below are two statements and two conclusions.
   S1: All purple are green
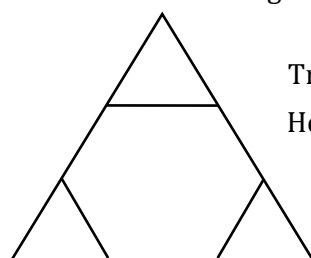   S2: All black are green
   C1: Some black are purple
   C2: No black is purple
   Based on above statement and conclusion which of the following options is logically correct?
   (A) Either C1 or 2 or correct
   (B) Both correct
   (C) Only C1 is correct
   (D) Only 2 is correct
   [Ans. *]

9. Ratio of area of Hexagon to original equilateral is

   Triangle → Equilateral
   Hexagon → Regular

   [Ans. *]

10. The number of minimum minutes spent by two students X and Y excersing everyday in a given week are shown in the table below.

Days	Y	X
Sunday	65	55
Saturday	50	60
Friday	35	20
Thursday	55	60
Wednesday	50	60
Tuesday	65	55
Monday	70	45

The number of days in a given week in which one o the students spent a minimum of 10% more than the other student in a given day is

(A) 5

(B) 9

(C) 7

(D) 6

Coming Soon

Technical

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