

In Partnership with



“100 Times Curious”

Documentation of Questions asked by Mentees to Mentors

Released on the occasion of

Science & Engineering Fair of Selected Projects

At

Shikshakara Sadana, Bangalore

On

25th & 26th February 2016

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FOREWORD

It is well established in neuroscience that the young brain is constantly completing a picture of the world, its objects, processes and relationships. How does it do so? By asking questions and going after what seem to be hidden mysteries. If curiosity is a trigger questions are its outcomes.

But not every child gets an opportunity to give a definite form to its questions or share its curiosities. In fact the poorer a child's economic circumstances are, the higher is the incidence of what we might call stimulus poverty- the lack of stimuli in his or her environment. Material poverty is but one reason for stimulus poverty. Children can grow stimulus-poor from any material circumstance.

Anveshana is one more platform Agastya International Foundation has created to address this problem. This event, now 5 years old in Bangalore, completed 3 years in Hyderabad and now for the first time in NCR has a built in opportunity for children to get curious and ask question because it takes them far away from their regular environs thus providing a state of excitation from which questions will result.

Till now we had not created a process to verify if this questioning is happening while children and their guides engage in their projects. Anveshana 2015 set out to correct this.

What you see in this volume are the questions children asked while doing their projects. It is almost certain not all of them could have been answered. Equally, each is a first step in a voyage of discovery that the child has begun.

AGASTYA INTERNATIONAL FOUNDATION

PROJECTS EXHIBITED IN THE FAIR

| S.N | | DISTRICT | PROJECT TITLE | COLLEGE |
|-----|--------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 1 | FOOD/AGRICULTURE/SOIL EROSION | BAGALKOT | CULTIVATION METHODS OF SPIRULINA IN KITCHEN GARDEN FOR BOOSTING UP OF REGULAR FOOD | BASAVESHWAR ENGINEERING COLLEGE |
| 2 | | SHIVAMOGGA | PALM AMICUS (PALMAE FRIEND) | JAWAHARLALA NEHRU INSTITUTE OF TECHNOLOGY SHIVMOGGA |
| 3 | | DAKSHINA KANNADA | SUPER DRIP BOT | MANGALORE INSTITUTE OF TECHNOLOGY MANGALORE |
| 4 | | BANGALORE | DESIGN AND DEVELOPMENT OF DE-HUSKER FOR FLAT BEANS (AVARAKAI) | M.S RAMAIAH UNIVERSITY OF APPLIED SCIENCES BANGALORE |
| 5 | | BANGALORE | UTILIZATION OF SERICIN LIQUID ON INDUSTRIAL EFFLUENT OF SILK REELING INDUSTRIES AS COST EFFECTIVE SOURCE OF PROTEIN FOR CULTURING ECONOMICALLY IMPORTANT MICROBES | SIR MVIT, BANGALORE |
| 6 | | BANGALORE | FOOD QUALITATIVE ANALYSER - AN EYE ON MY FOOD | VIVEKANANDA INSTITUTE OF TECHNOLOGY |
| 7 | | BELGAUM | MODERATE PRESERVATOR FOR KITCHEN | HIRASUGAR INSTITUTE OF TECHNOLOGY |
| 8 | | TUMKUR | PLASTIC AND METAL PARTICLE DETECTION IN PROCESSED FOOD | HMS IT, TUMKUR |
| 9 | | DODDABALLAPUR | DESIGN AND DEVELOPMENT OF CLAY REFRIGERATOR SYSTEM | R.L. JALAPPA INSTITUTE OF TECHNOLOGY |
| 10 | | UTTARA KANNADA | FRUIT HARVESTING FLYING BOT | GIRIJABAI SAIL INSTITUTE OF TECHNOLOGY KARWAR |
| 11 | | BELLARY | FABRICATION SOLAR SEED SPRAYER FOR AGRICULTURE | GOVT. ENGINEERING COLLEGE HOOVINAHADAGALI |
| 12 | | HASSAN | ARTIFICIAL STOMACH AND INTESTINE TO EVALUATE DIGESTABILITY OF ORGANIC MATTER IN DIFFERENT FOOD INGREDIENTS | VETERINARY COLLEGE HASSAN |

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|----|------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 13 | WATER | BAGALKOT | DEGRADATION OF CHROMIUM IN WASTE WATER USING BIOFILM FORMING MICRO ORGANISMS | BASAVESHWAR ENGINEERING COLLEGE | |
| 14 | | BANGALORE | SPONTANEOUS WATER PURIFICATION SYSTEM USING HIGH VOLTAGE AND OTHER CHEMICAL TREATMENTS | EAST WEST INSTITUTE OF TECHNOLOGY | |
| 15 | | TUMKUR | DESIGN AND TECHNOLOGY OF INTEGRATED SOLAR POWER AND EVAPORATIVE SHIELDING OF WATER RESERVOIR | HMS INSTITUTE OF TECHNOLOGY | |
| 16 | | SHIVAMOGGA | ADVANCED SOLAR WATER HEATER | JAWAHARLAL NEHRU NATIONAL COLLEGE OF ENGINEERING | |
| 17 | | MANDYA | IMPROVED MODEL OF BIO-SAND WATER FILTER | PES COLLEGE OF ENGINEERING | |
| 18 | | TUMKUR | WATER DEFLOURIDATION BY NANO PARTICLES SYNTHESIZED BY EXTRACT OF SIMAROUBA GLAUCA | SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY | |
| 19 | | TUMKUR | DETECTING OF INTERFACING POLLUTANTS | SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY | |
| 20 | | BANGALORE | PEnt WATER PURIFIER | SAPTHAGIRI COLLEGE OF ENGINEERING | |
| 21 | | WASTE MANAGEMENT (SWACCH BHARAT) | BIJAPUR | HUMANURE - WEALTH OUT OF HUMAN WASTE | BLDEA'S VP DR P G HALAKATTI COLLEGE OF ENGG & TECH VIJAYAPUR |
| 22 | | | HASSAN | USE OF COCONUT SHELL OIL AS AN ECO FRIENDLY AND ECONOMICALLY WOOND HEALING MEDICINE IN ANIMALS | VETERINARY COLLEGE HASSAN |
| 23 | RAMANAGARA | | TRASH ENERGY | JAIN UNIVERSITY | |
| 24 | BANGALORE | | AUTOBIN | NITTE MEENAKSHI INSTITUTE OF TECHNOLOGY | |
| 25 | BANGALORE | | SMART LITTER BASKET | RNS INSTITUTE OF TECHNOLOGY | |
| 26 | BANGALORE | | CONVERSION OF WOOD WASTE INTO FUEL | R V C E, BANGALORE | |
| 27 | DAKSHINA KANNADA | | FUTURE DIESEL FROM WASTE RUBBER TYRES | DR. M V SHETTY INSTITUTE OF TECHNOLOGY | |
| 28 | MYSORE | | E-WASTE RECYCLING | VIDYAVIKAS INSTITUTE OF ENGINEERING & TECHNOLOGY | |

| | | | | |
|----|-----------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| 29 | ENERGY | BANGALORE | LOW COST PORTABLE SOLAR WATER DISINFECTION SYSTEM AND ULTRA FILTRATION | AMBEDKAR INSTITUTE OF TECHNOLOGY |
| 30 | | BANGALORE | ECO FRIENDLY ELECTRIC PROPULSION BOAT | EAST WEST INSTITUTE OF TECHNOLOGY |
| 31 | | TUMKUR | SOLAR OPERATED ENERGY EFFICIENT FLOATING AREATOR | HMS INSTITUTE OF TECHNOLOGY, TUMKUR |
| 32 | | UDUPI | SMART FARMING | NMAMIT, NITTE |
| 33 | | DAKSHINA KANNADA | CARBON DIOXIDE DECOMPOSITION & DECOMPOSED CARBON IN NANO TECHNOLOGY | SDM, UJIRE |
| 34 | | MYSORE | GRID CONNECTED SOLAR ROOF USING BIDIRECTIONAL ENERGY METER | VIDYAVIKAS IT, MYSORE |
| 35 | | DAKSHINA KANNADA | FABRICATION & PERFORMANCE STUDY OF FRESNEL BASED SOLAR DISTILATION | VIVEKANANDA IT, PUTTUR |
| 36 | DAVANGERE | DEMONSTRATION OF HYBRID WIND TURBINES FOR POWER GENERATION AT HIGHWAY MEDIANS AND ON ROOF TOPS | BAPUJI INSTITUTE OF ENGINEERING & TECHNOLOGY | |
| 37 | AIR | BELGAUM | DUST PURIFICATION OF INDUSTRIAL CHIMNEY USING ELECTRO-STAT | VSM INSTITUTE OF TECHNOLOGY, NIPPANI |
| 38 | | DAKSHINA KANNADA | AIR POLLUTION CONTROLLER | ALVA INSTITUTE OF ENGINEERING AND TECHNOLOGY, SHOBHAVANA CAMPUS, MIJAR, MOODBIDRI |
| 39 | GENERAL | MYSORE | DESIGN AND DEVELOPMENT FABRICATION OF PICK AND PLACE ROBOTIC ARM | VIDYA VARDHAKA COLLEGE OF ENGINEERING |
| 40 | | BANGALORE | HYBRID VEHICLE | ACHARYA INSTITUTE OF TECHNOLOGY |
| 41 | | BANGALORE | BASS (BLIND ASSISTING SMART SHOE) | SIR M V IT BANGALORE |

CULTIVATION OF *SPIRULINA* IN KITCHEN GARDEN FOR BOOSTING UP OF REGULAR FOOD

1. What is spirulina?
2. Why spirulina is called an ideal food of mankind?
3. Are there any researches related to spirulina?
4. Is spirulina safe for consumption?
5. Are there any toxic remains in spirulina?
6. How spirulina is different from other natural nutritious food?
7. What is the usefulness of spirulina in the human body?
8. What are the nutritious elements of spirulina?
9. What is suitability of spirulina?
10. After being consumed, which factors induce body response against spirulina?
11. What is the appropriate quantity for consuming spirulina?
12. Will the nutritious value be decreased if spirulina powder is removed from capsule?
13. Why do some interactions occur after spirulina being consumed?
14. Is it possible to consume spirulina with medicine?
15. Can the patient at the recovery stage take spirulina?
16. How does spirulina benefit to one who takes insufficient green or yellow vegetables?
17. Should children take spirulina?
18. Can spirulina reduce stress?
19. Does spirulina help reduce cholesterol?
20. How does spirulina help sportsman?
21. What is the usefulness of beta-carotene in spirulina?
22. How does spirulina helps in digestion and absorption in the body?
23. Does Spirulina reduce hair loss?
24. How does spirulina help in treating of anemia?
25. How does spirulina help people suffering from Optic problem?
26. Is spirulina easily digested in human body?
27. Can we eat only spirulina as food?
28. Is it true that spirulina is useful for all age?
29. Is spirulina internationally accepted?
30. Is there any organization to certify the correctness?
31. How about the service system within the organization?
32. Which organization has been supporting the company?
33. How the consumers can rely on the products?
34. The policy of the company
35. Can children and pregnant woman women take spirulina capsules?
36. How should we take spirulina capsules before or after meals?
37. Can patients with heart disease, impaired kidney function, cancer or AIDS undergoing conventional therapy take spirulina capsules?
38. How to take spirulina capsules to lose weight or firm body?
39. Does spirulina deplete your B12?
40. Location of sevas spirulina industries in India
41. Whether it is a fungi bacteria virus or algae?
42. Where spirulina does grows naturally?
43. What is the size range of algae?
44. Common requirement for growth of algae
45. What is the difference between microscopic and macroscopic?
46. What are the different types of algae?
47. Why spirulina is different from other algae?
48. What are the different types of spices?
49. 49 Types of microbes
50. What are the criteria to distinguish the microbes?
51. What is the optimal temperature for growth of spirulina?
52. What is the optimal ph for growth of spirulina?
53. What is the composition of spirulina?
54. What is the percentage of protein in spirulina?
55. The common media for the growth of spirulina or algae
56. How Spirulina grows by attaching or floating?
57. What are the precautions to protect spirulina from bad weather?

58. What is the photo field required for growth of spirulina?
59. Whether it is a singular cellular or multi cellular organism?
60. What are the various forms of intake of spirulina?
61. Essential steps in cultivation of spirulina
62. Basic composition of media
63. What is the importance of media?
64. What are the different types of filter in cultivation?
65. What is the size of filter?
66. What is the importance of agitation?
67. Why motors are not used in small scale production?
68. How the culture will be maintained?
69. Is there any organization to certify the correctness?
70. What are the precautions taken for the preservation of spirulina?
71. In which ratio the fertilizer mixture will be added for maintenance?
72. What is the importance of purging?
73. What are the quality control measures for spirulina?
74. Various steps involved in harvesting of spirulina?
75. What is mean by Filtering?
76. What is mean by Pressing?
77. What is meant by Extrusion and drying?
78. What is meant by conditioning?
79. How the culture medium will be prepared?
80. What is mean by seeding?
81. What are the requirements for seeding?
82. How does spirulina helps in removal of mal nutrition?
83. What are the bio chemical elements of spirulina?
84. What is the highest known source for beta carotene?
85. What is the richest source of spirulina?
86. What are the natural anti-oxidants present in spirulina?
87. What are the benefits of eating spirulina?
88. Whether it contains essential or non-essential amino acid?
89. What is the name of scientist who named it as spirulina?
90. The Latin meaning of Spirulina
91. What is the importance of spirulina in developing countries?
92. Which acid in spirulina helps in reducing spirulina?
93. Which vitamin in spirulina helps in reducing optical problems?
94. Which acid in spirulina helps in reducing cholesterol?
95. Which amino acid in spirulina helps in reducing inflammation of pancreas?
96. Which content in spirulina helps in skin nourishment?
97. Which content in spirulina helps in reducing cancer?
98. Which content in spirulina helps in cardiopathy?
99. Which content in spirulina helps in reducing stress?
100. Which content in spirulina helps in hepatitis?
101. Which content in spirulina helps in digestion and absorption?

2. PALM AMICUS

1. Who is the founder of AGASTYA foundation?
2. What are the objectives of AGASTYA foundation?
3. Why AGASTYA foundation conducts the exhibitions and inspires camps?
4. How the work of the foundations does stands as a opportunity source for school as well as college students?
5. What's the motto behind conducting the workshops which includes the training of school children?
6. How the workshops conducted by the foundation do helps to develop the responsibility?
7. What is the functionality development oriented fields of work by the foundation?
8. What are the supports provided by the AGASTYA foundation?
9. How does Anveshana program helps in building innovative skills and thinking ability?
10. How does Anveshana program helps the working coordination in groups?
11. What is a drone?
12. How does a drone differ from simple wad copter?
13. Why is drone so useful?
14. How the drone does increase the provision of accessibility?
15. How can drone assigned with multi functionality?
16. How does drone reduces the fatality probability?
17. Why the names palm amicus?
18. How does palm amicus is useful in agriculture sector?
19. How does palm amicus work?
20. Is the drone economical?
21. How can farmers adapt the usage of drone in their daily work?
22. What are the advantages of palm amicus?
23. What are the disadvantages?
24. What was the key of innovation of palm amicus?
25. Which are the fields that already adapted the applications of drone?
26. What's the message to the society by the foundation?
27. How the drones can is powered?
28. How drone is can be made economical with respect to energy?
29. How can the complex drone work on solar power?
30. Is solar power can be a efficient source for drone operation?
31. What are the geometrical arrangements of solar panel on the drone?
32. How can we ensure the reduction of external damages to drone with respect to solar panels?
33. What's the basic key to maintain the disorientation of the drone during air borne condition?
34. How can the validity and durability can be scaled?
35. What are all the precautionary measures to be taken in order to maintain sound condition of drone?
36. How actually do you propose that the drone cut the stalks of areca nuts?
37. How the drones distinguish the stalk and nuts?
38. What are all the main components used in making of drone?
39. Why solar power why not other renewable sources?
40. The difficulties in implementing solar power?
41. Can only solar power is sufficient for the handling and maintaining operations?
42. How the problem of light variations can be overcame?
43. Explain the interfacing of software and hardware
44. How does the prototype differ from actual drone?
45. How does the sensor works on image processing?
46. Why image processing why not other logical applications?
47. How the imaging sensor cover the area under consideration?
48. How can the drone operate and divert itself from the obstacles?

49. What is the necessity of implementing such a complex device for such operations?
50. Why image processing became the most advanced and vital application foundation parameter?
51. How does the problem of air uniformity condition during air borne of device?
52. How the received solar power does is amplified and stored for the purpose of continuous operations?
53. Can farmers understand the complete process and algorithms of operations?
54. How do you propose to teach the farmers about the importance of such appliances?
55. How can such complex operations made simpler to the farmers so that they feel device as user friendly?
56. Why farmers may choose to use these devices for agriculture purpose?
57. How can such advance devices bring social and economic changes in the society?
58. What are the reasons that may stand as obstacle to buy the devices?
59. How these devices can reduces the time need to work?
60. What may be the future improvements of such devices in various fields?

