Unit no I MCQ energy Engineering

“Necessity of a Steam Plant”.

1. . Apart from geographical location, the amount of power generated in a country depends on \_\_\_\_\_\_\_\_\_\_\_  
   a) Number of power producing plants  
   b) Annual consumption of power  
   c) Utilization of natural resources  
   d) Quantity of requirement Ans :C
2. Total power generated is usually contributed by power generated through \_\_\_\_\_\_\_\_\_\_\_\_  
   a) Hydel power plant, Thermal power plant and solar plant  
   b) Ocean thermal energy, Wind energy and Hydel power plant  
   c) Hydel power plant, Geo-thermal plant and Nuclear power plant  
   d) Hydel power plant, Thermal power plant and nuclear power plant

Ans :d

 “Cool and Ash Handling System – 1

1. What is the role of breaker house in coal feeding?  
   a) To break the coal into smaller pieces  
   b) To separate different sizes of coal  
   c) To separate the light dust from the coal  
   d) To powder the coal Ans: C
2. When coal is being burnt how much % of ash is formed compared to the whole amount?  
   a) 10-20%  
   b) 40-50%  
   c) 25-35%  
   d) 4-10% Ans: a
3. . Why is it important to prefer ash handling systems?  
   a) Coal ash produced destroys the machineries by entering into them  
   b) Coal ash produced annually accounts for thousands of tones  
   c) Coal ash can be reutilized for some other purpose  
   d) Coal ash affects the health of people working at plants Ans : b
4. Large amount of coal is transported by\_\_\_\_\_\_\_\_  
   a) railway  
   b) sea or river ways  
   c) road transportation  
   d) by airlifting Ans:a
5. The coal is fed to the furnace through \_\_\_\_\_\_\_\_\_  
   a) conveyor belt  
   b) wagon tipper  
   c) hopper  
   d) crane Ans :c
6. Which system consumes less power out of all ash handling systems?  
   a) Mechanical ash handling system  
   b) Pneumatic ash handling system  
   c) Hydraulic ash handling system  
   d) Steam jet ash handling system ans: a
7. What is the function of cyclone separators in pneumatic ash handling system?  
   a) To separate the lighter dust particles  
   b) To force up the movement of ash through pipes or tubes  
   c) To draw out the dust from furnace  
   d) To separate minute coal particles Ans:a
8. Which medium is used to carry ash in the pneumatic ash handling system?  
   a) Conveyor belt  
   b) Water trough  
   c) Air  
   d) Chain belt ans :c
9. Which system is noisy out of all the following ash handling systems?  
   a) Steam jet ash handling system  
   b) Mechanical ash handling system  
   c) Pneumatic ash handling system  
   d) Hydraulic ash handling system ans : c
10. Which medium is used to carry ash in hydraulic system?  
    a) Air  
    b) Water  
    c) Steam  
    d) Conveyor ans:b
11. Which of the following ash handling system is more suitable for large thermal plants?  
    a) Steam jet ash handling system  
    b) Mechanical ash handling system  
    c) Pneumatic ash handling system  
    d) Hydraulic ash handling system ans :d
12. \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ are the common problems on pipeline inner walls when the slurry contains calcium, magnesium and sulphate ashes.  
    a) Clogs and Corrosion  
    b) Scaling and Cracks  
    c) Pores and Contamination  
    d) Scaling and Cementation ans:d
13. In what form does the total ash produced in the furnace escapes through the chimney?  
    a) Fines  
    b) Aerosols  
    c) Gas  
    d) Cinder Ans: a

