**SAIL PAPER**

**Section I**  
  
E&T Technical questions. (100 questions)  
  
1) Nearly 20 questions were based on Op-Amps like the highest frequency of OP-Amp depends on

a) Input V b) Output V c) Bandwidth d) Max Output V

2) The purpose of Op-Amp clamper is for what

a) Clamping the output voltage b) Lowering the output V c) Lowering the input V d) None of these  
  
3) What is the purpose of PWM in current source inverter?  
  
4) At higher frequencies which of the following noises become significant?

a) Thermal Noise b) Short noise c) White noise  
  
5) Nearly 10 questions were based on Flip-Flops like what is the number of flip-flops required for decade counter?

a) 1 b) 2 c)3 d)4  
  
6) How many flip flops are required for input frequency to be divided by 32?  
  
7) What is the output frequency of a T-Flip flop if the input if input frequency is f

a) f/2 b) f c) 2f d) 4f  
  
8) Nearly 8 questions were asked on RLC circuits like what is the effect on resonance frequency when all the values of RLC are doubled?   
a) 4f b) 3f c) f/4 d) f   
  
9) What is the voltage on capacitor at resonance with input voltage a 10v and Q factor of the circuit is 40?  
  
10) Which of the following is S.I engine?  
1) Gas 2) Petrol 3) Diesel 4) Kerosene engine  
  
11) What is the difference between petrol and diesel engine?  
  
12) Which of the facts is true?  
a) All reversible engines have same efficiency  
b) All engines are designed reversible to obtain maximum efficiency?  
c) Irreversible engines have maximum efficiency?  
  
12) What is the characteristic of an isolated system?  
a) No transfer of mass both the directions  
b) No transfer of heat on both directions  
c) No transfer of heat and mass on both directions  
d) Maximum transfer of mass and heat in both directions  
  
13) What is the power transferred to a load if R+ix and with an internal resistance of R-ix of the source with voltage V?  
  
14) If 4 batteries of voltage 6V each are applied parallel to a load of 1.25 ohms with batteries of internal resistance of 0.2 ohms then what is the current through the load resistance?  
  
15) What is the percentage power loss when a battery of 6 V has internal resistance of 0.2 ohms and applied to a load of 6 ohms?  
  
16) What are the frequencies of a system with a transfer function of 100(1+0.5s)(1+0.25s)?  
a) 4,2 b) 0.5, 0,25.  
  
17) Which of following is used in SSB AM receiver?  
a) LC circuit b) diode rectifier   
  
18) What is the average value of current if the voltage of 10 sin (314t ) is applied to a resistance of 10 ohms?  
A) 0.485 B) 0.637   
  
**Section II**  
  
It contained 4 more more sub-sections General Awareness, Verbal ability, Quantitative aptitude, Logical reasoning  
  
General Awareness (25 questions)  
  
1) Who was the winner of 2010 Twenty-20 world cup?

2) Who is the winner of 2010 Rajiv Khel Ratna award 2010?

3) Bihu is the folk dance of which state?

4) Which river has delta in Arabian sea? A)Tapi B) Mahanadi C) Krishna D)Godavari

5) Which of the following states is with highest population density?  
a) WB b) UP c) Jharkand d) Bihar  
  
6) Who is the Ex Chairman of planning commission?

a) PM b) Loksabha Speaker c) Vice President d) President  
  
7) Jim Corbett national park is in which state?  
  
8) Durand line is between which countries? Ans Pakistan and Afghanistan  
  
9) Measles is a disease  caused which of the following?  
a) Virus b) Bacteria c) Protozoa  
  
**Verbal Ability** (25 questions)  
  
5 Questions on articles  
  
5 Questions on fill in the blanks with correct words  
  
10 Questions on paragraph reading.  
  
**Quantitative Ability** (25 questions)  
  
Most of the questions were based on Compound interest, Simple interest, Work, Age related which can be founnd in R.S Aggarwal  
 **Logical Reasining** (25 questions)  
  
A situation was given and questions were based on that situation like cube pained with 3 colors and then divided into 64 equal cubes what no of cubes with single color and so on.  
  
Two statements are given and asked whether the question can be solved based on the statements?  
A person traveled east west and finally how far is from the source?  
  
**Note:** To clear the exam you need to clear the sectional cutoff of each sub-section in Section-II also. This was the major deciding factor as after attempting section-I for 75 min then only section-II can be attempted for the next 75 mins

The technical paper of E&T was difficult as it was mainly theoretical and were based on concepts of the subjects. Section-II will be easy for an engineer, but the time may not be sufficient as there is sub sectional cutoff.  
  
**Note:** In the instructions of admit card it was told to bring only ball point pen but in the exam they the answers were needed to be marked with HB pencil. So, please take pencils with you for the examination. Good luck for your attempts to be a part of SAIL. Awaiting result of the exam now.