3. SUPER DRIP BOT

1. What is irrigation?
2. What are the types of irrigation?
3. What is drip irrigation?
4. Why go for drip irrigation? How it is better than other types?
5. Why automation better than manual?
6. What is electronics?
7. What is the difference between electronics and electricals?
8. How does current flow?
9. What is voltage?
10. What are different types of voltage?
11. What is AC?
12. What is DC?
13. How to generate AC?
14. How to generate DC?
15. Why AC is used for power transmission?
16. What is power?
17. What is WATT?
18. What is joule?
19. What are conductors?
20. How does current passes through conductors?
21. What are semiconductors?
22. How are semiconductors different than conductors?
23. What are insulators?
24. What is resistance?
25. How resistance does vary in different materials?
26. Do we need resistance in the circuit?
27. Does resistance vary with other parameters?
28. What is color coding?
29. What is capacitor?
30. Why charge storing is necessary?
31. What are electrons?
32. What are atoms?
33. What are elements of atom?
34. What are energy bands?
35. What is energy?
36. What is electronvolt (eV)?
37. Why energy gap is calculated in electron volts?
38. What is excitation?
39. What is LASER action?
40. Is there relation between LASER action and excitation in semiconductors?
41. What is diode?
42. What is forward bias?
43. What is reverse bias?
44. What is forward voltage?
45. What is reverse breakdown voltage?
46. What is avalanche breakdown?
47. What are the uses of diode?
48. What is rectification?
49. Can there be 100% recovery of DC from AC?
50. What is half wave and full wave rectification?
51. What is transistor?
52. How transistors work?
53. What are the types of transistors?
54. What is npn and pnp transistors?
55. How transistors are biased?
56. What is different biasing technique?

57. What are characteristics of transistors?
58. What is base bias technique?
59. What is emitter bias technique?
60. What is voltage divider bias technique?
61. Why do we use different types of biasing?
62. Which is better way in biasing techniques?
63. What are the use of transistors?
64. What are amplifiers?
65. What are sensors?
66. What are sensors made up of?
67. What is pH?
68. What are transformers?
69. What is inductance in windings?
70. What is acidic compound?
71. What are basic compounds?
72. How to calculate the pH of the soil?
73. Why pH maintenance is required for plant growth?
74. Is there any unit for pH?
75. What are moisture sensors?
76. How to calculate moisture of soil?
77. What is unit of moisture density?
78. What are water level sensors?
79. How water level sensor works?
80. What are microcontrollers?
81. What is programming?
82. How different are microcontrollers from microprocessors?
83. What is simulation?
84. What are analog signals?
85. What are digital signals?
86. What are solar cells?
87. How power generated through solar cells?
88. What are photoelectrons?
89. What are relays?
90. How does relay work?
91. What are solenoids?
92. What are solenoid valves?
93. How do solenoids valves work?
94. What is GSM?
95. Which are other similar modules like GSM?
96. How wireless communication works?
97. What is aurdino?
98. How to program the aurdino?
99. Which microcontroller used in aurdino-uno?
100. What is DAC?
101. What are different types of DAC?
102. What is ADC?
103. What uses of DAC and ADC?
104. What are integrated circuits?
105. What are types of IC's?

5. UTILIZATION OF SERICIN LIQUID, AN INDUSTRIAL EFFLUENT OF SILK REELING INDUSTRIES AS A COST EFFECTIVE SOURCE OF PROTEIN FOR CULTURING ECONOMICALLY IMPORTANT MICROBES

1. What is the study of bacteria called?
2. What is the incubation period for bacteria and fungi?
3. What is incubation?
4. What is inoculation?
5. Which are the economically important fungi?
6. What is radial growth?
7. How do we measure the radial growth?
8. What is a mushroom?
9. What are the uses of mushroom?
10. Why is mushroom a fungi?
11. For how many days can a mushroom survive?
12. What are spores?
13. What is the economic importance of fungi?
14. What is a media?
15. What are the components of media?
16. What is media formulation?
17. Why do microbes need protein and carbon source?
18. Which is the standard media used for fungal culture?
19. What are the different types of media?
20. Why is agar added in a media?
21. What is the need for culturing the microbes?
22. What is the optimum pH of the media suitable for fungal growth?
23. Why do bacteria require salt for their growth?
24. How does salt inhibit the fungal growth?
25. What is the life cycle of a silk worm?
26. In which stage of its life cycle does it produce cocoon?
27. What is the scientific name of the silk worm?
28. Why do they generally feed on mulberry leaves?
29. What are silk reeling industries?
30. What is the industrial process of silk extraction?
31. What is the industrial effluent of silk reeling industries?
32. Which are the places where silk reeling industries are found?
33. How much of sericin waste is produced per day in a silk reeling industry?
34. What are the ill effects of the industrial effluent i.e., sericin water?
35. What are the other wastes of silk reeling industry?
36. What is a cocoon?
37. What are the proteins present in a silk cocoon?
38. What is the percentage of sericin in a cocoon?
39. What is the weight of pupa in the cocoon?
40. What is sericin?
41. What are proteins?
42. What are amino acids?
43. What are structural proteins?
44. What are the amino acids present in sericin?
45. What is the structure of sericin?
46. What is the main basis of separation of fibroin and sericin?
47. What is the process of separation of fibroin and sericin?
48. What is the need to remove sericin?
49. Why only water is used to boil the cocoons?
50. What is the temperature at which they boil cocoons?

51. Is there any other protein present in silk cocoon?
52. What are the applications of fibroin?
53. What are the applications of sericin?
54. Why is sericin used in media?
55. What are the advantages of using sericin as an alternative for peptone?
56. What is peptone?
57. How is peptone different from sericin?
58. What are the properties of sericin that helps in culturing microbes?
59. Why is an alkali used in the extraction of sericin?
60. Which is the alkali used in silk industries?
61. What are the differences between fibroin and sericin?
62. What is the concentration of the alkali used?
63. What is pH?
64. How do we measure the pH of a solution?
65. Why should the pH of the media range from 6.5 to 7?
66. Which is the acid used to neutralize the alkali?
67. What does the acid base interaction lead to?
68. Which is the salt formed during this process?
69. How do we remove the salt formed from sericin water?
70. Why do we remove the salt?
71. What is desalting?
72. What is membrane filtration?
73. What is dialysis membrane?
74. What is the pore size of the dialysis membrane?
75. How does the membrane help in removal of salt from the sericin water?
76. What is spray drying?
77. What is degumming?
78. What is sterilization?
79. What is the need for sterilizing the media and the petri plates before inoculating?
80. What is an autoclave?
81. What is the temperature and pressure used in an autoclave?
82. Why is temperature and pressure specified in an autoclave?
83. How to arrest the growth of microbes?
84. Why is inoculation done under LAF?
85. What is LAF?
86. How to avoid contamination in the place where the petri plates are kept for incubation?
87. Where do we incubate the fungal culture?
88. What is the temperature at which fungal culture is incubated?
89. What are the safety measures to be taken in a microbiology lab?
90. What is the difference between mushroom grown on a sericin medium and those on standard media?
91. What is Hiveg media?
92. What are the components present in Hiveg media?
93. How to discard the culture present on petri plate?
94. What are the benefits of this project?

6. FOOD QUALITATIVE ANALYSER – AN EYE ON MY FOOD

1. What is qualitative analysis?
2. What are the nutrients can be detected by the biosensors?
3. What is the test used for detection of carbohydrates?
4. What is the need of qualitative analysis of food?
5. Why we need calories of energy in food?
6. What are the methods are used for qualitative analysis of food?
7. What is the benedict test in Qualitative analysis of food?
8. What is sensor?
9. How food is detected by sensors?
10. What is qualitative analysis?
11. Why food analysis is required?
12. What is bio sensor?
13. What is bio receptor?
14. What are the types of bio receptors?
15. What is transducer?
16. What are the types of transducers?
17. Write the block diagram of bio receptor?
18. Write the block diagram of transducer.
19. Write the block diagram relating transducer and bio receptor
20. What is the role of bio receptor in food qualitative analyser?
21. What is the role of transducer in food qualitative analyser?
22. What type of signals does the bio receptor produces?
23. Write the architecture of food qualitative analyser.
24. What are the types of bio catalysts? Give one example for each.
25. What is an amplifier?
26. Who invented the bio receptors for the first time?
27. What is oxygen electrode?
28. What are electro chemical sensors?
29. What do you mean by enzyme electrode?
30. What are enzymes?
31. Who invented the enzyme electrodes? Write one application.
32. Write the characteristics of an ideal bio sensor.
33. What are the applications of bio sensors?
34. What is bioluminescence?
35. What is ATP? Write its abbreviation.
36. 1 photon of light is equal to how many molecules of ATP?
37. What is the unit of light output in bioluminescence?
38. What is bio catalyst?
39. What are the types of bio catalysts? Give one example for each.
40. What is receptor?
41. What is amount of carbohydrate in a proper diet?
42. What are parts of bio sensor?
43. What is the role of reference in amplifier/
44. How the reference level is selected in amplifier?
45. What are the factors for the selection of transducer?
46. What is amplifier?
47. Why we need amplifier?
48. What are the types of amplifier?
49. Which amplifier is used in the qualitative analysis of food?
50. What are the benefits of this project?
51. Why the India is lagging in the daily intake of calorie in the food?
52. How can we make understand to the normal people?
53. IS our project is efficient to normal people?
54. What is signal processor?
55. What are the role of signal processor in this project?

56. In which domain signal processor is going to work?
57. What is embedded system?
58. Why these embedded system needed in qualitative analyser?
59. How to store the food nutrients level in ESD system?
60. What is normal diet content of food?
61. How to link the sensor level with data base?
62. What are all the major food content?
63. Why the diet level is required?
64. How to send diet level to user?
65. What is the time required to send the level?
66. In which domain the food nutrient levels are represented?
67. How to store the output result?
68. What is the necessary of output device?
69. How to overcome with diet problem?
70. How to get the lost summary of food nutrient details?
71. In which form the output is represented?
72. Explain different food nutrients?
73. What is the standard level of a normal diet?
74. How much protein is required for a normal person?
75. What are the standard values of nutrients for normal human being?
76. What are the threshold values of different nutrients in a normal diet?
77. Why we compare the output values with the threshold values?
78. What are all the methods used for food protection?
79. Which devices are used for transmitter?
80. How to control the output device?
81. How the compared values are sent to device?
82. If system failure occurs while sending the messages, how to overcome it?
83. What are the application of this system?
84. How this method is helpful for children, adults and old people?
85. What is the link between ESD system and the recording system?
86. What is the need of external network system?
87. What all are the security technologies needed to protect the message?
88. Which type of output message is effective?
89. What is the role of LAN or networking?
90. What all are the drawbacks of qualitative analysing system?
91. How the system is helpful for unhealthy persons?
92. If the system failure occurs while displaying the message, how to overcome with it?
93. Why the failure occurs, while representing display?
94. If food is spoiled, which type of message may I expect?
95. If the food is with normal level, which type of message you expect?
96. Why the display of nutrients is necessary?
97. Qualitative study of food, is it useful for all?
98. Is it worth for middle class people?
99. How much effective role will play by this project in society?
100. what you think of this project, is it required in your life?

7. MODERATE PRESERVATOR FOR KITCHEN

1. What is the need to preserve nutrients?
2. What is the actual needed duration to preserve nutrients without losing nutritional value?
3. What is meant by freezing?
4. What is refrigerator?
5. What is the optimum temperature range for perishable food?
6. What is freezer?
7. When was the first working vapour compression refrigeration system was built?
8. What is the principle of the refrigeration?
9. Which are the circulating refrigerants used in fridge?
10. What are the advantages of the refrigerator?
11. What are the disadvantages of the refrigerator?
12. What is the impact of refrigerator on environment?
13. What is the effect of refrigerator on life style?
14. How the capacity of refrigerator is measured?
15. What is meant by Defrosting?
16. What are the types of the refrigerator?
17. What is solar refrigerator?
18. Why food materials (boiled) get deteriorated with respect to time?
19. Why milk is needed to be heated often to preserve?
20. What is absorption refrigerator?
21. What is compressor refrigerator?
22. What is the ideal refrigerator temperature?
23. Can we put hot food in the refrigerator?
24. What is the basic principle of cooling the water in the mud pot?
25. Why germination of seed does not take place in the refrigerator?
26. Why curd is not formed in the refrigerator?
27. Why we cannot place fruits like banana in the refrigerator?
28. How the cooling process takes place in the mud pot?
29. Why the temperature of water kept in mud pot is less than it is kept in any other vessel?
30. What are the different temperature needed to preserve the fruits & vegetable with its nutritional values?
31. Which types of gases are used in the fridge?
32. What is moderator preservator for the kitchen?
33. What is the basic principle of moderator preservator for the kitchen?
34. How it works?
35. What are the parts of moderate preservator?
36. What are the materials used?
37. Why the mud pot is used in moderate preservator?
38. Why the blower fans are used?
39. Why the exhaust fans are used?
40. What are specifications of these fans?
41. Why the battery is used?
42. What is the specification of the of battery?
43. What is the source of power to charge the battery?
44. How much compartment is present in the moderate preservator?
45. What is dimension of the moderate preservator?
46. What is the total dimension of each compartment?
47. Is this preservator is ecofriendly?
48. If it is yes, then why it is ecofriendly?
49. What is running cost of the moderate preservator?
50. What is minimum temperature maintained in moderate preservator?
51. Why food items are stored at low temperature?
52. What happen to vegetables & fruits when temperature rises?
53. What are bacteria?
54. What is fungi & fungal?
55. What are algae?
56. What is the nutritional value of fruits?
57. What are the calories?

58. What happens to calories when food is kept at room temperature & at very low freezing temperature?
59. What is a solar panel?
60. Why are solar panels used in electrical circuits?
61. Which type of current is produced by a solar panel?
62. Why is a mud pot used in a moderate preservative?
63. Can we store AC supply?
64. Why is a battery used in a moderate preservative?
65. What is the difference between a moderate preservative and a refrigerator?
66. Which is the filler material used in a moderate preservative?
67. How does hot air come out from the moderate preservative?
68. How is an individual compartment cooled?
69. What will happen if salt is used in the mud pot?
70. How does a solar panel work?
71. What are photovoltaic cells?
72. What is a cooling effect?
73. How does air cool a substance?
74. What is air pressure?
75. How does air flow?
76. What is natural convection?
77. How do air circulations occur?
78. How does heat transfer take place in the compartment?
79. How is solar energy converted into electricity?
80. What should be the position of a solar panel?
81. What is solar irradiance?

8. PLASTIC AND METAL PARTICLE DETECTION IN PROCESSED FOOD

1. What is the name of project?
2. What is the cost of project?
3. What kind of plastics it can detect?
4. How it is going to be beneficial for customers?
5. What is plastic?
6. What is Anveshana?
7. How it is going to work?
8. What is ADC?
9. How ADC is going to decide whether the food is good or bad?
10. What resistance?
11. What is the role of resistance circuit?
12. Is your project is reliable and efficient?
13. What is food?
14. Why students like us as to be involved?
15. What is metal?
16. How this device is going to detect metal in food particles?
17. What is the reason/purpose behind this idea?
18. What is the use of this impurity detector circuit?
19. How the impurity detector circuit is going to work?
20. What are the applications of this circuit?
21. How you are going to decide whether food is healthy to consume or not?
22. Can our project further modified?
23. Our project basically on what subject?
24. Whether this project is economical?
25. What is the major role played by the resistance circuit in this project?
26. Is your project is going to be work on batteries or electricity?
27. What is battery?
28. What is unit of resistance?
29. What is the difference between plastic and metal?
30. How many types of plastics are there?
31. What are the different types of metals present?
32. What is the weight of your project?
33. Is your device portable?
34. What is circuit?
35. Does it require any maintenance?
36. If yes, then is it easy to maintain?
37. In which principle it work?
38. Can any common man can use it?
39. Does this project have can be affected by the external environment?
40. Is it going to work on AC voltage or DC voltage or both?
41. What is the difference between AC and DC?
42. What are the different processes takes place in ADC?
43. Explain Sampling theorem?
44. What is quantisation?
45. What is encoding?
46. What do you learnt from this project?
47. What are the difficulties faced while research?
48. What are the components used in this project?
49. Why this project is said to be eco-friendly?
50. What is the feasibility of his project?
51. What is the significance of project design and development in India?
52. Is this product is semi - automatic machine?
53. Is there any emergency power off button is there in device?
54. Is this project is designed with safety?
55. Is this product is necessary for current market?
56. Why this project is innovative?
57. How this device is going to help the food inspectors?
58. How can you control food poisoning using this project?
59. What is the branch electronics and communication about?

