KFD Test Paper Sample Questions - 1

1. What are the pipe specifications for the following
   (a) Above ground for size up to 4 inches and
   (b) Sizes above 4 inches?

   ANSWER:
   (a) Galvanized Iron, Seamless, Class 'C', Heavy Duty – BS 1387
   (But KFD accepts upto 80 mm GI)
   (b) Black Steel, Wrought Steel, Sch 40, Seamless

2. What are the different types of fire hose reel?
   ANSWER:
   (a) Fixed manual
   (b) Swing Manual
   (c) Fixed Automatic
   (d) Swing Automatic

Automatic fire hose reel has integrated automatic stop valve which will open after two revolutions of reel.

3. What are components of fire hose reel?
   ANSWER:
   (a) Water Source (b) Piping Network (c) Isolation Valve (d) Drum 9(e) Hose Reel

4. What is the material of fire hose reel?
   ANSWER:
   Rubber according to BS 3169

5. What is the thickness of fire hose reel cabinet?
   ANSWER:
   It should not be less than 1.5 mm

6. What is the allowable distance between the fire pumps and fire tank?
   ANSWER:
   Allowable distance is 30 mtr (if straight pipe). If elbows then consider one elbow equal to 3 mtrs.

7. What are these material made of
   (a) Fire pump casing - **Cast Iron**
   (b) Impeller– **Bronze or Stainless Steel**
   (c) Shaft – **Stainless Steel**

8. How do we test pillar hydrant system?
   ANSWER:
   Pillar Hydrant system is to be tested for a maximum pressure of 16 bar for 2 hours or 1.5 times the maximum working pressure. Friction loss should not be less than 0.2 bar.

9. What type of pumps are used for following
   (a) Combined system -**Horizontal split-casing centrifugal pump**
   (b) Hose Reel System – **Booster pump**
   (c) Landing Valve system – **End suction pump**

10. What class of insulation is used for fire pumps for motor above 5kW?
    ANSWER:
    Class 'F' Insulation

11. How does a fire pump start automatically and what is the device used for starting the pump?
    ANSWER:
    If the pressure goes down 20 psi below the set pressure, then the jockey pump will start. If the pressure further goes down 20 psi, first main fire pump will start. If the pressure further goes further 20 psi down, then the second fire pump will start.

    Note:
    The jockey pump will stop automatically when the pressure reaches to the system set pressure. But the main fire pump will not stop automatically. It can be stoped manually only.

    The device used the pressure switch

12. What is the maximum pressure for
    (a) Hose entrance: **100 psi (7 ar)**
    (b) At nozzle tip size 4.8 mm: **44 psi (3 bar)**
    (c) At nozzle tip size 6.35 mm: **22 psi (1.5 bar)**

13. What are the types of landing valve?
    ANSWER:
    (a) Ordinary type Landing Valve.
    (b) Pressure Reducing type Landing Valve.
    PRV type Landing Valve is used when pressure at hose exceeds 100 psi (7 bar)

14. What is the length of canvas hose of size 2.5 inches?

ANSWER:

30 mtr

15. What is the distance between two LV and how many LV should be put in each floor

ANSWER:

Distance between two landing valve should not exceed 40 Mtr.

16. What is landing valve minimum and maximum pressure?

ANSWER:

Minimum Pressure: 65 psi (4.5bar)

Maximum Pressure: 100 psi (7 bar)

17. What is the height of breeching inlet from ground level?

ANSWER:

60 to 100 cm

18. What is the maximum distance of breeching inlet from the building protected?

ANSWER:

According to NFPA maximum distance is 12 mtr from building to be protected. According to KFD maximum distance should not exceed 18 mtr.

19. What is the maximum coverage area ICV - Installation Control Valve?

ANSWER:

(a) Light Hazard : 52, 000 sq. feet (4831 sq. m)

(b) Ordinary Hazard : 52,000 sq. feet (48 sq. m)

(c) Extra / High Hazard : 25, 000 sq. feet (pipe schedule) & 40, 000 sq. feet (Hydraulically Calculated)

20. What is the maximum area required by the dry riser LV system

ANSWER:

1000 sq. m

Dry risers are used in residential buildings up to 6 floors.

21. Where do we use underground pillar hydrant system?

ANSWER:

In light hazard / Residential buildings

22. What are the different types of pillar hydrant system?

ANSWER:

(a) Vertical stand type pillar hydrant

(b) Underground pillar hydrant

23. What are the components of pillar hydrant system?

ANSWER:

(a) Outlets (b) Outlets Valve (c) Stand / Body (d) Isolation Valve (e) Piping Network (f) Manholes / Access covers (g) Cabinet & accessories.