**Cooling Water System, Air & Fuel Gas System**

1. What type of draught fan is used to draw air from air heater?  
   a) Balanced draught fan  
   b) Induced draught fan  
   c) Forced draught fan  
   d) Artificial draught fan Ans: C
2. In what form are the products of combustion in steam powered plant?  
   a) Air products  
   b) Flue gas  
   c) Slurry  
   d) Hot water Ans : b
3. How flue gas is made use of in steam power plant?  
   a) To maintain the constant pressure inside boiler  
   b) To heat the water in the tubes of boiler  
   c) To increase or decrease the pressure inside the boiler  
   d) To remove all unnecessary chemical constituents Ans: b
4. How is flue gas discharged through the chimneys?  
   a) By using induced draught fan  
   b) By using balanced draught fan  
   c) By using forced draught fan  
   d) By using mechanical draught fan Ans:a
5. What is the purpose of chimney?  
   a) To provide air ventilation  
   b) To eliminate noise produced in the system  
   c) To exhaust flue gases those is induced  
   d) To help in to suck the air required for system ans: c
6. What is the advantage of using flue gas inside a boiler?  
   a) Heats up boiler water tube quickly  
   b) Reduces the amount of amount of exhaust  
   c) Speeds of the process of boiler  
   d) Reduces the green house of effect ans: d
7. What type of system is it, when the water is directly is used to condense the steam?  
   a) Closed system  
   b) Open system  
   c) Closed loop system  
   d) Open loop system Ans : b
8. What type of system is it when the cooling tower is preferred?  
   a) Closed system  
   b) Open system  
   c) Closed loop system  
   d) Open loop system Ans : a
9. What is the alternative cooling method for the thermal plant?  
   a) Wet cooling  
   b) Evaporation cooling  
   c) Dry cooling  
   d) Central air damping Ans :c
10. What is the storage used to hold the condensed water?  
    a) Reservoir  
    b) Tarn  
    c) Hot well  
    d) Basin Ans :C
11. Feed water from the hot well is supplied to steam generator by using the \_\_\_\_\_\_\_\_\_  
    a) Sewers  
    b) Cistern  
    c) Water trough  
    d) Feed pump Ans: D
12. What is the main objective beyond treating feed water?  
    a) To remove solid particle  
    b) To prevent damage by scaling  
    c) To speed up the steaming process  
    d) To control conductivity Ans: b
13. What does steam power plant mainly use to generate steam?  
    a) Boiled water  
    b) Fresh steam  
    c) Flue gas  
    d) Condensed water Ans: C
14. What type of steam is produced in the steam boiler?  
    a) Low pressure steam  
    b) High pressure steam  
    c) Saturated steam  
    d) Unsaturated steam Ans: C
15. In what form is the coal used in boiler?  
    a) Big chunks.  
    b) Medium size crushed  
    c) Powder form  
    d) Mixed with fluid Ans: C