60. What are the different areas taught in electronics and communication engineers?
61. Are there any other alternatives for this project?
62. Is there any plan to be followed for the implementation of this project?
63. How has work on this project started off?
64. With which name you are going to call this project?
65. Do you need software for this project?
66. Which software you are going to use?
67. Which programming language has been used by you in this project?
68. What are the disadvantages of this project?
69. What is the minimum and maximum value according to this device in which food can be consumed?
70. What is the function of resistor?
71. What is the purpose of selecting school students?
72. Unique features of this project?
73. How the school students are trained?
74. Is the device is capable of storing the previous data?
75. What is engineering?
76. What is abstract and synopsis?
77. What is the use of taking the part in Anaveshana?
78. What is power supply?
79. Where it is going to display the result?
80. Whether you are using LED's or not?
81. What is the full form of LED?
82. What is the input and the expected output from the device?
83. How this is design and which software is used?
84. What is the role of your guides in this project?
85. How internet helped you for this invention?
86. Are sensors used in this project or not?
87. What are sensors?
88. What about the modal life?
89. What is voltage?
90. What is cost of components?
91. What are the application of sensors?
92. What is the use of resistance and impurity detector circuit?
93. What are electrical wires?
94. What is the role of electrical wires in this model?
95. What is the frequency level we get at home?
96. What is frequency?
97. What is diode?
98. Why are diodes used?
99. How is current related to resistance? How much electrical power is required for this project?
100. Is it working model or prototype?

9. DESIGN AND DEVELOPMENT OF CLAY REFRIGERATORS

1. What is a cooling system?
2. What is evaporation?
3. What is refrigeration?
4. What are refrigerants?
5. What is a system?
6. Is cooling necessary at all places?
7. Why are mud pots used in this experiments?
8. What is temperature?
9. What is thermometer?
10. Why is different absorbing agents like sand, fly ash and Sponge used?
11. What is a cooling agent?
12. What is porosity?
13. What are the properties of fly ash?
14. What are mud pots made of?
15. What are the properties of clay?
16. Is there any material which can replace clay properties?
17. Why are two different sized pots used?
18. Why is water supplied to the absorbing agent?
19. What is the difference between refrigeration and cooling?
20. What is the principle of refrigeration?
21. What is permeability?
22. Is it possible to construct a refrigerator without electricity?
23. How much quantity of water is supplied to the absorbing agents?
24. What is convection?
25. What is radiation?
26. What is conduction?
27. Is this device economical? Can people afford this?
28. During evaporation does the device liberate any type of gases to environment?
29. What is the construction involved in this experiment?
30. What is evaporation caused from plants called?
31. What is evaporation mostly caused from?
32. What does liquid turn into once it is evaporated?
33. What is principle involved behind design and development of refrigerator?
34. Name some of the refrigerants?
35. How many days can this device preserve food items?
36. Is this experiment carried out at room temperature?
37. Experiment conduction is out door or indoor?
38. Name some temperature measuring devices?
39. If any food item of high temperature, can this device cool down to room temperature or less than that?
40. How is this experiment helpful to us if we participate in this?
41. What is a permeable layer?
42. What is water cycle?
43. What are the limitations of the device?
44. What does phase transition mean?
45. What are vapors?
46. What is boiling point?
47. What is a pressure?
48. What is Dry bulb temperature?
49. What is wet bulb temperature?
50. Name few sources of energy?
51. What is a melting point?
52. What is vapor pressure?
53. What is a dew point?
54. What is heat exchanger?
55. What is the difference between evaporative cooling system and refrigeration?

56. What does absorption mean?
57. What are advantages of evaporative cooling system?
58. What are disadvantages of evaporative cooling system?
59. What are the advantages of clay refrigerators?
60. What are the limitations of clay refrigerators?
61. What are the main applications of clay refrigerators?
62. Is it harmful to environment?
63. What is the approximate drop down temperature?
64. How helpful is your project for people?
65. Does this device work at all seasons?
66. Name few seasons?
67. Can this system be installed at rural places?
68. Name three states of matter?
69. What is a matter?
70. What is solid?
71. What is liquid?
72. What is a gas?
73. Give two examples for solids?
74. Give two examples for liquids?
75. Give two examples for gases?
76. What are the materials used in your system?
77. Explain the working principle of your system?
78. What kind of food items can be preserved by your system?
79. What are modes of heat transfer?
80. How many days is this experiment conducted?
81. Where is this competition conducted?
82. How many projects will be selected for finalist?
83. After selection of final project will that project be installed?
84. What is heat?
85. What is energy?
86. How much kilometers is the place where competition is conducted from Doddaballapur?
87. What are heat engines?
88. Participation in this project will help us in job interviews?
89. What are the types of heat engines?
90. What are internal combustion engines?
91. What are external combustion engines?
92. What are raw materials?
93. Why is inner pot closed with a mud plate?
94. How many people are allowed in a group to participate?
95. Is this anveshana competition held every year?
96. How many projects will be selected from each college?
97. What is engineering?
98. What are the benefits of this competition?
99. State first law of thermodynamics?
100. Name few renewable sources of energy?

10. FRUIT HARVESTING FLYING BOT

1. What do u mean by project.
2. How to do it.
3. What is quad copter .
4. How it works .
5. What are parts required.
6. How motor works .
- 7.what is arduino
- 8.how it works.
- 9.why it is required.
- 10.how it is programmed .
- 11.what is programming .
- 12.how communication takes place between base unit and flying unit.
- 13.what base unit is consist of.
- 14.where is battery connected .
- 15.what kind of battery is use.
- 16.why only that particular battery .
- 17.how flying robot is controlled.
- 18.what is propeller.
- 19.why 4 motors are used.
- 20.what is gyroscopic sensor.
- 21.what kind of cutter is use.
- 22.why rotary cutter is used.
- 23.how much weight it can carry.
- 24.what is max height it can go.
- 25.how the camera is connected.
- 26.why the arm is folded during flying mode.
- 27.can we use it at night.
28. For how much time it will work once charged .
- 29.how long it will take to fully charge the battery.
- 30.will it work for longer time if we add one more battery .
31. what will happen if strong wind blows during flight.
32. Does it get affected by rain.
33. What are the different components on the circuit board .
34. what is the function of those components.
- 35.how those components work.
- 36.how signals are send and received.
37. Is there any other method for communication.
38. Can we control the quad copter from mobile phone. How?
39. What is range of the transmitter and receiver.
- 40.where is program stored.
- 41.what is microcontroller.
- 42.how inputs and outputs are connected to it.
43. Can we control it using the internet.
44. Can we use Bluetooth.
45. Can this project be used for some other application.
46. Is it safe for other flying creatures.
47. Can it be used for plucking other kinds of fruits.
48. Are there flying copters available with more no. propellers.
49. What material is propeller made up of.
50. Why the frame is of plastic.
- 51.what material is cutter blade made up of.
52. What is difference between a helicopter and quad copter
53. Is robotic arm function as a human arm
54. How is movement at joints in a robotic arm
55. As human have fingers does robotic arm have fingers
56. What motor is used for movement of robotic arm
57. How does a robotic arm operate
58. What type of material is used to make a arm
59. How are signals send to arm
60. What is microcontroller
61. What is difference between a processor and controller
62. From where does power supply comes to board

63. How the components mounted on board
64. What is shouldering
65. Why it is necessary to do Shouldering using specific material
66. How many pins does a controller has
67. Can you please put light on how the board is divided
68. What is series and parallel connection
69. How to know value of different components
70. What are resistors
71. How to measure a value of resistor
72. How is earthing done
73. What are capacitors
74. What are voltage regulator
75. Which wire is to be used for connection
76. How the cutter function
77. Is it difficult to control
78. How farmers will use it
79. Can it act as a destroyer for some wrong reasons
80. Put some light on remote controller
81. What type of fruit can be cut
82. How to know fruit is ripped or not
83. The motor blades will generate air. Will they affect branches of trees
84. Will we be able to build this on our own
85. What is the language used to write programs
86. How to send instructions
87. Is it necessary to have only specific program
88. Can radio signals be used for communication
89. How to join a quad copter and robotic arm
90. Does the weight play any role considering weight of arm
91. Can someone help us to teach how to make circuit connection
92. Is there a way to check whether connection of a particular segment are right or wrong
93. What is multi meter

94. How to cut wires
95. What do you mean by ground
96. What is series and parallel connection
97. Which part of quad copter works as human brain
98. What are its further application
99. Can we now touch it and fly it
100. As we know to fly can you please start teaching us to build a fruit plucking flying robot

11. FABRICATION OF SOLAR SEED SPRAYER FOR AGRICULTURE

1. What is solar energy?
2. Sources of solar energy?
3. What is the intensity of light?
4. In which direction we can place the solar plate?
5. What is humidity?
6. What is solar cell?
7. How much energy is produced from each cell?
8. Where the energy is stored produced from cell?
9. What is the capacity of battery?
10. Which type of power supply is used?
11. How much power is used to run the system?
12. What type of seed can be sprayed?
13. How much quantity seed can be sprayed per hour?
14. How much time required spraying per acre?
15. Types of battery?
16. What type of battery is used in this?
17. What is the advantages of battery?
18. Which type of electricity is used?
19. Why the led acid battery is used?
20. How the led acid battery is used?
21. Chemical reactions in batteries?
22. Maintains of led acid battery?
23. What is the minimum output voltage of battery?
24. Weather it comes under in conventional or non-conventional energy sources?
25. Is there low temperature reduce the current capacity and voltage output?
26. How many cells are used in the battery?
27. How much electricity is produced from each cell?
28. Which type of electricity is used in battery?
29. In a day what time the solar radiation is more?
30. Weather the solar energy is continuous type of energy?
31. What is photovoltaic effect?
32. How the heat is transferred from one body to another body?
33. Modes of heat transfer?
34. What is conduction?
35. What is convection?
36. What is radiation?
37. What is evaporation?
38. What are the hazards?
39. What is impeller?
40. What are the use of impeller?
41. Advantages of solar energy?
42. Disadvantages of energy?
43. Limitations of solar energy?
44. what is solar radiation?
45. Types of solar radiation?
46. How the solar radiation is measured? Through which instruments?
47. What are the beam and diffused radiation?
48. What do you mean by semiconductor?
49. Types of semiconductor?
50. What is n-type semiconductor?
51. What is p-type semiconductor?
52. Types of solar cells?
53. What type of solar cell is used in our panel?
54. What is auto tracking?
55. Advantages of solar refrigeration?
56. In which area it is helpful?
57. What is the amount of electrical energy is used for seed sprayer?
58. What is solar collector?

59. Types of solar collector?
60. Types of battery?
61. Weather it is used in commercial or domestic application?
62. How it is helpful for the feature?
63. What is the aim of the project?
64. Weather the model causes the pollution?
65. How it works basically?
66. Advantages of solar energy related to our model?
67. List the area this type of models are used?
68. Maintenance of battery?
69. Maintenance of solar panel?
70. Which electrolyte is used in the battery?
71. What are the elements used in the model?
72. What is the material used in the model?
73. What is conventional and non-conventional energy source?
74. What are AC and DC current?
75. Why we are using nonconventional sources?
76. It is a energy efficient system?
77. Applications of the system?
78. Why blower is used?
79. Why impeller is used?
80. What is the purpose of charge controller?
81. What is the purpose of Flexible pipe?
82. What is the purpose of Blower?
83. What is the use of sheet cover?
84. What is the purpose of Impeller outer case?
85. What is the purpose of Funnel?
86. Name the elements of solar seed sprayer?
87. What is the Efficiency of seed spraying?
88. How we can improve the efficiency of seed spraying?
89. Which is the costly element in this set up?
90. How we can reduce the cost of the set up?
91. Which type of blower?
92. Which type of impeller?
93. Material of impeller?
94. Material of blower?
95. Material of impeller outer case?
96. Funnel made of which material?
97. Size of funnel?
98. Size of impeller?
99. Material of sheet cover?
100. Material of flexible pipe?

12. ARTIFICIAL STOMACH AND INTESTINE TO EVALUATE THE DIGESTIBILITY OF ORGANIC MATTER IN DIFFERENT FOOD INGREDIENTS

1. Define Nutrition
2. What is digestive system?
3. Where the digestion does begins?
4. What are the four accessory organs of the digestion?
5. What are the three main functions of the digestive system?
6. What is a soft mass of chewed food ready to be swallowed called?
7. What are the steps involved in metabolism of food?
8. Where does the food pass between the mouth and the stomach?
9. List the major nutrients
10. What are minor nutrients?
11. Name the enzyme which is present in saliva
12. What type of acid is secreted in the stomach
13. At what pH the enzyme in the stomach starts functioning
14. What is the pH of saliva
15. What is the pH of Hydrochloric acid in the stomach
16. Name the nutrients digested in the stomach
17. What type of enzyme is secreted by pancreas
18. What are the enzymes secreted in the stomach
19. What is the role of bile acids
20. What type of nutrients get digested by pancreas enzyme
21. What is the difference between in vivo and in vitro
22. Where does the partly digested food go after it leaves the stomach?
23. How does digested food finally reach the bloodstream?
24. What happens to unusable food material?
25. What is the wavelike contraction that occurs involuntarily in hollow tubes of the body?
26. What is the first portion of small intestine?
27. Which system transports nutrients to body cells?
28. What are different parts of large intestine?
29. Which is the largest glandular organ in the body?
30. Which is the organ stores and concentrates bile that has been produced by the liver?
31. Where does digestion and absorption chiefly take place?
32. The salivary glands located in and around the mouth are called?
33. Which two secretions need to be present for lipid digestion?
34. What is the name of epithelial tissue that lines the stomach and small intestine?
35. How does food move through our body?
36. What body parts do we use to chew food?
37. About how long is the adult's intestine?
38. Where is the liver located?
39. Where does unused food leaves the body?
40. How is protein in milk broken in the body?
41. What happens once food enters the small intestine?
42. After what time the food starts moving out of the stomach?
43. What is retention time?
44. What is passage rate?
45. What does bile do?
46. What is chicken largely made up of?
47. What do carbohydrates provide the body?
48. What is the role of liver in Gastro intestinal tract?
49. What type of fermentation occurs in large intestine?
50. What are the gases released in large intestine?
51. Where does the beneficial bacteria location in the GIT?
52. What are beneficial bacteria?
53. What is the role of bacteria in large intestine?
54. What are the advantages of *in-vitro* digestion experiments?
55. What are the disadvantages of *in- vitro* digestion experiments?
56. What are the disadvantages of high fermentation in large intestine?

57. What is the importance of fibre in the diet?
58. In which type of vegetables the fibre content is more?
59. What is the pH in duodenum?
60. Why there is difference in pH between stomach and intestine?
61. In cows and buffaloes what types of stomach is present?
62. What is pre gastric fermentation?
63. What is hind gut fermentation?
64. Name some anaerobic microorganisms
65. What is the difference between aerobic and anaerobic microbes?
66. What should be the minimum percentage of fibre in human diet?
67. What are the nutrients lacking in a completely non vegetarian diet?
68. What is *in-situ* experiment?
69. What are simple stomached animals?
70. What are the four chambers of stomach in cows?
71. In which animal gall bladder is absent?
72. What is pore size of nylon gauze used in filtration of fluid after *in-vitro* digestion?
73. What is the molarity of phosphate buffer used in the experiment?
74. What is the molarity of HCl used for *in-vitro* digestion?
75. Which chemical substance is used to neutralize the pH after digestion of food sample with HCl?
76. Why fresh fecal sample is used to prepare buffer inoculum?
77. What is the temperature of water bath for *in-vitro* digestion?
78. Why the temperature of water bath is maintained at 39°C?
79. What is the size of feed sample used for *in-vitro* digestion?
80. Which gas is used to maintain anaerobic condition in filling the fecal solution to syringes while mimicking the large intestine?
81. Why carbon dioxide is used while filling the fecal solution to syringes while mimicking the large intestine in the experiment?
82. Which diet is easily digestible between vegetable based diet and meat based diet?
83. Why meat takes more time to get digested?
84. Why fecal solution is used during *in-vitro* fermentation process?
85. What are strict anaerobic microbes?
86. What are facultative microbes?
87. What is dry matter in a food and what does it contain?
88. What is organic matter in a food and how it is different from inorganic matter?
89. How to measure total gas production in *in-vitro* fermentation technique?
90. What is the percentage of fecal solution used as inoculum?
91. What are the types of phosphate buffers used in the experiment?
92. Who introduced the *in-vitro* gas fermentation technology?
93. What is the moisture content of cow milk?
94. What is the percentage of fibre in meat?
95. What is the advantage of keeping samples in triplicate for digestion?
96. What is the quantity of pepsin added for digestion?
97. What is the quantity of amylase and pancreatin used for *in-vitro* digestion?
98. What are the chemical substances used to prepare buffer solution?
99. What are the negative effects of high gas fermentation on human body?
100. What are proximate principles and name them?