24. What should be the distance between the pillar hydrant systems for following:
    (a) Light/Residential Hazard
    (b) Ordinary Hazard / Commercial
    (c) High Hazard / Industrial Buildings?
    Also mentionthe number of outlets and duration for above occupancies.

ANSWER:

Hazards	Distance between pillar hydrants	How much outlets work at same time	Duration
Light Hazard / Residential	100 to 150 mtr	01	30 min
Ordinary Hazard / Commercial	75 to 100 mtr	02	60 min
High Hazard / Industrial	60 to 75 mtr	04	90 min

25. What should be the distance between pillar hydrant outlet and building protected?

ANSWER:

It should be 5 to 10 mtr

26. What should be the minimum depth of *underground hydrant system* from ground level?

ANSWER:

300 mm

27. What should be the height of external pillar hydrant from ground level?

ANSWER:

45 to 75 cm

28. What should be minimum depth of pipe used in external pillar hydrant system?

ANSWER:

800 mm

29. What are the sizes of pipe used for hydrant system
    (a) Without any other system
    (b) With sprinkler and other covered system?

ANSWER:

(a) If only fire hydrant are used
Main line – 6 inch
Branch line – 4 inch

(b) For combined system (Sprinklers, fire hydrant and hose reels)
Main line – 8 inch
Branch Line – 6 inch

30. What is the flow in gpm for the pump capacity 750 L/min?

ANSWER:

1 gpm = 3.785 lpm. Therefore 750 lpm = 198 gpm

31. How do we cool electric and diesel fire pumps?

ANSWER:

Electric pumps – Fan
Diesel pumps – Water (Radiator)

32. What is the coverage area of sprinkler system for following occupancies:
    (a) Light Hazard
    (b) Ordinary Hazard
    (c) High Hazard

ANSWER:

Occupancy	Maximum Protected Area	Maximum Spacing
Light Hazard	17 to 21 sq. m	4.6 m
Ordinary Hazard	9 -12 sq. m	4 m
Extra / High Hazard	9 sq. m	3.7 m

33. What is the discharge time for foam system protecting generator room?

ANSWER:

10 minutes

34. What is the activating time for halogen sub system after the 2nd alarm goes off?

ANSWER:

10 seconds

35. How do we protect large closed roof fuel tanks?

ANSWER:

Sub-surface injection system by foam application

Low expanded foam having expansion ratio 2 & 4, must be injected at the base of the fuel tank at least 12 inches from the highest water level, in any.

Discharge time – 30 minutes for hydrocarbon fuels

55 minutes for crude petroleum

Agent – AFFF (Aqueous Film Forming Foam).

36. What is the maximum distance between the ceiling and false ceiling after which we have to install sprinkler in between?

ANSWER: 80 cm

37. How or from where we can get the following

(a) Remote area coverage

(b) Pump size

(c) Water tank size?

(a) Remote sprinkler area coverage can be obtained from "Density/Area curve" figure 11.2.3.1.1. NFPA 13(2007). For example area of sprinkler operation is 1500 sq feet corresponding to density 0.15 gpm/ sq ft.

(b) Pump size as per NFPA 14 -7.10.1.1.1 , For Classes I and III systems, the minimum flow rate for the hydraulically most remote standpipe shall be 500 gpm . Also as per NFPA 14, 7.10.1.1.3 , the minimum flow rate for additional standpipe shall be 250 gpm per standpipe with the total not to exceed 1250 gpm or 1000 gpm for buildings sprinkled throughout. Also as per NFPA 14 section 7.8 , the residual pressure required at the most demanding landing valve is 100 psi.

(c) Water tank size = pump discharge in gpm x 60 minutes (Gallons)

38. When do we need PRV – Pressure Reducing Valve in Automatic Sprinkler System?

ANSWER:When the pressure exceeds 12 bar.

39. What is the permitted distance between the FHRs?

ANSWER:

Length of FHR = 30 Mtr

Jet Distance = 8 Mtr

Therefore, maximum distance between two FHR should not exceed 70 mtr

40. What is the design density for normal hazard?
    ANSWER:0.15 gpm/sq feet

41. What is the density permitted for foam according to NFPA?
    ANSWER: 0.16 gpm/sqft

42. What are the different kinds of halogen system and how they extinguish fire?
    ANSWER:
    (a) FM200: Quick cooling. Discharge time 6 to 10 seconds
    (b) Aragonite : Reduction or isolation of oxygen
    (c) Novec 1230 : Reduction of heat
    (d) Nitrogen -
    (e) CO2: Reduction of O2.