**Pulverised Fuel Handling**

1. Why do large power plants use pulverized fuel firing system?  
   a) Higher thermal efficiency  
   b) Uses high grade coal  
   c) Less smoke formation  
   d) Troubles created in this system are less Ans: a
2. How is the fuel selected in the pulverized fuel system?  
   a) Depending on its size  
   b) Depending on its grade  
   c) Depending on volatile matter content  
   d) Depending the chemical composition Ans : C
3. What is the advantage of using pulverized fuel firing system?  
   a) Decreases maintenance of plant  
   b) Less wastage of the products  
   c) Less ash formation  
   d) No formation of clinkers Ans : A
4. What is unit pulverizer system also called?  
   a) Burner and pulverizer firing system  
   b) Central system firing system  
   c) Bin system firing system  
   d) Direct firing system Ans: d
5. Which system was used before direct firing system in pulverized fuel firing?  
   a) Unit system  
   b) Burner and pulverizer system  
   c) Bin system  
   d) Pulverizer Ans : C
6. Which separator is used to separate the pulverized coal in pulverized fuel firing?  
   a) Central inlet separator  
   b) Magnetics separator  
   c) Cyclone separator  
   d) Inertial separator Ans : C
7. What is used to remove moisture air after cyclone separation in the pulverized fuel system?  
   a) Sponge pad  
   b) Dry filters  
   c) Fabric bag  
   d) Hot air Ans :C
8. How is the fuel handled generally outside the plant?  
   a) Mechanically  
   b) Manually  
   c) Robotic technology  
   d) Physically Ans: A
9. Why is fuel need to be stocked in steam power plant?  
   a) To supply to nearby other steam plants  
   b) For overusing when plant is run for extra periods  
   c) For emergency possible cases  
   d) For Non-stop work of power plant Ans: C
10. What is the ideal site for power plant?  
    a) In hilly regions  
    b) On islands  
    c) Near water resources  
    d) In center lands Ans: C
11. Which type of transportation system is ideal for transporting coal directly to the point of consumption?  
    a) Road transportation  
    b) Sea or river transportation  
    c) Transportation by rail  
    d) Transportation by air Ans: A
12. What is in plant coal handling system?  
    a) Maintenance of coal during emergencies  
    b) Maintenance of coal inside the boiler  
    c) Maintenance of coal inside the power production area  
    d) Maintenance of coal while transporting/moving it Ans: C
13. What is the main characteristic of in plant coal handling system?  
    a) It should be easy to handle  
    b) Should be simple in construction  
    c) Free from repetitive handling  
    d) Free from corrosion problems Ans : C
14. What is the advantage of stocking the coal in huge heaps?  
    a) Prevents from coal being oxidized  
    b) Provides grip for the storage  
    c) Prevents air circulation in the interior of heap  
    d) The moisture content will be eliminated Ans : C
15. How the oxidation of coal is eliminated?  
    a) By exposing it to the sunlight  
    b) By turning the entire coal heap upside down periodically  
    c) By circulating air uniformly  
    d) By burning coal at very high temperatures Ans : C
16. Why is it necessary to use noncandescent materials in place of coal storage area?  
    a) To avoid it from catching fire  
    b) To act as a fire resistor during the cause of fire  
    c) To avoid it from acting as a supporter of fire  
    d) To provide a cool environment Ans : A
17. In which mode of transport are rotary car dumpers used?  
    a) Road transport  
    b) Rail transport  
    c) Transport by sea or river  
    d) Inside the plant handling Ans: b
18. What is the function of sizer in coal handling?  
    a) To separate the coal depending on size  
    b) To check the amount of fuel that is supplied  
    c) To pick the coal of required size  
    d) To divert the coal flow into different burners Ans: C
19. What is the function of magnetic separator in coal handling?  
    a) To remove impurities  
    b) To separate bituminous coal  
    c) To remove iron particles  
    d) To separate metal contents Ans : C
20. What is the purpose of bucket elevators in coal handling?  
    a) Used to move coal horizontally  
    b) Used to lift coal vertically  
    c) Used to separate the crushed coal and pulverized coal  
    d) Used to pour the coal vertically at right angles into furnace Ans : b
21. What is the function of Gab bucket conveyor in coal handling?  
    a) To lift the coal vertically  
    b) To crush the coal  
    c) To move coal from one place to another  
    d) To separate crushed coal and powdered coal Ans : C
22. Out of all conveyors which type of conveyor has a greater capacity to convey large amount of coal?  
    a) Belt conveyor  
    b) Chain conveyor  
    c) Screw conveyor  
    d) Scraper conveyor Ans: a
23. Which type of conveyor has shorter life span?  
    a) Flight conveyor  
    b) Belt conveyor  
    c) Screw conveyor  
    d) Grab bucket conveyor Ans: a
24. What does ESP stand for in dust collection?  
    a) Endothermic sensor plate  
    b) Extrasensory perception  
    c) Electrostatic precipitators  
    d) Electronic stability program Ans: C
25. What happens when high voltage is applied to the electrodes in electric dust collectors?  
    a) Forms uniform electric field  
    b) Corona is formed  
    c) The whole system gets charged  
    d) Ions move from emitting electrode to collecting electrode Ans: B
26. Why is weighment of the coal essential in the plants?  
    a) For knowing the quantity of the coal present  
    b) For getting optimum efficiency  
    c) For knowing which type of coal has good fuel content  
    d) To separate the grades of coal Ans: b
27. Which type of weigher is commonly used all over the world?  
    a) Electronic weighers  
    b) Mechanical weighers  
    c) Pneumatic weighers  
    d) Nuclear weighers Ans: b
28. Which type of weighers is used in place where the electronic weighers are not allowed?  
    a) Pneumatic weighers  
    b) Mechanical weighers  
    c) Nuclear weighers  
    d) Electronic weighers Ans : a
29. Electronic weighers are based on which principle?  
    a) Semiconductor principle  
    b) Electromagnetic principle  
    c) Load cell principle  
    d) Junctions Ans: c
30. Gravitational separator works on the principle of\_\_\_\_\_\_\_\_\_\_  
    a) Size of particulate  
    b) Shape of particulate  
    c) Weight of particulate  
    d) Color of the particulate Ans: C
31. What is the use of baffles in the gravitational separators?  
    a) To separate types of dust  
    b) To settle the dust by letting them to strike  
    c) To control the flow of dust particles  
    d) To blow the dust Ans: b
32. What is the most effective advantage of gravitational separators?  
    a) They consume no power  
    b) They just need small amount of space for operation  
    c) They are cost effective  
    d) Time taken for operation is very less Ans: C
33. Which principle does cyclone separator use?  
    a) Gravitational force  
    b) Vortex velocity  
    c) Inertia  
    d) Temperatures of air Ans :C
34. Cyclone separators are also known as:  
    a) Twist cleaners  
    b) Squall  
    c) Pre-cleaners  
    d) Zephyr cleaners Ans: C
35. What is the range of particulate removing efficiency of cyclone separators?  
    a) 50-99%  
    b) 20-80%  
    c) 70-90%  
    d) 70-95% Ans: a
36. What is Baghouse?  
    a) Filters arranged in parallel form  
    b) Filters arranged throughout the system  
    c) Filters arranged randomly  
    d) Filters arranged alternatively Ans : a
37. What is the work of the baghouse filter?  
    a) To remove the hot air from furnace  
    b) To separate the solid particles from dust produced  
    c) To remove dust particles from flue gas  
    d) To wash away the contamination of dust on the walls of furnace Ans :c
38. What is the use of wet scrubber in the dust collection?  
    a) Remove flue gas  
    b) Remove Scales on the furnace surface  
    c) Remove the dust that has the moisture content  
    d) Remove pollutants Ans : d
39. Where is water steam separator drum located in Lamont boiler?  
    a) Inside of the boiler  
    b) Right above the furnace  
    c) Before the feed water pump  
    d) Outside of boiler Ans : d
40. What is the main disadvantage of Lamont boiler?  
    a) Less flexible in design  
    b) Low heat transfer rate  
    c) Formation of bubbles  
    d) Low steam generation capacity Ans : c
41. What type of boiler is a Benson boiler?  
    a) Super critical boiler  
    b) Fire tube boiler  
    c) Natural circulation boiler  
    d) Over-through boiler Ans: a
42. What is the capacity of Benson boiler?  
    a) 180 tonnes/hr & above  
    b) 150 tonnes/hr & above  
    c) 250 tonnes/hr & above  
    d) 300 tonnes/hr & above Ans : b
43. What is the major disadvantage of the Benson boilers?  
    a) Boiler is big in size  
    b) Has large storage capacity  
    c) Deposition of salts  
    d) Bubble formation Ans : c
44. Which boiler is most successful boiler in the gas turbine industries?  
    a) Because it has greater flexibility  
    b) It is easy to control, it’s fully automatic  
    c) It has higher thermal efficiency of all  
    d) Can increase heat transfer without changing its size Ans:d
45. What is done to increase the rate of heat transfer in the Velox boiler?  
    a) The boiler is heated upto very high range of temperature  
    b) The size of the boiler is changed as it is flexible  
    c) High grade fuel is made use for the combustion  
    d) Combustion gases are circulated through tubes with supersonic speed