13. DEGRADATION OF HEXAVALENT CHROMIUM FROM WASTE WATER USING BIOFILM FORMING MICRO-ORGANISMS

1. What are bacteria?
2. What is "*Pseudomonas aeruginosa*"?
3. What is hexavalent chromium?
4. What is trivalent chromium?
5. What is reduction?
6. What is importance of reduction?
7. What are causes of hexavalent chromium on human health?
8. What is the use of trivalent chromium?
9. How Hexavalent chromium causes skin cancer?
10. What is beef extract?
11. What is the molecular formula of Di-potassium Hydrogen Phosphate?
12. How can we understand that hexavalent chromium is reduced to trivalent chromium in the solution by biofilms?
13. What is proteose peptone?
14. What is peptone?
15. What is medium?
16. What is agar?
17. What is broth?
18. Why do certain organisms form colonies?
19. What is biofilm?
20. What is extracellular polysaccharide?
21. Why mesh is to be used?
22. Why nylon material for mesh?
23. Why this bacteria only is to be used for reduction?
24. What is the mechanism of reduction of hexavalent chromium to trivalent chromium?
25. Why biofilms are formed on surface of liquid?
26. What is Anveshana?
27. Why engineering student with high school students for Anveshana?
28. When did agastya foundation start?
29. Why projects are required?
30. What is the outcome of this project?
31. Which branch of engineering do you belong to?
32. What is the use of project to the society?
33. What is the cost and duration of the project?
34. How this project through Anveshana will help in reducing such industrial effluents for social health?
35. What is industrial effluent?
36. How long do the bacteria take to multiply?
37. In which phase of its life cycle do the bacteria secrete EPS?
38. What is the composition of nutrient broth?
39. What is the composition of Cetrimide agar?
40. What is the composition of Kings B agar?
41. Why agar is used?
42. What is the role of agar?
43. From where agar is obtained?
44. What is pH?
45. How pH can be measured?
46. What is the role of pH in media formulation?
47. Is hexavalent chromium obtained from nature or it is found only in industrial effluent?
48. Which kind of industrial effluent contains hexavalent chromium?
49. What is Diphenylcarbazine and its molecular formula?
50. What is the procedure for Diphenylcarbazine test?
51. What is sterilization?
52. Why sterilization is important?
53. What is contamination?
54. How sterilization is done?
55. How pH effects growth of the bacteria?

56. How hexavalent chromium comes in contact with human body?
57. What is composition of agar?
58. What is the shape and size of "*Pseudomonas aeruginosa*"?
59. Why bacteria are used in this project?
60. Why only "*Pseudomonas aeruginosa*"?
61. Where are bacteria obtained from?
62. Why do bacteria multiply faster?
63. What range of temperature bacteria can survive?
64. What is polysaccharide?
65. Which polysaccharide is secreted in the formation of biofilm?
66. What are the sources that a bacteria requires to grow?
67. What all chemicals are required for Diphenylcarbazide test?
68. What is study of bacteria called?
69. What is microscope?
70. Is human utilizing bacteria more, compared to earlier centuries?
71. What is DNA?
72. What are prokaryotes?
73. What are eukaryotes?
74. What is a cell?
75. What are micro-organisms?
76. What is the difference between prokaryotes and eukaryotes?
77. Why we should not consume food which is fallen on the ground?
78. Who discovered bacteria and when?
79. What is chromosome?
80. How many chromosomes present in bacteria?
81. How many chromosomes present in human cell?
82. What is bioreactor?
83. What catalyst is used to reduce hexavalent chromium to trivalent chromium?
84. Which instrument do we use to sterilize media and equipments?
85. Do bacteria consume hexavalent chromium to form trivalent chromium?
86. Why bacteria are divided into good bacteria (useful) and bad bacteria (harmful)?
87. How bacteria are useful to human?
88. How bacteria's are harmful to human?
89. Are bacteria present in human body?
90. Can biofilm be used separately for treatments?
91. What are nitrogen fixing bacteria?
92. How can we increase efficiency of bacteria to produce EPS?
93. Does color change when hexavalent chromium is converted to trivalent chromium? If yes, which and why?
94. What is color of hexavalent chromium?
95. What is color of trivalent chromium?
96. What is color change in the reaction of Diphenylcarbazide test?
97. How is intensity of color measured?
98. What is absorbance?
99. What is the unit of absorbance?
100. What is the complex that emits pink color in Diphenylcarbazide test?
101. What is the nature of biofilm?

14. SPONTANEOUS PURIFICATION OF INDUSTRIAL EFFLUENTS BY DRIED BANANA PEEL: HIGH VOLTAGE METHOD

1. Is there any universal method of purifying water to remove all impurities?
2. What is the difference between domestic and industrial effluents?
3. How important to save water for next decade?
4. What is the recent technology on water purification?
5. How do electrical developments link to environment contribution?
6. Which is the best method of water purification?
7. What is portable water purification system?
8. Does the present project be a portable system?
9. What is the efficiency of the system?
10. Can the same method can be used for air treatment?
11. What is high voltage?
12. What is the range of voltage in this system?
13. What is purpose of using sand filters?
14. What is sediment?
15. Where is the application of sand filter?
16. What is the life time of sand filtration system?
17. Which is the biological waste material used for water filtration?
18. What are the characteristics of adsorbent?
19. Why does banana peel act as adsorbent?
20. Which are the industrial adsorbents?
21. Any other biological adsorbent used?
22. What are the features of filtration tank?
23. What is the capacity
24. What are the chemicals present in the industrial waste water?
25. Which are the methods used to purify the industrial waste water?
26. What is the best method to purify industrial waste water?
27. How do you say that this method is cost effective?
28. Which are the generators used to produce high voltage?
29. Mention the methods used to produce high voltage?
30. How much of high voltage is used in this purification of industrial waste water?
31. What is the relation between the high voltage applied and the quantity of the waste water taken for purification?
32. What is today s creteria in industrial water purification?
33. Whether the purified water is used for drinking purpose?
34. For what processes the purified water can be used?
35. What are uses of water?
36. What is the water composed of?
37. What are the disadvantages of sand filtration method?
38. Advantage of using high voltage?
39. Disadvantage of using high voltage?
40. What is deionized water?
41. What are parameters of water purification?
42. What is plasma treatment?
43. What is ozone generator?
44. What is ozone layer?
45. What is global warming?
46. How environment is is depleted by global warming?
47. What are the effects on health by drinking industrial purified water?
48. What is this method portable or not?
49. What is reverse osmosis?
50. What is carbon filtering?
51. What is microfiltration?
52. What is ultrafiltration?
53. What is capacitive deionization?
54. What is the aim of the experiment?
55. What is the effect of this process on environment?

56. What are the future aspects of this experiment?
57. What you mean by distilled water?
58. What is the conclusion of this experiment?
59. What is sediment filtration?
60. What is bottling process?
61. What is a coagulation agent?
62. What are the energy intensive technologies?
63. How the proposed system does helps the man kind?
64. What is an electrode?
65. What are the different types of electrode?
66. Explain the basic principle of electrode
67. Ozone is composed of?
68. What is alternating current?
69. What is direct current
70. Which has more applications, ac or dc?
71. How is hv transmission done?
72. Which is more dangerous, ac or dc?
73. What is the unit of current?
74. What is the unit of voltage?
75. What is power factor?
76. How is hv generated?
77. What are the application of hv?
78. What is molecular structure of water?
79. What are radicals and how does it effects the system?
80. What are ions ?
81. How does our proposed system depend on motion of ions?
82. Advantages of ozone molecules
83. What is energy harvesting?
84. Ways of energy harvesting?
85. Ways to generates hv
86. What is Marx circuit?
87. Which are various industrial water purification techniques
88. Why do we combine three different techniques of water purification?
89. What are bio-adsorbent?
90. What is absorption?
91. Which are various bio-adsorbent?
92. What is cost of proposed system?
93. Can the system be integrated totally?
94. How economical is the proposed system?
95. What is the motto of using banana peels?
96. How to manage banana peel extract in industries?
97. What is the difference in using sand filter and banana peel?
98. How is the flow of the system?
99. What is corona discharge?
100. What is actually considered as new in the system?

15. DESIGN AND TECHNOLOGY OF INTEGRATED SOLAR POWER AND EVAPORATIVE SHIELDING OF WATER RESERVOIR

1. What causes an object to float?
2. What is PVA?
3. Why doesn't PVA absorb water like sponge?
4. How to find out how much PVA is needed to support the weight of the solar panels?
5. How to make sure that one solar panel will not get entangled with the other when there is a flow of water in the dams or the rivers?
6. Wont the solar panels get dirty is the water?
7. How many solar panels can be fit in a damn?
8. What are currents in water?
9. What is surface current?
10. What is under current?
11. What will happen to our solar panels if a current pulls it away?
12. what will happen when all the water in the dam becomes empty?
13. What is the meaning of solar density?
14. What is efficiency?
15. How do we check the efficiency of a solar panel?
16. What is the meaning of a grid?
17. how does solar panel work?
18. Why don't we build roof of houses with solar panel?
19. What is the difference between thermal and photo voltaic solar panels?
20. Why is voltage constant in parallel network
21. Why is current constant in series circuit?
22. What is difference between current and voltage?
23. What is evaporation?
24. How does evaporation happen even without water boiling?
25. What are the causes for evaporation?
26. Wont fish get shock from the solar panels?
27. What is COD?
28. How will plants in the lake get sunlight if we put solar panels?
29. How does the solar panels convert sun light to electricity?
30. What is a transformer?
31. How does transformer help us?
32. What are the advantages of different types grids?
33. How does a grid retain its shape?
34. How does wind speed affect evaporation?
35. What is life of solar panels?
36. What is a multimeter?
37. What is anveshana?
38. why did you choose to do this project?
39. How to use infra-red thermometer?
40. What causes currents in water bodies?
41. How do we know which instrument to use for what purpose?
42. What is renewable energy?
43. Why is it better than other types of energy sources?
44. How does humidity impact temperature?
45. How does humidity impact rate of evaporation?
46. What is rate of evaporation?
47. Why is aluminium instead of steels or plastics for making solar panels?
48. What is carbon foot print?
49. How do we calculate the carbon foot prints?
50. How to reduce carbon foot print?
51. What is boiling point?
52. What is melting point?
53. What is difference between Boiling and melting?
54. How does elevation influence rate of evaporation?

55. How to use MS Excel?
56. What is total internal reflection?
57. Does the reflectivity of the glass on the solar panel effect the out put voltage of the solar panel?

16. ADVANCED SOLAR WATER HEATER

- 1.What is solar energy?
- 2.What is solar water heater?
- 3.What are renewable source of energy?
- 4.What are the advantages of solar water heater?
- 5.Why is solar energy called as renewable source of energy?
- 6.What are the components of solar water heater?
- 7.How does basic solar water heater work?
- 8.How does advanced solar water heater work?
- 9.What are the drawbacks of basic solar water heater?
- 10.Why do we need advanced solar water heater?
- 11.What are the advantages of advanced solar water heater?
- 12.How does solar water heater help environment?
- 13.What regular maintenance does it require?
- 14.How long will the system last?
- 15.How much does a solar water heater cost?
- 16.What is the expected life time of solar water heater?
- 17.Why does hot water in pipe loses its heat after some time?
- 18.Can solar water heater work on a rainy day?
- 19.How does solar water heater improve economy of a nation?
- 20.What are the additional components required for advanced solar water heater?
- 21.How can advancement in this can save water?
- 22.How can advancement in this can save time?
- 23.Solar energy a boon for mankind how?
- 24.What is a sensor?
- 25.Why do we need a motor in this?
- 26.What type of motor do we use?
- 27.What is a heat sensor?
- 28.Why do we need a heat sensor in this?
- 29.What is a motor?
- 30.What is a micro processor?
- 31.Why do we use microprocessor in this?
- 31.Which microprocessor we use ?
- 32.What is the work of microprocessor in it?
- 33.How does a heat sensor work?
- 34.What maintenance user need to do?
- 35.What will be the source of energy for motor to run?
- 36.What is the power of motor required to run?
- 37.What will be the additional cost required?
- 38.How does the advanced system work?
- 39.For how long will cold water will be delivered initially in basic system?
- 40.How can one save time from using advanced system?
- 41.Will the cold water taken out be reused?
- 42.What is the statistical data about cold water being wasted?
- 43.What percentage of people complain about waste of time in old system?
- 44.What amount of cold water is being delivered initially?
- 45.Which software is used to program microprocessor being used?
- 46.What are the modifications made in valve system?
- 47.To what extent this system solve the problem of water shortage?
- 48.How much space does this system occupy?
- 49.How much electricity can be saved?
- 50.What are the drawbacks of the system?
- 51.How can the drawbacks be overcome?
- 52.Which category of battery is used?
- 53.What will be the power of battery used?
- 54.How often the battery be recharged or replaced?
- 55.What will be the cost of solar panel used?
- 56.How long the battery should be charged for use?
- 57.How does the whole system work?
- 58.How does user gets hot water directly for use, without delay of cold water?
- 59.How this advancement is environmental friendly?

60.How this advancement is user friendly?
61.What is Water?
62.What is chemical composition of water?
63.What is electricity?
64.What are the ways of generating electricity?
65.How does moter works?
66.What chemical process causes tremendous energy in sun?
67.Is sun a star or planet?
68.How far is sun from earth?
69.How are sensors made?
70.What is the physical phenomenon that makes motors to work?
71.What is electro magnetic induction?
72.What is the need to save water?
73.To what extent the problem of water scarcity can eliminated?
74.What is hydrogen fussion?
75.What are the other applications of solar energy?
76.When was solar water heater invented?
77.How this project help full to man kind?
78.Can this project work in all seasons of year?
79.How can this project work in all seasons?
80.Does this project work with same efficiency in all seasons?
81.How to improve the efficiency of this project?
82.What will be the replacement cost of this project?
83.Can any components be recycled after use?
84.What is the SI unit of heat?
85.What is specefic heat?
86.When does water starts to boil?
87.Is boiling exothermic or endothermic process?
88.What are the alternatives to this system?
89.Why are solar pannel needed?
90.What are solar panel made of?
91.What is the cost of solar panel?

92.Why is silicon prefered in making solar panels?
93.Where should the heat sensor be installed?
94.What are the alternatives that can be used in place of motor?
95.Can vacuum pipes be used in place of motor?
96.What are vacuum pipes?
97.What can be used as alternative to valves?
98.What was the inspiration for this project?
99.How better the system works than the prvious one?
100.What are the environmental and self advantages from this project?

17. IMPROVED MODEL ON BIO SAND WATER FILTER

1. Define Water?
2. What is the percentage of Water available on our Earth?
3. Define Pure Water & Impure Water?
4. Why do we need purification of Water?
5. Briefly explain the various filtration involved in filtering of Water?
6. What do you mean by Bio sand water filtration?
7. Explain the types of Bio sand water filter?
8. On which principle Bio sand water filter works?
9. Explain the constructional details about Bio sand water filter?
10. What is the sequence of purification layers in Bio sand water filter?
11. Explain the working principle of Bio sand water filter?
12. Explain the filtration process involved in Bio sand water filter?
13. What are impurities removed through the process of Bio sand water filter?
14. What are the other physical attributes of water reduced through filtration process?
15. What is the filtration rate of Bio sand water filter?
16. Why the filtration rate of Bio sand water filter is low?
17. What is the other name of Bio sand water filter?
18. Why slow sand water filter is referred as Bio sand water filter?
19. What are the difference between slow sand water filter & rapid sand water filter?
20. On which layer does the main purification process is done?
21. Why does Backwash water is not required in Bio sand water filtration?
22. Where does Bio sand water filter are more required? And why they are popular?
23. What is the advantage of forming Biological layer at the very initial step in Bio sand water filter?
24. What do you mean by 'Schmutzdecke' or ' Filtercake '?
25. What are the ecofriendly bacteria's present in BSF?
26. Explain briefly the development processes of Biological Zone?
27. How Bio sand water filter are usually cleaned?
28. Why is constant water passing through Bio sand water filter is essential?
29. What do you mean by Intermittently operated Bio sand water filter?
30. What are the advantages of Intermittently operated Bio sand water filter?
31. Why testing of purified water plays a very important role?
32. Explain various tests involved in testing of water?
33. What do you mean by Core test?
34. What do you mean by Secondary test?
35. What do you mean by Treatability test?
36. What is the pH value of Water?
37. State Darcy s Law?
38. How does flow rates effect the microbiological & physical water treatments?
39. Why should be the Bio sand filters wider in size?
40. Which is the best sand recommended for the construction of Bio sand water filters?
41. What are the various technical researches going on Bio sand water filter?
42. Who Proposed Household Bio sand water filter for the first time?
43. What does inlet water contain in it?
44. How does oxygen gets supplied for the development of microbiological layer?
45. What do you mean by Pause period?
46. Why shouldn't be the Pause period too long?
47. What is the duration of Pause period?
48. Why Pause period is also called as idle period?