43. Mention three different kinds for foam concentrate.
    ANSWER:
    (a) AFFF – Aqueous Film Forming Foam used for class A, B & C fires. Used for hydrocarbon fire.
    (b) Alcohol resistance AFFF – used for polar solvents which are insoluble in water.
    (c) Synthetic / Detergent (High Expansion Foam)-used with foam generator
    (d) Protein Foam Concentrate

44. How do we protect Helipads?
    ANSWER:
    Foam application using hand hose lines and fixed nozzles.
    Discharge time – 5 minutes
    In addition, one portable fire extinguisher for each take-off and landing, parking and fuel storage.

45. What is the suitable location to keep cylinders in halogen system?
    ANSWER:
    In places isolated from the protected areas

46. What is the specification of pipe used in dry chemical system below and above 65 mm?
    ANSWER:
    (a) Below and up to 65 mm dia – stainless steel or copper K or L type
    (b) Above 65 mm dia – Galvanized steel
    (Note: We can't use Cast Iron in dry chemical system)

47. What is the specification of pipe used in wet chemical system?
    ANSWER:
    Black, chrome plated or stainless steel

48. What should be the minimum velocity of water according to NFPA and LPC?

ANSWER:

1.8 m/s

49. What is the capacity of prime tank in case of negative suction?

ANSWER:

One cum

50. What is the suitable distance between ceiling and sprinklers?

ANSWER:

Suitable distance between ceiling and sprinkler is 25 mm to 150 mm.
Maximum distance should not to exceed 450 mm.

51. What are principle / reason behind quick response sprinkler?

ANSWER:

Used in light hazard application. Quick response sprinkler as 3 mm glass bulb

52. What is the temperature rating and colour coding of different types of sprinklers?

ANSWER:

Temperature	Colour	Temperature Rating	Max Ceiling Temperature
57 °C (135 °F)	Orange	Ordinary	38 °C (100 °F)
68 °C (155 °F)	Red	Ordinary	38 °C (100 °F)
79 °C (175 °F)	Yellow	Intermediate	65 °C (150 °F)
93 °C (200 °F)	Green	Intermediate	65 °C (150 °F)
141 °C (286 °F)	Blue	High	107 °C (225 °F)
182 °C (360 °F)	Mauve	Extra High	149 °C (300 °F)
260 °C (500 °F)	Black	Ultra High	240 °C (465 °F)

53. When do we use overhead tank without pumps?

ANSWER:

In situations where the pressure should not exceeds 3.8 bar. Distance between the tank and highest sprinkler should be minimum 15 mtr.

54. What is the maximum area covered by one system riser?

ANSWER:

(d) Light Hazard : 52, 000 sq. feet (4831 sq. m)
(e) Ordinary Hazard : 52,000 sq. feet (48 sq. m)
(f) Extra / High Hazard : 25, 000 sq. feet (pipe schedule) & 40, 000 sq. feet (Hydraulically Calculated)

55. What should be the size of riser pipe according to NFPA?

ANSWER:

(a) 100 mm dia for standpipe system
(b) 150 mm dia for combined system

56. What is the minimum flow and head required for fire pumps according to NFPA?

ANSWER:

The pumps shall be capable of delivering not less than 160% of the rate flow, at not less than 65% of rated head.
NPSH (Net Positive Suction Head) should not be less than 5.8 m for horizontal pipe.

57. What is the maximum distance for hangers to support pipe between last sprinkler and last hanger.

ANSWER:

(a) For 25 mm dia – 3.7 m
(b) For 40 mm dia – 4.6 m

58. Where are the following components used:

(a) Auto Air Release Valve: **Dry LV riser pipe at top**

(b) Flexible connection:**In suction and discharge pipe of fire pump**

(c) Suction Strainer:**Inside the water tank in suction line**

(d) Globe Valve:**Test return line in fire pump**

(e) Flow meter:**Test returns line in fire pump**

(f) Flow Switch:**In floor control station assembly**

59. What is the ratio between the flow and pressure of jockey pump to main fire pump?

ANSWER:

(a) Jockey pump flow should be 5% of main fire pump.
For example, if main fire pump flow is 1000 gpm then jockey pump flow should be 50 gpm.

(b) Jockey pump pressure should be 0.5 bar more than main fire pump.
For example, if main fire pump pressure is 7 bar, then jockey pump pressure should be 7.5 bar.

60. What is the approved motor speed for the fire pumps?

ANSWER:

1450 rpm to 2900 rpm

61. What should be the minimum flow capacity of booster pumps used in FHR?

ANSWER:

According to NFPA, it should be 100 gpm.