Ans: d

1. What type of boiler is a Velox boiler?  
   a) Forced circulation boiler  
   b) Natural circulation boiler  
   c) Positively forced circulation boiler  
   d) Once- through boiler Ans: a
2. What is feature of the Loffler boilers?  
   a) Evaporating water by super heated steam  
   b) Provide better efficiency by re-circulating gas coming out of turbine  
   c) Produce better steam quality by heating the boiler furnace above critical degrees  
   d) Eliminate the extra components used Ans:A
3. What is the major difficulty of the La-Mont boiler?  
   a) Unstable water circulation  
   b) Deposition of salts  
   c) Overheating of the components  
   d) Boiler working is slow Ans: b
4. At what temperature is the water in convection super heater is heated of Loffler boiler?  
   a) 200oC  
   b) 300oC  
   c) 400oC  
   d) 500oC Ans : d
5. Which is the most recent economical method of power generation from boilers?  
   a) Natural circulation boiler  
   b) Fire tube boiler  
   c) Forced circulation  
   d) Super critical boiler ans : d
6. Which of the following boilers has the highest heat transfer capacity?  
   a) Subcritical boiler  
   b) Critical boiler  
   c) Forced circulation boiler  
   d) Supercritical boiler Ans: d
7. Acid rain is caused mainly by \_\_\_\_\_\_\_\_\_\_\_  
   a) methane gas  
   b) sulphuric acid  
   c) sulfur dioxide  
   d) carbon dioxide Ans : c
8. Ash is widely used in the production of \_\_\_\_\_\_\_  
   a) Plastics  
   b) Thermal wear  
   c) Food oxidants  
   d) Cement Ans :d
9. How much percent of fly ash is, mixed with Portland cement?  
   a) 10 to 25%  
   b) 5 to 10%  
   c) 30 to 50%  
   d) 50% Ans: a
10. Open cooling system is also called as \_\_\_\_\_\_\_\_\_\_\_\_  
    a) parallel system  
    b) once through system  
    c) air based system  
    d) non-reversible system ans:b
11. What are used in the direct flow system to transverse the pond before uniting at intake?  
    a) Separators  
    b) Filters  
    c) Baffle walls  
    d) Porous pipes Ans: c
12. What type of cooling system is used in the large power plants?  
    a) Cooling ponds  
    b) Natural flow system  
    c) Cooling towers  
    d) Single deck system Ans :C
13. Why is induced draught considered better than the forced draught?  
    a) Because power requirement is high for forced draught  
    b) Maintenance of induced draught fan is costlier  
    c) Forced draught is less efficient  
    d) Forced draught produces less amount of speed of air Ans :a
14. What is the critical average pressure at which the single boiler unit per turbines is designed to handle?  
    a) 150 bar  
    b) 220 bar  
    c) 740 bar  
    d) 575 bar Ans: b
15. What is the temperature at which the steam boilers are capable to withstand?  
    a) 200oC  
    b) 280oC  
    c) 540oC  
    d) 358oC Ans: c