49. Why is proper maintenance of Bio sand water filter important?
50. What are the techniques used to restore flow rate?
51. Explain Swirl & Dump method to restore flow rate?
52. Explain Wet Arrow Cleaning method of restoring flow rate?
53. What do you mean by Turbidity?
54. What does Turbid water contain in it?
55. When does Turbidity removal increases?
56. What is the Percentage of removal of Bacteria in Bio sand water filters?
57. What do you mean by Plastic filter?
58. What do you mean by Concrete filter?
59. Explain the accident Cleaning procedures in Bio sand filter?
60. What are the Heavy metals removed through Bio sand water filters?
61. What is the percentage of Iron & Magnesium removed through filtration process?
62. Name the main bacteria removed through Bio sand water filtration?
63. Name the diseases whose occurrence can be reduced through Bio sand Water filtration?
64. Name the newest Version of Plastic Bio sand filter?
65. What do you mean by Continually operated Bio sand water filter?
66. How fast should the water flow through Bio sand water filter?
67. How often should the sand be replaced in BSF?
68. How do you disinfect the tank of water with a chlorine?
69. How much Chlorine must be added to BSF?
70. Where does the water level stand during maintenance in BSF?
71. How do we store water once it has been filtered through Bio sand water filter?
72. Why does the filter water need to be still disinfected?
73. How often can water be poured through Bio sand water filter?
74. What kind of raw water could be treated by the BSF?
75. Expand CAWST?
76. What is the average life of Bio sand water filter?
77. What is the minimum time required to filter the water by BSF?
78. Define Predation?
79. What is the ratios of components used in Bio sand water filter?
80. What is the percentage of Non biological zone in BSF?
81. What do you mean by Gravel Zone?
82. Is Bio sand water filter cost efficient comparing to present Water filters?
83. What is the difference between Present water filters & Bio sand water filters?
84. Does Bio sand water filters require any frequent service?
85. Is Bio sand water filter affordable by middle class people?
86. What are the modifications in the Improved Model of Bio sand water filter?
87. What is the difference between the normal BSF & Improved model of BSF?
88. What is the cost difference between Normal BSF & Improved model of BSF?
89. Does any toxic chemical elements present in improved model of BSF?
90. What are the precautions need to be taken for the protection of Biofilm layer?
91. Does the Bio sand water filter affect the composition of Natural water?
92. Does Bio sand water filter require any electrical Power?
93. For how many days the purified water can be used for drinking purpose?
94. Does the construction of Bio sand water filter is complex or simple?
95. Does Bio sand water filter is pollution free?
96. What are the applications of Bio sand water filter?
97. What are the advantages of Bio sand water filter?
98. What are the disadvantages of Bio sand water filter?
99. How does the improved model of Bio sand water filter overcome the disadvantages of Normal Bio sand water filter?
100. Arrive all the final conclusions on the Project of Improved model of Bio sand water filter?

18. WATER DEFLUORIDATION USING BIOLOGICALLY SYNTHESIZED NANOPARTICLES FROM THE PLANT EXTRACT OF *Simaruba glauca*

1. What is the composition of water?
2. Why other compound will exist in water?
3. What are the problems that may occur due to the presence of different particles in water?
4. What is fluoride?
5. Whether the fluoride is essential or non-essential in water?
6. What is the minimum level of fluoride in water that is non-hazardous to human being?
7. What are the problem that may occur due to the elevated level of fluoride in water?
8. Which are the areas are under the risk of fluoridation?
9. What is defluoridation?
10. Which are the other methods of defluoridation?
11. What are nanoparticles?
12. Which are the examples of nanoparticles?
13. What are the benefits of nanoparticles?
14. Where these nanoparticles will be presents?
15. What is the reason for high concentration of fluoride?
16. What is the reason for the selection of nanoparticles for the defluoridation?
17. Which are the different methods of nanoparticles extraction?
18. What is mean by chemical method of nanoparticles extraction?
19. What is mean by biological method of nanoparticles extraction?
20. Which method is beneficial for the extraction of nanoparticles?
21. What is the reason of using nanoparticle in the water treatment?
22. Can all the plants be used for the extraction of nanoparticles?
23. Why *Simaruba glauca* is use for the extraction of nanoparticle in the present method ?
24. What is the common name of *Simaruba glauca*?
25. How the nanoparticle are extracted from the *Simaruba glauca*?
26. What are procedure for extracting nanoparticle from *Simaruba glauca*?
27. What is mean by *Simaruba glauca* extract?
28. What is method of preparation of aqueous extract of *Simaruba glauca*?
29. What is incubation?
30. What is meant by shake flask incubation?
31. What is mean by RPM?
32. What is the purpose of filtration in extraction of *Simaruba glauca*?
34. What is the purpose of centrifugation in extraction of *Simaruba glauca*?
35. What is the difference between filtration and centrifugation?
36. How the filtration is done?
37. Which nanoparticle use for the water treatment in the present method?
38. How the centrifugation is carried out in the extraction of *Simaruba glauca*?
39. How the filtration is carried out in the extraction of *Simaruba glauca*?
40. What is mean by pellet?
41. What is mean by supernatant?
42. What is mean by filtrate?
43. What is mean by extract?
44. How can we judge that extract of *Simaruba glauca* has been prepared?
45. How silver nanoparticle is synthesized?
46. Why AgNO_3 solution is used?
47. What is mean by molarity?
48. What is mean by normality?
49. What is mean by molality?
50. What is mean by 5mM AgNO_3 solution?
51. What is mean by distilled water?
52. What is mean by distillation?

53. Why only distilled water should be used for the experiment?
54. Why repeated centrifugation must be carried out during the synthesis of silver nanoparticles?
55. What is mean by cell debris?
56. How can we conclude that silver nanoparticles have been synthesized?
57. What is the reason for the colour change in the solution?
58. What is mean by characterization of silver nanoparticles?
59. How the nanoparticles can be characterized?
60. What is mean by UV visible spectroscopy?
61. What is the procedure of UV visible spectroscopy?
62. What is mean by ions?
63. What is mean by deionization?
64. What is mean by atom?
65. What is mean by nuclei?
66. What is mean by bio reduction?
67. What is mean by spectrum?
68. What is the result and conclusion of UV visible spectroscopy?
69. What is mean by wavelenth?
70. What is mean by SEM analysis?
71. How to carry out SEM analysis?
72. What is electron, photon, neutron?
73. What is the result and conclusion of SEM analysis?
74. What is mean by X-ray diffraction?
75. What is mean by Diffraction?
76. What is mean by refraction?
77. What is mean by reflection?
78. What is the difference between diffraction, refraction, reflection?
79. What is mean by voltage?
80. What is mean by current?
81. What is the unit of current?
82. What is mean by 1 volt and 1 ampere?
83. What is mean by power?
84. What is mean by diffracted intensity?
85. What is the result and conclusion of X – ray diffraction?
86. What is mean by TEM ?
87. How to carry out TEM ?
88. What is the result and conclusion of TEM analysis?
89. Which water should be collected for the fluoride estimation?
90. How to estimate fluoride from water?
91. What is waste water?
92. What is contaminant?
93. What is pollutant?
94. What is the chemical formula of fluoride?
95. What is electrode?
96. What is anode and cathode?
97. What is anion and cation?
98. How to treat nanoparticles to water?
99. What is mean by absorption and adsorption?
100. How nanoparticle remove fluoride from water?

19. DETECTION OF INTERFACING POLLUTANTS

1. Why is there a need for a scientific approach for every problem?
2. What exactly does a scientific approach mean ?
3. Which are the major pollutants today ?
4. How much of d zone has already depleted ?
5. Which are the major renewable resources ee must focus on for the future uses ?
6. Till when will d existing non renewable resources last ?
7. Which are the best possible sector of the society to implement the use of renewable source of energy ?
8. Is there any substitute for paper ?
9. What are the Ways to cultivate in non fertile lands.
10. What r the ways best to avoid usage of plastic ?
11. What is the best method to recycle plastic?
12. What are the substitutes for plastic ?
13. What is artificial sand ? How good or bad is it ?
14. What are the tending technologies today?
15. How efficient is 3D printing?
16. A can aerial methods be used for cheap transportation?
17. Are robots the key to human resource problems?
18. What are the best robots available today?
19. How efficient are these robots?
20. How are science and technology related?
21. What is catalyst?
22. What do you mean by oxidation and reduction?
23. What is ion?
24. What is compound?
25. What are elements?
26. Define fire point?
27. Define flash point?
28. What do you mean by anaerobic respiration?
29. Define redox reaction?
30. Define acids and base.
31. Define oxidation number.
32. What is melting point?
33. What is boiling point?
34. Define oxidizing and reducing agent.
35. What is meant by oxygen demand?
36. What is titration?
37. Define chemical bonds.
38. What is meant by valency?
39. Define nucleus, proton, neutron, electrons.
40. What is salt bridge and what are the uses of it?
41. What is Voltage?
42. What Is Current?
43. What is Unit?
44. What is the unit of Current?
45. What is the unit of power?
46. What is Power?
47. What is the unit of Voltage?
48. What is electron?
49. What is proton?
50. What is neutron?
51. What is an atom?
52. What is a molecule?
53. What is Valency?
54. What is a molecule?

55. What is a solution?
56. Can a molecule exist independently?
58. Which layer protects earth from UV rays?
59. What is oxidation?
58. What is reduction?
61. What is a chemical reaction?
62. What is cell?
63. Which is the power house of cell?
64. What is Photosynthesis?
65. What is Mitosis?
66. Leaves are green in color because they contain the following chemical?
67. Which part of the plant is a potato?
68. The rainbow comprises of how many numbers of colors?
69. Which vitamin is generated by exposure to Sun?
70. Which organelle is known as “the cell’s brain”?
71. What is frequency?
72. What is scattering of light?
73. What is dispersion?
74. What is the speed of light?
75. What is Pluto called?
76. What is the unit of sound?
78. Why is Sky Blue?
79. What is Science?
80. Who is the father of Science?
81. Who invented Refrigerator?
82. Who invented Electric Bulb?
83. Who invented radio?
84. Who invented stem engine?
85. Who invented telescope?
86. Who proposed the heliocentric model?
87. Who is the founder of APPLE?
88. Who is the founder of FACEBOOK?
89. What is Internet?
90. What is condensation?
91. What is evaporation?
92. What is sublimation?
93. What is gravitation?
94. Which is the gas predominantly responsible for global warming?
95. What is dynamo?
96. What is a motor?
97. Which is the cell that lacks nucleus?
98. Which is the animal that uses sound as its eyes?
99. Radioactivity is measure by?
100. Titan is the largest natural satellite of which planet?

20. PEnt WATER PURIFIER

1. What is project?
2. What are the benefits of doing this project?
3. What is your project about?
4. What is aim of the project?
5. What is the title of the project?
6. Advantages of project?
7. Application of project?
8. What is membrane filters?
9. What is settling process?
10. What is sedimentation?
11. What is impure water?
12. What is pure water?
13. What is water purification?
14. What is potable water?
15. Define hard water and soft water.
16. Difference between pure and impure water?
17. Name the different components of water?
18. What are the various source of drinking water?
19. Which type of water is used as input in the project?
20. What is the hardness of water?
21. How hardness of water is removed?
22. What is pH?
23. What is the pH level of water?
24. What is the chemical formula for water?
25. How is model useful for the society?
26. Why the pH of water is neutral?
27. What is the type of material used in model?
28. What kind of model are we going to prepare?
29. Name the innovation thing in the model?
30. How efficient it is?
31. What happens if the pH of water increases?
32. Water treatment process?
33. How water is purified?
34. What is the equipment used?
35. What are the ions present in water?
36. Which are the ions harmful to human health?
37. How can solid be separated from liquid?
38. How many filters are used?
39. What are filtrations?
40. What type of filters is used?
41. Give the examples of filters
42. What is adsorption?
43. using the example explain the phenomenon of adsorption
44. What is absorption?
45. Name the adsorbents used in the candle filters?
46. What are organic and inorganic adsorbents?
47. Explain the working of candle filters?
48. Why are three candle filters used?
49. Difference between adsorption and absorption?
50. What are the metal ions commonly found in water?
51. How does u make candle filters?
52. Why is fruits and vegetables peels used in these model?
53. Which fruits peels are used in purification?
54. Which vegetables are used in purification?
55. What is the role of apple peels in the purification?
56. What is the role of tomato peels in the purification?
57. Which material tank used in this project?
58. What are candle filters?
59. What are motor?
60. How motor works?
61. What is the speed of motor?
62. What is PVC?

63. What is the use of PVC?
64. How are dyes removed from water?
65. How is overflow of water controlled in the model of the water filters?
66. How water flow in pipes?
67. How the model is useful?
68. How does peel helps in removing the metals ions?
69. What is the disease caused by the impure water?
70. How does water flow in the filter system?
71. What is the use of charcoal in this project?
72. What are the steps used in these model?
73. How safe is this model?
74. How these peels helpful in purification?
75. What is the important of using peels for construction of filters?
76. How can we maintain the efficiency of the filters?
77. When should the filters be replaced?
78. What is the effect of lead in the human body?
79. Explain working of organic filters?
80. What is activated carbon?
81. Which type of valves is used?
82. What are pumps?
83. Different types of motors?
84. Different types of pumps?
85. What is the use of the activated carbon?
86. What are valves?
87. What kind of pump is used in the model?
88. What is the material of the valves?
89. Explain the working of centrifugal pump?
90. Explain the principle of centrifugal pump?
91. Explain the working of reciprocating pump?
92. Explain the principle of reciprocating pump?
93. What is priming?
94. What are the components used in filters?
95. Explain the working principle of motor?
96. Applications of pump?
97. Explain the importance of using pump?
98. What is the Efficiency of this process for water treatment when compared to already existing methods?
99. Drawbacks of this process & how to overcome these.
100. What are the scientific concepts understood by this project.

21. HUMANURE – WEALTH OUT OF PROCESSED SCRUBBER

1. Why did you select this project only?
2. What is meant by night soil?
3. What is Humanure?
4. What is meant by the Human cycle?
5. Why is it needed to complete the human cycle.
6. Explain the need for Human waste separation.
7. What is meant by sustainable development?
8. What is organic farming?
9. What do you mean by inorganic farming?
10. Why should we shift for organic farming?
11. Why should we not use chemical and inorganic fertilizers?
12. Which are the essential nutrients required for plant growth?
13. How to separate the human waste excreta and urine?
14. How to extract the nutrients from waste.
15. What are the minerals that can be extracted from Human faeces?
16. What are the minerals that can be extracted from urine?
17. What is the methodology adapted to get the Humanure.
18. Can this method be adapted to existing cities and rural areas?
19. How many days will it take to decompose the waste by the C.N. Acharya method?
20. Is this technique of waste separation cumbersome?
21. How far will the people adapt this system?
22. What are the advantages of utilizing this method?
23. What are the disadvantages associated with this method?
24. Is the proposed model economical?
25. Will there be any source of revenue generation?
26. How to promote swach bharat abhiyan by this technique.
27. Will the products obtained be in the solid or liquid form?
28. Is the handling and transportation of the end product hygienic?
29. Due to Diversion of Human waste, the plumbing system may get complicated?
30. Is the decomposition process aerobic or anaerobic?
31. How will this help to promote the rural households to use toilets?
32. Can this method be adopted for residential human waste and public waste (Hospitals)?
33. How will this help to reduce the waste water loadings on treatment plants?
34. This is an old age traditional process, but still it has not gained popularity. Why?
35. Will it help to reduce the water usage in flushing and conserve the water resource?
36. How can we reduce the other forms of pollution such as air and water pollution by this method?
37. Why can't we mix the human faeces and urine for decomposition as a useful end product?
38. What are the advantages of human waste diversion from the common practice of human waste disposal without diversion?
39. The handling of human waste will it be done by humans themselves or by some mechanical means.
40. How will you convince the people to use this method for farming?
41. Can the products obtained from waste diversion be used for other purposes than the farming?
42. Do you have any evidences that the product yield obtained would be higher than the formal practice of use without fertilizers?
43. Will the end products have odour?
44. How to convert the liquid urine into the solid form?
45. How to implement the project on the large scale?
46. Why is it needed for global attention and acceptance to recycling human waste?

47. What is the effect on environment to the ignorance of human and his filth?
48. The concept of Recycle and Reuse will it enhance the agricultural growth and the economic development of the nation?
49. What is the difference between aerobic and anaerobic composting?
50. What are the products that will be obtained if we go for anaerobic decomposition?
51. What is meant by NPK value of the manure?
52. On an average what percentage of NPK can be obtained from urine of an individual yearly?
53. On an average what percentage of NPK can be obtained from excreta of an individual yearly?
54. What is meant by the two pit disposal?
55. How much time will it take to fill the pits?
56. In how much thickness alternate layers of night soil and other organic waste has to be placed in this method.
57. Will we be paid for our waste?
58. Why should we ventilate or provide a clear cover if we go for anaerobic decomposition at the household level?
59. What are the advantages of using human manure instead of chemical fertilizers?
60. Why should we store urine before using it in the fields?
61. Why should we dilute the human urine before application to the fields?
62. What is the pH of stored human urine?
63. What is the advantage of having high pH value in the stored urine?
64. How will it help for the solid waste management of waste?
65. What should be the slope provided in the commode for the diversion of waste and urine.
66. How will you collect the urine and human faeces separately?
67. What is the surface area required for collecting transporting, storing, processing and manufacturing the end products.
68. Will there be a problem of leachate formation in this process?
69. Is it suitable for all type of users such as sitters, squatters, washers and wipers?
70. Can we establish this process in all kinds of soil, with water tables and areas prone to flooding?
71. Will there be any nuisance of flies and clogging in this process?
72. Can this technique be utilized to flourish a Business idea?
73. What is the chemical formula of the struvite obtained?
74. What is the importance to implement this project in real life circumstances?
75. What is the chemical equation in aerobic decomposition?
76. What is the chemical equation of aerobic decomposition?
77. What kind of microorganisms acts upon human waste during the decomposition process?
78. What are the end products of aerobic decomposition?
79. What are the end products of anaerobic decomposition?
80. Are the end products harmful to the environment in one or the other way?
81. Have you done any statistical analysis of the given project?
82. Are you thinking of implementing this project? Or have you implemented it anywhere?
83. How will you achieve sanitary objective during the preparation of the Humanure?
84. What are you to say about the psychological rejection of the handling and utilizing the Humanure in your fields?
85. Why are you communicating about this with us?
86. Is this project going to be beneficial for us?
87. By what means should we convince the people about the Humanure?
88. How will you be collecting the urine from the individual residential households?
89. In which all countries has the importance of this Human compost been felt throughout the globe?
90. What is meant by Biogas?

91. What are the main constituents of Biogas which act as Fuel?
92. What do you mean by a clean fuel?
93. Will awareness alone help to implement this project?
94. Since you are propagating the use of night soil will you use human scavenging for that?
95. The human waste compost produced will it be useful to all types of crops?
96. How did you determine the NPK content in the Humanure?
97. How did you determine the NPK content in the human urine?
98. How will this help in conserving the natural resources?
99. What is meant by eco sanitation?
100. What are your ways of propagating this idea to the people living in villages?

22. USE OF COCONUT SHELL OIL AS AN ECOFRIENDLY AND ECONOMICAL WOUND HEALING MEDICINE IN ANIMALS

1. What is Wound
2. What is conventional wound treatment
3. Why it is expensive
4. What is anti-inflammatory agent
5. What is antibacterial agent
6. What do you mean by parenteral antibiotics
7. What is antibiotic residue
8. From where coconut shell oil is extracted
9. Which process is used to extract coconut shell oil
10. What is steam distillation
11. What is tickicide
12. What is larvicide
13. Why is crude oil mixed with liquid paraffin
14. At what ratio the oil & paraffin mixed
15. What is topical application
16. How does it indicate anti-inflammatory property
17. How can we judge it has antibiotic property
18. What is antibiotic
19. How can we assure that it has tickicidal property
20. How can we conform that it has wound healing nature
21. What is scientific name of coconut tree
22. What does kalpavaruksha mean
23. Why coconut used to treat wide variety of diseases
24. List some of the uses of coconut
25. Why coconut shell liquid smokes
26. What is phenolic compounds
27. What is safety test
28. Why coconut shell oil is not toxic
29. What is LD 50
30. What is LD 50 value of coconut shell oil
31. Whether dry coconut shells are source for polyphenols & organic acids
32. Whether dry coconut shell can be future antibiotic
33. Whether the raw materials are cheaply available for oil extraction
34. How can it prevent contamination of animal products with antibiotic or fungicide
35. Can it contribute to upkeep of public health
36. Whether the coconuts are available in local market
37. For how much day the coconut shells are taken for processing
38. At what temperature it is again dried in hot air oven
39. For how much duration
40. How the invivo wound healing is carried out
41. How they confirmed the antibacterial activity
42. What is kirbys method
43. How the bacterial sample cultured
44. What is brain heart infusion (BH1) broth
45. What is antibiotic disc
46. How BH1 agar plates prepared
47. What is the size of discs in agar plates
48. What equipment is used to make wells
49. How much oil is poured in to wells
50. In what ratio
51. How antibiotic sensitivity test performed
52. What is zone of clearance
53. Whether zone of clearance is observed in the experiment
54. How the tickicidal activity of coconut shell oil determined
55. What is T-bag method
56. What is procedure carried for T-bag method
57. How the larvicidal property confirmed
58. What is boiling point of shell oil

59. What is colour of coconut shell oil
60. What is viscosity of coconut shell oil
61. Whether it is soluble in water? Why?
62. Whether it is soluble in acetone? Why?
63. What is the total ash content of the shell oil?
64. What is acid insoluble ash content?
65. What is GCMs analysis
66. Whether it is complex mixture?
67. Nearly how many organic compounds were there in coconut shell oil
68. Which is major component of shell oil
69. Whether the wound healing is faster
70. What are the physical property of coconut shell oil
71. What are the chemical property of shell oil
72. What are biological property of shell oil
73. What are medicinal values of the shell oil
74. What is ABST
75. The effect of the shell oil can be compared with which antibiotics
76. Can this oil be used as anti- tick spray on animal & shed?
77. What is egg hatch assay
78. What is cost of production for 500ml coconut shell oil?
79. List the side effect? If any?
80. Can we replace regular antibiotics with this?
81. Can we use in treating the wound
82. How it will act against maggot wounds
83. Can we apply it for burns
84. For how much days we can store this
85. Can we expose it to sun light
86. Can we use it with English medicine
87. Whether it has any side effect
88. Whether it produce any kind of irritation
89. Any tissue reaction is observed
90. Can we use it on human beings
91. Can we use it on all animals
92. Whether it is an inflammable one
93. What is the odour/ smell of this
94. Can we handle it with bare hand
95. Can we use it on eye infection
96. Can we use this for clotting of blood
97. Can't we use without paraffin
98. Any alternative for paraffin
99. Does it effective on joint pain/
100. Whether it is only for external use
101. Why only coconut shell
102. Can't we experiment with other parts of coconut tree
103. What are the other products of coconut used for medicine purpose

23. TRASH ENERGY

1. What is the aim of the project?
2. The aim of the project is to convert the waste into useful form of energy.
3. What is trash?
4. Trash is something which is of no use.
5. Which are the different types of wastes available in environment?
6. What are the effects of waste on environment?
7. What all are used in the project for working of the project?
8. What is a boiler?
9. What is turbine?
10. What type of turbine is used in this project?
11. What is the working principle of steam turbine?
12. What is the working fluid in steam turbine?
13. What is incineration?
14. What is the use of incinerator?
15. What does solid waste include?
16. What does electronic waste include?
17. What are the two categories of wastes?
18. What is meant by recyclable waste?
19. What is meant by non-recyclable waste?
20. At what temperature garbage is burnt?
21. What are the advantages of recycling?
22. What are the advantages from this project?
23. What are all the diseases caused due to garbage?
24. What is the working principle of boiler?
25. What is the use of filter?
26. What type of filter is used in this project?
27. What are the products obtained in this project?
28. How pollution free air is obtained?
29. How should be this project implemented?
30. What is the main theme of the project?
31. What type of motor is used in this project?
32. What is the capacity of the DC motor used in this project?
33. How is electronic waste separated?
34. What is the recyclable waste done?
35. Where is the garbage stored?
36. What is done to the waste which can't be burnt?
37. What is combustion?
38. How is plastic waste separated from garbage?
39. How is glass waste separated?
40. What is screening?
41. From what waste the electricity is produced in this project?
42. How is the high electricity is used?
43. What is energy?
44. What is generator?
45. How the garbage is put into storage tank?
46. What is the diameter of the pipe connecting from boiler to steam turbine?
47. Why the diameter of the pipe is low at turbine end?
48. What is done to ash which is left after burning?
49. Why the waste is burnt at very high temperature?
50. What is the basic step to do after collecting waste?
51. How does recycling helps to human society?
52. What is motor?
53. Why does the dc motor is used in this project?
54. What does the incinerator produce?
55. At what pressure the heat should be given to steam turbine?
56. Why should we give heat at high pressure to steam turbine?
57. What are the problems with the land disposal of waste?
58. What are the effects of improper waste management on environment and human health?
59. What is waste management?

60. What is done after burning the waste?
61. What is trash energy?
62. What are the environmental benefits of trash energy project?
63. Why do we put salt and water when the ash is put deep inside the hole?
64. On which waste in this project we are mainly focused?
65. What is the main source of this project?
66. What is bio-degradable waste?
67. What is non bio-degradable waste?
68. Why is the proper disposal of ash is required?
69. What should be the speed of rotation for the steam turbine?
70. Why the rotating speed of steam turbine should be very high?
71. What is meant by re-use?
72. How much amount of electricity can be produced?
73. Where the amount of waste thrown on roads is seen?
74. Which department of government is responsible of collecting waste?
75. What does the municipality department do after collecting the waste?
76. After collecting waste what does the municipality department do?
77. How is the waste is collected by municipality department?
78. How is recycling done?
79. What are the advantages of recycling?
80. Where this project should be done?
81. What happens if we don't clean our surroundings?
82. What is the first step to maintain clean environment?
83. Which abhiyan in India is responsible for maintaining cleanliness?
84. What is the motto of the Swachh Bharat abhiyan?
85. How is magnetic roll used in separating electronic waste?
86. What are the advantages of this swachh bharat abhiyan?
87. How is screening of plastic waste done?
88. Who will face all the effects of environment?
89. Why should we put salt and water after the ash is put inside the deep hole?
90. Why incineration of waste is needed?
91. How does the pollution causes effect on the monuments?
92. Is this project helpful for human beings?
93. How is this project helpful to humans?
94. What happens if the waste is not cleaned?
95. People will suffer from various diseases.
96. Why should we implement waste management plants in all the cities?
97. How is the awareness of maintaining cleanliness is created?
98. What should be the temperature of burning the waste?
99. Why the temperature of burning should be very high?
100. What is the use of producing high amount of heat?
101. How should the process of this project is proceeded?
102. Why the glass waste is separated manually?
103. What all good can be done by this project?

24. AUTOBIN

- 1.What is waste management?
- 2.What are the rules and regulations that guide waste management in India?
- 3.What are the common methods of waste disposal?
- 4.What is composting?
- 5.How is waste segregated?
- 6.How is recycling of waste done?
- 7.What is a landfill?
- 8.How do I practice waste management at home?
- 9.What are the steps to initiate a waste management programme?
- 10.What are the different types of waste?
- 11.What are the ways of storing waste at home?
- 12.How do I dispose my waste?
- 13.How do I manage my garden waste?
- 14.What is Energy?
- 15.What is Electrical Energy?
- 16.What is Mechanical Energy?
- 17.What is Light Energy?
- 18.What is an Infra-Red Sensor?
- 19.How did this idea occur to you?
- 20.What is a motor?
- 21.What is the principle of working of motor?
- 22.Why do we use geared motors?
- 23.How do you control the operations in a sequence?
- 24.What kind of power source do we use to run the Autobin?
- 25.What is the material used to make the body?
- 26.What happens if waste is not disposed?
- 27.What is Arduino Board?
- 28.What is the principle of working of the Autobin?
- 29.What is “Swacch Bhaarat Mission”?
- 30.How was the Autobin designed?
- 31.What is a Designing Software?
- 32.How long did it take to make the Autobin?
- 33.Can the plate handle the weight of the waste?
- 34.What are the kinds of waste that can be disposed in the Autobin?
- 35.How much Energy does the Autobin consume?
- 36.Is the Autobin waterproof?
- 37.How much of waste can it store?
- 38.Is the working easy?
- 39.What is H-Bridge?
- 40.How is the Arduino Board programmed?
- 41.What is current?
- 42.What is DC current?
- 43.What is AC current?
- 44.What is Bio-Medical Waste?
- 45.Can electrical waste be disposed?
- 46.What other materials can be used to make the Autobin?
- 47.What is Soldering?
- 48.What is welding?
- 49.What is brazing?
- 50.How do you join two metal pieces?
- 51.What is sheet metal?
- 52.What are the different gauges of sheet metal?
- 53.What are the different tools used to cut sheet metal?
- 54.What are pulleys?
- 55.Will the rim get damaged if we walk on it?
- 56.What is used to connect the plate to the top part of the dustbin?
- 57.What are the alternate sources of Energy?
- 58.What is the unit of electric current?
- 59.What is 1 Joule?
- 60.What is 1 Kilowatt?
- 61.How are the connections made?

62. Is plastic bio-degradable?
63. Are all wastes degradable?
64. How does the waste degrade?
65. Can electricity be generated from waste?
66. Are the connections complex?
67. Can the Autobin be made by a layman?
68. Does the production of an Autobin require technical knowledge?
69. Are the materials used hazardous in nature?
70. How does the funnelling take place?
71. What kind of a rope is used?
72. Can any other material be used to connect the base and the top?
73. How does one push the waste onto the plate?
74. What is a servo motor?
75. What function does the servo motor perform?
76. What happens if the plate is overloaded?
77. How do you empty the waste from the bin?
78. Is there an option for the plate to be dismantled from the bin?
79. What may be the life of the battery used in an Autobin?
80. Is the Autobin delicate to handle i.e. is rough usage possible?
81. How to produce a semi-circular plate?
82. How has the cutting of the plate taken place?
83. For what reason is the gap given between the ground and the surface of the bin?
84. What kind of battery is used?
85. How do you change the battery?
86. How are the small particles collected in the bin?
87. Does sheet metal break during funnelling?
88. What is the public requirement for the disposal of waste?
89. Can the windows of the Autobin be increased or decreased?
90. Does sheet metal or the cloth catch fire?
91. Is the Autobin economical?
92. Do you think the Autobin can replace existing dustbins?
93. Does the Autobin consume more space?
94. How is the cloth joined to the plate?
95. Can plastic cover be used instead of a cloth?
96. How are the sensors placed in the bin?
97. What is the sensing capacity of the sensors used?
98. How many motors are used in an Autobin?
99. Is this a small contribution towards "Swachh Bhaarat"?
100. Does the idea bring about a cleaner environment?

25. SMART LITTER BASKET

1. What is current?
2. What is voltage?
3. What is arduino?
4. What is LED?
5. What is the advantage of our bin compared to household bin?
6. Why do you call the name of smart litter bin to your bin?
7. How does your smart litter bin works?
8. What are components required for smart bin?
9. How did you get the idea of smart litter bin?
10. What is the main working part of your smart litter bin?
11. How arduino work?
12. Why arduino is used?
13. Why conductor conducts electricity?
14. What is IOT?
15. How current conducts in wire?
16. Why current does not pass in insulator?
17. What are conductors and insulators?
18. What is atom?
19. What is proton?
20. What is cathode?
21. What is anode?
22. What is nuclei?
23. What is LDR?
24. What is PIR?
25. What is voice modulator?
26. How PIR knows when people go in front?
27. What happens when the flap goes in the way of laser to LDR?
28. What helps LDR to give signal to arduino?
29. What is infrared radiator?
30. How voice is recorded in voice modulator?
31. What is the input and output of arduino?
32. What is amplifier?
33. What is transistor?
34. What is resistor?
35. What is capacitor?
36. Which IC is used in voice modulator?
37. What is micro controller?
38. Which microcontroller is used in our arduino?
39. Types of wire junction?(male and female)
40. What is multi meter?
41. Why multi meter it is used?
42. What is cell?
43. What is present inside cell?
44. What are terminal of cell?
45. Why we are using battery instead of cell?
46. What is battery?
47. Why are LED used instead of bulbs?
48. Which bit micro controller is used?
49. How will we come to know bin is filled?
50. How is cell different from battery?
51. What is the input and output current of the arduino?
52. What is a smart bin?
53. What are the components of Smart Litter Bin?
54. What is the use of a Smart Litter Bin?
55. What is driver?
56. What is software?
57. What is hardware?
58. Which language are we using in our project to write the code?
59. How do we dump the code into arduino?
60. How to test the arduino?
61. How to record the voice into voice module?
62. How do we play the voice from voice module?

63. What is the power supply for arduino?
64. What is the power supply for voice module?
65. What is the full form of LDR?
66. What is the principle of LDR sensor?
67. How do we get to know the bin is full or not?
68. What is the technique used to detect the bin is full or not?
69. What is the technique used to send mail?
70. What is signal hopping technique?
71. Do we need to have a data connection for every bin?
72. What is the power source for the bin to work?
73. Do we need to monitor the bin every time?
74. Does the bin segregate between wet and dry waste?
75. What is dry waste?
76. What is wet waste?
77. Is it a prototype model?
78. Is the bin being used or implemented by someone else?
79. Where are the components being placed in the bin?
80. Does it need specific type of bin?
81. Is the bin economical?
82. What was the budget of the project?
83. Are there any more plans to be implemented in the bin?
84. What is the approximate success rate of the project?
85. Is there any minimum distance between 2 bins?
86. What is the minimum distance between 2 bins?
87. Is the bin user friendly?
88. What is a sensor?
89. How does current flow?
90. Why are SMD components small?
91. Why is PCB required?
92. What is a Multimeter?
93. How does the Multimeter measure?
94. How does the code get dumped into the computer?
95. What is a Microcontroller?
96. How does a Microcontroller work?
97. Why so many pins are there on the Microcontroller?
98. Why do we need to programme Microcontroller?
99. Why are the ports different in shape?
100. Does this work for all kind of dustbins?

26. CONVERSION OF WASTE WOOD INTO FUEL

1. What is pyrolysis?
2. What is gasification?
3. What is the difference between Pyrolysis and gasification?
4. Why is Pyrolysis hard to achieve?
5. What is the problem with the current pyrolysis units?
6. What is cogeneration?
7. How is cogeneration different from usual power generation?
8. How is cogeneration different from trigeneration?
9. What is the cost of the project?
10. What is special about the home built gasification unit?
11. What are the advantages of this project?
12. What is the basic principle involved in building this?
13. What is the specialty of waste wood?
14. Why is waste wood preferred as the fuel material?
15. What is the calorific value of waste wood in general and in this project in particular?
16. What problem does this project address?
17. What are the advantages and disadvantages of a home built pyrolysis unit?
18. What happens if the design of this unit is poorly made?
19. What are the byproducts of this process?
20. What is the most important by product of this process?
21. List the uses of all the byproducts.
22. What are the different materials used to construct this unit?
23. Where can we find the materials used in construction of this unit?
24. What are the different processes involved in construction of this unit?
25. What are the precautions that need to be taken while making this project?
26. What are the special features of the plant?
27. What is unique feature of integrating cogeneration about pyrolysis?
28. Who does this project help?
29. What is the type of energy generated from this unit?
30. What is the amount of energy generated from this unit per unit fuel?
31. What route is taken to attain this process?
32. What were the practical difficulties which one encountered while conducting the process for the first time?
33. What are the awareness measures that could promote the use of these fuels?
34. What is the need for biodiesel in the present day scenario?
35. What is the purpose of this project?
36. What is the importance of this project?
37. State the governing reaction of pyrolysis and gasification
38. What are the different manufacturing processes involved in making this unit?
39. Compare the fuel produced with conventional fuels.
40. Draw a schematic diagram of the plant with all the different parts.
41. List the uses of J tubes
42. List uses of shaker grate
43. How can the efficiency of the plant be increased
44. How can we integrate PV cells into this unit?
45. What purpose do the PV cells serve?
46. What is the ideal form of wood which can be used as fuel?
47. What type of blower is used to drive the air in this unit?
48. How is cogeneration enabled?
49. Describe the carbon cycle involved.
50. What capacity of blower is used to pump air through this unit?
51. Why must we use a sealant?
52. What is the sealant used to seal all the edges?
53. What is the amount of heat that can be saved, in KJ using cogeneration?
54. How can we increase this amount of heat?
55. What is the net change in efficiency on saving this amount of heat?

56. What are the conditions that must be maintained for this project?
57. What are the best conditions to perform this in?
58. What are the alternative uses of biochar as found by this project?
59. Why must generation of biochar be avoided?
60. Where could this project be implemented easily?
61. How much time would it take to construct this unit?
62. What other sources can be used to produce biofuel?
63. Illustrate the use of this unit in agricultural sector.
64. What are the catalysts and activators required, if any?
65. What would be the effect of failure of the unit?
66. Can the unit be repaired? If yes, how?
67. What are the salient characteristics of the source which will result in high quality biofuel?
68. What are the precautions to be taken while the unit is being run?
69. How can the effluents from the burning of biofuel be minimized?
70. Which countries can this be implemented in?
71. Can this be used as a fuel for vehicles?
72. What is the difference between a commercial unit and this unit?
73. What is the BS V criterion?
74. Does the biofuel satisfy BS V criterion?
75. Can the biofuel be mixed with regular diesel to improve performance?
76. What are the possibilities of automation of a biofuel plant?
77. What are the land and building requirements for a pyrolysis unit?
78. Are there any government licenses required to set up the unit? If yes, what?
79. What is the selling price of pyrolysis oil and other byproducts?
80. Once the plant is built, what is the maintenance schedule required?
81. What is the estimated life of this plant?
82. Is there a provision for temperature control?
83. What kind of heat source is used in this unit?
84. Is there provision for gas storage? How does gas storage help?
85. What is the market scenario of pyrolysis oil?
86. What are the requirements of the waste wood being used?
87. Is this reaction endothermic or exothermic?
88. What is the amount of power required for the unit?
89. What are the sources of waste wood in India and abroad?
90. What are the other new ways in which we can produce biofuel?
91. Can plastics also be used as source material?
92. What modifications would be needed for plastic source to be used?
93. What would be the probable quality of biofuel obtained from plastic?
94. What is the need to use plastic as source material?
95. Mention the different properties with values of the pyrolysis fuel obtained?
96. What would be the flash and fire point of the fuel obtained?
97. How is combustion different from gasification and pyrolysis?
98. What were the previous techniques used to produce biofuel?
99. What are the various organizations which set the standards for quality of biofuel?
100. Is biofuel renewable or nonrenewable? Justify.

27. FUTURE DIESEL FROM WASTE RUBBER TYRES

1. What is waste management?
2. Why waste management is required ?
3. List out some of the waste dumps that we see in our daily life ?
4. Why used Rubber tires are considered as waste ?
5. Is there any method of disposing Rubber tyres?
6. Why Rubber tires are non Bio-degradable ?
7. What are bio-degradable and non bio-degradable wastes ?
8. What will be done with the waste tires ?
9. What are the problems associated with the present disposing methods ?
10. What happens if the tires are disposed in open environment ?
11. What if the waste tires are buried in soil ?
12. What are the constituents of tires ?
13. What is the quantity of tires that are considered as waste every year ?
14. What if we dispose tires by burning it in open space ?
15. How can we recycle waste tires ?
16. Why cant the waste tires be re-used in producing new tires ?
17. What kind of process is to be followed to recycle waste tires ?
18. What is Pyrolysis ?
19. What are the different types of Pyrolysis ?
20. Why Pyrolysis ?
21. What type of tires can be used in Pyrolysis ?
22. Is the process is complex to carry out ?
23. Is Pyrolysis a Eco-friendly process ?
24. Can we convert waste tires 100% into useful product ?
25. At what temperature the process is carried out ?
26. What pressure level has to be maintained ?
27. Is there any additives that are to be added during the process ?
28. Why we have to shred tires into small pieces ?
29. Is there any emissions during the process ?
30. What material is used in making the Pyrolysis unit ?
31. Why we use Gaskets in the unit ?
32. What type of Gaskets ?
33. What is the cost incurred for fabrication of the unit ?
34. Why the unit is in cylindrical shape ?
35. Why the unit is coated with black colour ?
36. By what means we supply heat to the unit ?
37. Can we use any other type of heat sources ?
38. What are the products obtained in this process ?
39. What are the uses of the by products obtained ?
40. In what form we will get the main product ?
41. How do we condense the vapour ?
42. what fluid we use for condensing ?
43. How much quantity of condensing fluid is required ?
44. What are the parts included in the condenser unit ?
45. Why copper tube is used in the condenser unit ?
46. What length of copper tube must be used ?
47. Why the Pyrolytic gases are produced in the process ?
48. Why Pyrolytic gases are Non-condensable ?
49. Is there any use from the Pyrolytic gases ?
50. Can we condense the Pyrolytic gases ?
51. How to collect the Pyrolytic gases ?
52. Do we face any problems while conducting the process ?
53. What are the required conditions that has to be maintained inside the unit(reactor) during Pyrolysis process ?
54. Why we have to carry out the process in the absence of oxygen ?
55. How we can control the temperature and pressure while conducting the process ?
56. How we will come to know that we are maintaining the required temperature and pressure ?
57. What are the uses of Rubber oil that is obtained from Pyrolysis process ?

58. Can we use Rubber oil directly as a fuel ?
59. Is there any further refining is required to use rubber oil in automobiles ?
60. What is the process of thinning of rubber oil ?
61. How the process of thinning will be done ?
62. Why Rubber oil has the property of fuel ?
63. What is the outcome if we mix Rubber oil with Diesel ?
64. What percent of Rubber oil is to mixed with Diesel to get max. efficiency ?
65. Can we mix Rubber oil with petrol ?
66. What is the difference between Petrol and Diesel ?
67. What is a fuel ?
68. What are hydrocarbons ?
69. What are the properties of Diesel ?
70. What are the properties of Petrol ?
71. Why Rubber oil is similar to Diesel ?
72. What is self ignition temperature ?
73. How to calculate Efficiency ?
74. What do you mean by calorific value ?
75. How to analyze the performance of rubber oil ?
76. How does Diesel engine work ?
77. What is the quantity of the rubber oil obtained per kg of tire ?
78. Can we increase the output quantity of Rubber oil ? If yes how ?
79. Does the process give out bad odour of tire ?
80. How do we eliminate the bad smell of Rubber oil ?
81. What is the cost of production of Rubber oil(per litre) ?
82. What do we do with the steel wires that are obtained as residues during the process ?
83. Does the presence of steel wires present in the tires disturb the process ?
84. How do we use the Pyrolytic gases that is obtained during the process ?
85. How the Rubber oil and Pyrolytic gases are separated ?
86. How much electricity is needed to conduct this process ?
87. Can we use Rubber oil in Energy production (Thermal power plants) ?
88. Can plastics be used in Pyrolysis process ?
89. What is the advantages and disadvantages of Rubber oil over Bio-fuels ?
90. Is it possible to install this unit in large scale ?
91. Do we get enough waste tires to feed the unit if it is installed in large scale ?
92. What is the cost of collecting the raw material ?
93. If it is in large scale, how continuous feeding of tires are possible ?
94. Is there any Pyrolysis unit in our country ?
95. Why this process of getting fuel is not popular ?
96. If introduced into market does this fuel be able to replace other petroleum products ?
97. Is there any drawbacks related to the Pyrolysis process ?
98. What are the drawbacks related to the utilization of Rubber oil ?
99. Even though burning of Rubber oil causes some pollution, how it will contribute to the greener environment ?
100. Suggest if you have any better future plan to initiate this process in business ?

28. E-WASTE RECYCLING (E-WASTE HOME THEATRE)

- 1) What is E-waste?
- 2) What are methods of recycling E-waste?
- 3) How E-wastes are recycled as working model?
- 4) Which are source of E-waste?
- 5) What is voltage?
- 6) What is current?
- 7) What is resistance?
- 8) What are conductors?
- 9) What is Universal Serial Bus (USB)?
- 10) What is an amplifier?
- 11) What is potentiometer?
- 12) What is soldering?
- 13) What is soldering lead?
- 14) What is flux paste?
- 15) What is diode?
- 16) What is transistor?
- 17) What are resistors?
- 18) What is LED?
- 19) What is a speaker?
- 20) What is a Sub woofer?
- 21) What is zener diode?
- 22) What are semiconductors?
- 23) What is DC supply?
- 24) What is AC supply?
- 25) What is transformer?
- 25) What are rectifiers?
- 27) What is full wave rectifier?
- 28) What is half wave rectifier?
- 29) What is bridge rectifier?
- 30) What is capacitor?
- 31) What is capacitor filter?
- 32) What BT board?
- 33) What is regulator?
- 34) What are audio signals?
- 35) What is IR sensor?
- 36) What is remote control?
- 37) What is inverter?
- 38) What is magnetic tape receiver?
- 39) What is magnetic tape?
- 40) What is Pen drive?
- 41) What is FM receiver?
- 42) What is antenna?
- 43) What is audio board?
- 44) What is PCB board?
- 45) What is step down transformer?
- 46) What is step up transformer?
- 47) What is 2pin socket?
- 48) What is 2pin holder?
- 49) What is connecting wires?
- 50) What is cabinet?
- 51) What is DVD player?
- 52) What is digital display?
- 53) What is push buttons?

- 54) What is stereo controller?
- 55) What is home theatre?
- 56) What are 2.1 home theatres?
- 57) What are 5.1 home theatres?
- 58) What is auxiliary input?
- 59) What is sd card?
- 60) What are transducers?
- 61) What is flexible wire?
- 62) What are heat sink plates?
- 63) What is high pass filter?
- 64) What is low pass filter?
- 65) What is band pass filter?
- 66) What is resistive circuit?
- 67) What is capacitive circuit?
- 68) What is inductive circuit?
- 69) What are knobs?
- 70) What is 5.1 kit?
- 71) What is Aux cable?
- 72) What are four buses in USB?
- 73) What is grounding?
- 74) What is interfacing?
- 75) What is ceramic capacitor?
- 76) What is tuning?
- 77) What is tinning?
- 78) What is center tapping?
- 79) What is capacitive load?
- 80) What is inductive load?
- 81) What is hollow cylinder?
- 82) What is the working principle of speaker?
- 83) What is variable resistor?
- 84) What is the working principle of an amplifier?
- 85) What is the working principle of USB?
- 86) How does the 5.1 circuit works?
- 87) How does the transformer works?
- 88) How does the magnetic tape receiver is converted into USB player?
- 89) How the AC supply is converted into DC supply?
- 90) What are buses?
- 91) What is the use recycling E-waste?
- 92) How are the E-wastes collected?
- 93) What is heat sink fan?
- 94) How are the E-waste of different systems collected and making it has a working model?
- 95) What is microcontroller?
- 96) What is programming?
- 97) What is rectified DC supply?
- 98) What is the use of doing a working E-waste system?
- 99) What is LC circuit?
- 100) What is gang capacitor?

29. LOW COST PORTABLE SOLAR WATER DISINFECTION SYSTEM AND ULTRA FILTRATION

- 1) why the air is not allowed to pass through the system?
- 2) what liter of water should be filled in the basin?
- 3) what amount of water is taken out?
- 4) Explain different types of solar still?
- 5) What is reflector?
- 6) What are the benefits of reflector?
- 7) What kind of reflector is used?
- 8) What is hardness of water?
- 9) What about if scale formation takes place?
- 10) What are the effects of use of hardwater?
- 11) Should this system be cleaned periodically?
- 12) What about the cost analysis of the project?
- 13) How to overcome scale formation?
- 14) How can this project be used in rural areas?
- 15) What is insulation?
- 16) What kind of insulation is used?
- 17) Why is insulation important?
- 18) What are the type of insulation?
- 19) Why thermol is called a good insulator?
- 20) What is conduction?
- 21) What is convection?
- 22) what is radiation ?
- 23) what are the properties of solar rays ?
- 24) what is reflectivity ?
- 25) what is absorbitivity ?
- 26) what is transmittivity ?
- 27) What are the benefits of solar rays ?
- 28) How can you say that solar purification is beneficial than other methods of purification?
- 29) How to prevent heat losses from the basin?
- 30) What are water molecules?
- 31) What are various purification methods?
- 32) What are the organic impurities present in the water?
- 33) Why cant we purify industrial water in this mehod?
- 34) What are components that can be removed in this method?
- 35) How can we say this method as portable?
- 36) How economical is this puification method?
- 37) How does this process help man kind?
- 38) What is time required for purifying 1litre of water?
- 39) How does this system work during winter and rainy season?
- 40) How this is useful in rural ?
- 41) What are the measures to be taken in this purification process?
- 42) What are conventional energy sources?
- 43) What are non conventional sources?
- 44) What is hard water?
- 45) What is regeneration?
- 46) What is solar puddle section?
- 47) What is the effect of pasteurisation?
- 48) What is global warming?
- 49) How is the water vapour considered as pure water? Justify.
- 50) What are basic methods of water filtration?
- 51) What is the aim of this method?
- 52) What is reverse osmosis?
- 53) Explain the procedure to construct DIY solar solar plans.
- 54) What are the advantages of solar still model?
- 55) Why does this method dont need filters and electricity?
- 56) What is the pH in the purified water?
- 57) What is the range of impurities removed in this method?
- 58) Explain overflow port?
- 59) What is condensation?

- 60) What is evaporation?
- 61) What is the importance of insulation?
- 62) Explain distilled collection port?
- 63) Describe solar still background?
- 64) Explain Still operation?
- 65) What is the intensity of solar energy falling on the still?
- 66) What is efficiency of this solar still method?
- 67) Explain distillation purification capabilities.
- 68) What is solar irradiance?
- 69) what are renewable and non non renewable sources?
- 70) what is solar energy?
- 71) what is solar still?
- 72) what are methods of water purification?
- 73) what is purification?
- 74) what is distillation?
- 75) what is solar water distillation?
- 76) what is latent heat of vaporisation?
- 77) what is evaporation?
- 78) explain about input watet?
- 79) why it is called solar still?
- 80) what is the principle in this project?
- 81) why only black paint is used?
- 82) what kind of water os used?
- 83) why water is filled partially in basin?
- 84) which kind of basin is good to use?
- 85) what are the aims of your project?
- 86) what are the advantages of your project?
- 87) what are the disadvantages of your project?
- 88) which kind of glass is good to use?
- 89) how about to increase the efficiency?
- 90) why tempered glass is good to use?
- 91) explain types of solar stil?
- 92) what are the impurities in water?
- 93) explain about passive solar stil?
- 94) explain about active solar stil?
- 95) what are the modes of heat transfer?
- 96) explain the modes of heat transfer?
- 97) who can you say that this water is pure?
- 98) give an example which follows the same process?
- 99) how can we improve the efficiency?
- 100) at what angle the glass is fitted?

30. ECO FRIENDLY ELECTRIC PROPULSION BOAT

1. What is the name of project?
2. What is the cost of project?
3. Why we called as solar system water aeration?
4. What is solar panel?
5. What is the cost of solar panel?
6. How solar panel are made?
7. How solar panel work?
8. What is light?
9. What is solar energy?
10. What is the capacity of solar panel?
11. What is the capacity of storage solar light?
12. What is the efficiency of solar panel?
13. What is air?
14. Why students like us as to be involved?
15. What is energy?
16. Why solar panel are used?
17. Why solar energy is preferred?
18. What are the advantage of solar energy?
19. What are the disadvantage of solar energy?
20. What are the application of solar energy?
21. Why solar panel black in colour?
22. What is the use of solar energy?
23. How we maintenance of solar panel?
24. Can our project further modified?
25. Our project basically on what subject?
26. Whether this project is economical?
27. Why always current is in motion?
28. Where is sun radiation absorbed in the solar panel stored?
29. What is solar cell?
30. How light energy convert into electrical energy?

31. What do you meant by water aeration?
32. What is the % of oxygen (O₂) in air?
33. Why air is use in this project?
34. What is diameter and length of pipe?
35. Why pipe is used?
36. What is the density of water?
37. Number of cell used in solar panel?
38. How the machine will be floating?
39. What are the material is used?
40. How the equipment is select?
41. In which principle it work?
42. What is bouncy effect?
43. What is newton 3rd law?
44. What is water?
45. What is the PH value of water?
46. Why oxygen is less inside the water?
47. By which method oxygen is provide inside water?
48. Explain different type of method of water aeration?
49. Why water aeration is need?
50. What is the important of water aeration?
51. What is algae?
52. What is aquatic plant?
53. How oxygen is measured inside the water?
54. What are the method of measuring oxygen inside the water?
55. How the problem is create?
56. What is current?
57. What is frequency?
58. What is power?
59. What is hertz?
60. What is resistance?
61. What is capacitor?
62. What is circuit?

63. What is ampere?
64. What is watt?
65. What is ohm?
66. What is battery?
67. What is led?
68. Why here use the led?
69. Full form is led?
70. What is PVC?
71. Why PVC wire is used?
72. What is source of current?
73. What is diode?
74. What is the LDR?
75. What is the use of LDR?
76. What is the function of resistor?
77. Which current is provide ac or dc?
78. Why fish is not growth properly?
79. How the water quality is improved?
80. Need of oxygen in water?
81. What is new in project?
82. What are the advantage?
83. What are the disadvantage of water aeration?
84. What are the benefits?
85. Where this machine is used?
86. What is water aeration?
87. Further can modify the project?
88. How this is design and which software is used?
89. How much time taken by machine to improve the quality?
90. Where the solar panel is placed?
91. By which source air is suck inside the water?
92. Whether the project is economical?
93. Whether the project is eco-friendly?
94. What about the modal life?

95. What is the weight of modal?
96. What is cost of components?
97. What are the application of water aeration?
98. What is sensor?
99. Why it is also called ``water aeration robot''?
100. What is the aim of the project?

31. SOLAR OPERATED ENERGY EFFICIENT FLOATING AREATOR

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35. Why pipe is used?
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39. What are the material is used?
40. How the equipment is select?
41. In which principle it work?
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54. What are the method of measuring oxygen inside the water?
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56. What is current?

57. What is frequency?
58. What is power?
59. What is hertz?
60. What is resistance?
61. What is capacitor?
62. What is circuit?
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83. What are the disadvantage of water aeration?
84. What are the benefits?
85. Where this machine is used?
86. What is water aeration?
87. Further can modify the project?
88. How this is design and which software is used?
89. How much time taken by machine to improve the quality?
90. Where the solar panel is placed?
91. By which source air is suck inside the water?
92. Whether the project is economical?
93. Whether the project is eco-friendly?
94. What about the modal life?
95. What is the weight of modal?
96. What is cost of components?
97. What are the application of water aeration?
98. What is sensor?
99. Why it is also called ``water aeration robot''?
100. What is the aim of the project?

32. SMART FARMING

Day 1, interaction:

1. What is Anveshana competition?
2. How high school students make their contribution in this competition?
3. Can high school students visit engineering college too?
4. What is engineering?
5. What is the role of an engineer in building nation?
6. How would have been our life without the growth of technologies?

Few questions pertaining to vertical farming and soil moisture sensor:

7. What is vertical farming? We never heard about it!
8. How vertical farming is different from conventional farming?
9. Does vertical farming require artificial lighting condition?
10. What are the advantages of vertical farming?
11. Are there any disadvantages?
12. Why the project named as Smart Farming?
13. Whether the concepts involved in smart farming already exist or is it unique?
14. Is it really possible to make the irrigation automatic?
15. How automatic irrigation is advantageous over manual irrigation?
16. What kind of device is used for automatic irrigation?
17. How soil moisture is detected?
18. What is the principle involved in moisture based irrigation?
19. What is OPAMP? Why it is named so?
20. Why moisture based irrigation not done during night?
21. Since it is a drip irrigation, why sensors are needed to control the irrigation?
22. What are the benefits of moisture based irrigation?
23. Which device is used to detect sunlight?
24. What is LDR? How it works?

25. Even though all LED looks same they emit different colour, why?

Few more question related to moisture based irrigation:

26. What is solenoid valve?
27. What is the reason for choosing solenoid valve?
28. How does solenoid valve work?
29. How solenoid valve is controlled?
30. Drivers are used to drive solenoid valve, what is driver?
31. What is that small rectangular box used in driver circuit?
32. What is relay?
33. Why normal switch can't be used instead of relay?
34. What is transistor?
35. How to make electronic switch using transistor?
36. What do you mean by Microcontroller?
37. What is the use of microcontroller?
38. Whether all the automatic devices has microcontroller?
39. What is an Arduino board?
40. What do you mean by programing a microcontroller?
41. Can everyone write a program?
42. What do you mean by programing language?
43. Why project need to be divided into modules?

Interaction, when we discussed about soil fertility sensor:

44. Why soil fertility need to be measured?
45. What is a fertile soil?
46. What parameters determine soil fertility?
47. What are those devices used to measure soil fertility?
48. What do you mean by soil pH?
49. What is a sensor?
50. What are electrodes?
51. What is ion selective electrode?

52. Is pH electrode is ion selective electrode?
53. How does pH sensor work?
54. Using pH value how fertility of soil is measured?
55. What is EC sensor?
56. How does EC sensor work?
57. What is the role of EC sensor in measuring Soil fertility?
58. Are the sensors going to be kept in the soil forever?
59. Does sensor work properly if electrodes get corroded?
60. What are the types of soil nutrients?
61. What is NPK?
62. What should be the soil thickness layer in vertical farming?
63. Whether the thickness of soil differ for different yield?
64. Should we change the soil periodically in vertical farming?

Interaction on the following day:

65. What is LCD? How does it work?
66. Why LCD is used in this Project?
67. Should we verify our sensors reading?
68. Whether sensors always give correct reading?
69. What are the parameters that can affect sensor reading?
70. In such case how to verify our sensors reading?
71. Is there any different methods to detect soil fertility level?
72. What are the different methods by which soil fertility can be detected?

Interaction during design of power supply module:

73. What is transformer?
74. What is the difference between the transformer used here and the MESCOM transformer?
75. What is rectification? Why it is done?
76. What does ac and dc mean?
77. What does the coloured lines on resistor indicate?

78. There are numbers written on capacitors, what does it indicate?
79. Is the filter used here is same as filter used for water purification?
80. What is regulation? What is the role of it here?
81. The regulator used, is it same as fan regulator?
82. Why regulators here numbered differently even though they look similar?
83. What is multi-meter?
84. What do you mean by grounding? Why it is done? If current pass through ground on which we stand won't we get shock!?

Few more questions related to soil fertility:

85. Does the selection of pesticides, manures depend on sensor reading?
86. Is the device portable?
87. What are the types of soil to be used?
88. How does the soil fertility sensor indicate types of fertilizer to be used?
89. Is it possible to inform different types of crop that can be cultivated by this method?
90. What are the types of crops that can be grown by this method?
91. Whether this smart farming works for all atmospheric condition?
92. Whether our farmers get benefit from smart farming?
93. What are the benefits farmer get from this method?
94. What is the life time of the product?
95. What will be the cost of the product?
96. What are the advantages of Smart farming to the society?
97. Whether this project adds extra cost to electricity bill?
98. Is there any way to reduce cost of electricity?

Few question beyond the boundary:

99. How electricity flow from Jog falls to my home?
100. How mobile communication take place?
101. Every one produce sound. But why it sounds differently?

33. CARBON DIOXIDE DECOMPOSITION AND THE DECOMPOSED CARBON IN NANOTECHNOLOGY

1. What is carbon?
2. What is the shape of carbon layers?
3. Which are the allotropes of carbon?
4. What is the atomic number of carbon?
5. Which is the hardest allotrope of the carbon?
6. Mention the forms of carbon?
7. What is carbon dioxide?
8. What are the advantages of CO₂?
9. Which are the natural sources of carbon dioxide?
10. Mention the CO₂ sink?
11. How carbon dioxide will form?
12. What are the main techniques to reduce the CO₂ level?
13. What are the advantages of reducing CO₂ level to certain ---extent?
14. What is photosynthesis?
15. Name the opposite reaction of photosynthesis?
16. Where photosynthesis is occurs?
17. Which part of leaves responsible for photosynthesis?
18. What is the name of the green pigment present in the leaves?
19. What is NADPH?
20. What is ATP?
21. Name any two cycles regarding photosynthesis?
22. Which is the bacterium will do photosynthesis?
23. What is carbon cycle?
24. What is carbon monoxide?
25. What are the disadvantages of carbon dioxide?
26. What do you mean by decomposition?
27. Why the decomposition of carbon dioxide is required?
28. What is global warming?
29. What are the effects of global warming?
30. What is greenhouse effect?
31. Mention any four greenhouse gases?
32. What is ozone?
33. Molecular formula of ozone?
34. Why the ozone is necessary?
35. What is the condition of ozone nowadays?
36. Mention the gases with the concentration to the contribution of greenhouse effects?
37. What are the effects of greenhouse effects?
38. What are the measures taken by the government to reduce global warming?
39. What is IPCC?
40. What are the impacts of global warming?
41. What is nanotechnology?
42. What are the advantages of nanotechnology?
43. What is carbon nanotube?
44. What are the advantages of carbon nanotube?
45. What is reaction?
46. What is reactant and product?
47. What is the decomposition reaction?
48. Name the types of decomposition reaction?
49. What is endothermic reaction?
50. How CO₂ is present in the ponds?
51. How the CO₂ is produced in the ponds?
52. What is the concentration of CO₂ in ponds?
53. How the photosynthesis will taking place in the ponds?
54. Photosynthesis converts what energy into what energy?
55. Why the decomposition reaction is always endothermic?
56. What is fossil fuel?
57. Why we are burning the fossil fuel (combustion)?
58. What is fractional distillation?

59. Mention the bi products in fractional distillation?
60. Which are the layers present around the earth?
61. What is atmosphere?
62. What is the concentration of the co₂ in atmosphere?
63. What do you mean by anthropogenic emission?
64. Mention the effects of anthropogenic emission?
65. What is chemical?
66. What are catalysts?
67. Why we are getting blue flames in some combustion?
68. Why even-odd rule for vehicles is implemented in Delhi?
69. What is an industry?
70. What happens when the industries liberate the co₂ in large amount to the atmosphere?
71. What are the diseases causes due to the inhale of co₂?
72. What is dry ice?
73. What are the advantages of dry ice?
74. Elaborate CFC?
75. What is CFC?
76. Where the CFC is used more often?
77. What is the major disadvantage of CFC?
78. What happens if we use pencil in the space?
79. What is the natural source of co₂?
80. What is volcanic eruption?
81. How the temperature of the earth center will increase?
82. How the co₂ is present in the cold drinks?
83. What is the size of Nano particles?
84. Name the microscopes used for nanotechnology?
85. Compare the size of Nano particles with other particles:-
86. What is carbon nanotube?
87. What is the size of nanoparticles?
88. What is the strength of nanotube?
89. Who discovered nanotechnology?
90. Mention the medical applications of nanotechnology:-
91. Mention the advantages of nanotechnology in borders or in the army:-
92. What is STM?
93. What is AFM?
94. Who did the recent research about nanotechnology and received Nobel?
95. Who discovered super conductivity?
96. What is single and multi walled Nano tubes?
97. What are hydrocarbons?
98. Significance of hydrocarbons?
99. Types of hydrocarbons?
100. What is oxygen?

34. GRID CONNECTED SOLAR ROOF WITH BI-DIRECTIONAL ENERGY METER

1. What is anveshana ?
2. Where anveshana is held?
3. Why highschool students are chosen for this competition?
4. What we have to do in this competition?
5. What is a project?
6. What are the benefits of doing the projects?
7. What is your project about?
8. What is potential difference?
9. What is voltage?
10. What is current?
11. When does current flow?
12. Where will current flow?
13. What is ohms law?
14. What is resistance?
15. What is resistor?
16. What is conductor?
17. What is insulator?
18. Give example for conductors and insulators?
19. What are the units of current, voltage and resistance?
20. Which type of voltage we get in home AC or DC?
21. What is the voltage level we get at home?
22. What is frequency?
23. What is the frequency level we get at home?
24. What is electric shock?
25. How do we get a shock?
26. What are the measures taken to avoid electric shock?
27. What is LED?
28. What is diode?
29. What is capacitor?
30. What is heat sink?
31. What is PCB?
32. What is general purpose PCB?
33. What is single stranded wire?
34. What are MOSFET's?
35. What is soldering?
36. What is a motor?
37. What is a generator?
38. What is the difference between motor and generator?
39. What is an inverter?
40. What is a rectifier?
41. What is a transformer?
42. What is a coil?
43. What is transmission?
44. What is a transmitter?
45. What is a receiver?
46. What is the material used in soldering?
47. What is load?
48. What is Renewable Energy?
49. Why renewable energy used?
50. What is solar energy?
51. How to convert solar energy into electrical energy?
52. What is solar panels?
53. How to convert wind energy into electrical energy?
54. How to store the electrical energy produced?
55. Why solar panels are used?
56. Why is solar energy preferred?
57. What do you mean peak hour?
58. What is ampere?
59. . What is unit of ampere?
60. What is watt?

61. What is the full form of LED?
62. What is semi conductor?
63. Why semi conductor is used?
64. What is forward bias?
65. What is reverse bias?
66. What is A.C?
67. What is D.C?
68. What are the advantages of solar energy?
69. What are the disadvantages of solar energy?
70. What are the applications of solar energy?
71. Why red wires are connected to red and black wires to black?
72. How LEDs works?
73. Why LED bulbs are used instead of CFL or tube lights?
74. Why are solar panels black in colour?
75. What is silicon?
76. What is step up transformer?
77. What is step down transformer?
78. What is voltage of Indian standards?
79. Why do we use AC for home appliances?
80. What is series connection?
81. What is parallel connection?
82. What is short circuit?
83. What is solar radiation?
84. What is the modes heat transfer?
85. What is microcontroller?
86. What is programming a microcontroller?
87. What is solar energy?
88. What is photovoltaic/solar cell?
89. How does a solar cell work?
90. What is power output?
91. How does power relate to the voltage and electrons?
92. How to measure the output?
93. What is multimeter?
94. How about using multimeter?
95. How about using reflection panels to make the most of sunlight
96. what is efficiency?
97. why in direct sunlight?
98. Why cost is important?
99. Why we should do project ?
100. What is synopsis, abstract, and report ?

38. AIR POLLUTION CONTROLLER

1. What is air pollution?
2. How is it caused?
3. What are the pollutant gases in atmosphere?
4. Which are all the dangerous gases for animals?
5. Why are they dangerous?
6. What are the ill effects of the gases?
7. How can the pollution be reduced?
8. Can the pollutant gases be converted to other harmless gases?
9. How can your device help reduce air pollution?
10. What is the technology behind it?
11. What are the reactions occurring in the apparatus?
12. What are the gases that can be neutralised using apparatus?
13. What are the by-products obtained from the reaction?
14. Are the by-products usable?
15. How much quantity of air can be filtered at a given time?
16. How effective is the device?
17. Why do the gases need to be cooled?
18. Why is the power source needed?
19. What are the acids needed to neutralise the gases?
20. Are there any alternate acids, salts to neutralise the gases?
21. What happens for the neutralised gases?
22. Are there any other techniques besides proposed model?
23. Which acids are used to neutralise the gases?
24. Are there any different reactions that can be added?
25. Does the model produce any harmful salts?
26. Are there any known uses of the salts produced?
27. Can any other gases be neutralised using the same approach?
28. How do you claim the model to be efficient?
29. Can this model be used anywhere?
30. What is the working temperature for the device?
31. Can it be used in the heavy industries?
32. Is the maintenance required?
33. How often is the maintenance required?
34. What are the parts needed to be changed?
35. Are the parts easily available?
36. Where can we find the spares?
37. How much cost is required for maintenance and replacement?
38. Is the technique currently being used?
39. Will the model degrade in performance under the effect of other pollutants?
40. Which are all the gases tested with the device?
41. Can you list any uses of hydrogen?
42. Can you list the uses of baking soda?
43. Can it be used in industries?
44. Can it be used in cars?
45. Is the proposed model effective?
46. Is the baking soda produced pure?
47. Do the acids react with some other pollutants and cause hazard?
48. Are the products or acids corrosive?
49. Any known reasons of hazard?
50. Is the initial investment high?