62. What should be the acceptable height of FHR from floor level?

ANSWER:

1 mtr to 1.3 mtr

63. What should be size of canvas hose used in internal landing system?

ANSWER:

1 -1/2 inch (38 mm)

64. What should be the permitted distance between dry LV and farthest point in the building?

ANSWER:

20 mtr

65. What are the components of floor control stations?

ANSWER:

(a) Butterfly / Gate Valve with supervisory switch
(b) Flow switch
(c) Test and drain valve which include sight glass

66. How do we protect oil transformers?

ANSWER:

Oil transformers can be best protected using "Deluge System"- Automatic High Velocity Spray System. A deluge system is connected to a water supply through a deluge valve that is opened by the operation of a smoke or heat detection system. Nozzle used in this system are open type and when water is released into the system it flows from all discharge devices.

67. How FM200 system extinguish fire and where do we use FM200 systems

ANSWER:

FM200 system extinguishes fire by – reduction of heat, isolation of O2 and inhibiting chain reactions. FM200 systems are used in IT systems, data storage rooms, customer/client records, intellectual property, art etc. Since FM200 agent is volatile and does not leave any residue upon evaporation. It is fast, effective and safe.

FM200 isolate O2 from fire within 10 seconds.

68. What is Deluge Valve and how does it works?

ANSWER:

Deluge valve is a device that prevents water from entering the system piping until a fire is detected by heat/smoke detectors. The deluge valve has an inlet chamber and outlet chamber which are separated by a priming chamber using the clapper and diaphragm.

69. What is the system to protect Kitchens?

ANSWER:

Wet Chemical Fire Suppression System. The chemical agent is potassium carbonate and water solution. This is discharged onto fine droplets on to the protected area by the chrome plated or stainless steel piping network. Nominal discharge time is 45 seconds.

70. In high rise building exceeding 30 floors, how do we distribute fire pumps and water tank?

ANSWER:

Every 20th floor there should be mechanical room.

71. What is the difference between ICV and deluge valve?

ANSWER:

ICV – Installation Control Valve	Deluge Valve
Water is present on both sides of ICV.	There is no water on system side. Deluge Valve keeps the system dry until the release is activated.
ICV is activated /open when pressure in the system falls.	Smoke or heat detectors are used to activate Deluge Valve when a fire is detected.

72. What is minimum width of duct and cable tray to provide sprinkler below?

ANSWER:

80 cm

73. What is the design density for different hazards for remote area 1500 sq feet?

ANSWER:

(a) Light Hazard : 0.1 gpm / sqft
(b) Ordinary Hazard -1 : 0.15 gpm / sqft
(c) Ordinary Hazar -2 : 0.20gpm / sqft
(d) Extra Hazard – 1: 0.30gpm / sqft
(e) Extra Hazard – 2: 0.40gpm / sqft

74. What should be the minimum pressure at sprinkler in remote area?

ANSWER:

7 psi

75. How many sprinklers should be selected in remote area?

ANSWER:

12 – 16 sprinkler heads

76. What is the maximum operating pressure for any sprinklers?

ANSWER:

175 psi (12 Bar)

77. What is high expansion foam system and where do we use?

ANSWER:

Foam solution flows through the high expansion foam generator. Piping – Stainless Steel 304 or 316.Minimum discharge – 15 minutes.

Application – Ship holds, Aircrafts Hangers, Tire Storage etc.

78. What are different classifications of occupancies according to NFPA?

ANSWER:

(a) **Light Hazard**: Low combustibility and low rate of heat release

(b) **Ordinary Hazard – Group 1:** Moderate combustibility and moderate rate of heat release

(c) **Ordinary Hard – Group 2:** High combustibility and moderate rate of heat release

(d) **High Hazard – Group 1:** High combustibility and high rate of heat release

(e) **High Hazard – Group 2:** High combustibility and high rate of heat release. Quantity of flammable / combustible liquids is moderate to high.

79. What is minimum and maximum distance of sprinkler from wall?

ANSWER:

(a) Minimum is 100 mm

(b) Maximum is ½ of allowable maximum spacing between sprinklers. For example, for ordinary hazard if max spacing is 4 m, then max distance from wall should not exceed 2 m.

80. What is maximum protection area and maximum spacing for side wall sprinklers?

ANSWER:

According to NFPA,

Max Protection Area is 37.2 sq m

Maximum Spacing is 7.3 m

81. What is maximum sprinkler carried by 65, 80, 100 and 150 mm pipes.

ANSWER:

25 mm dia pipe – 02 Nos.

32mm dia pipe – 03 Nos.

40 mm dia pipe – 05 Nos.

50 mm dia pipe – 10 Nos.

65 mm dia pipe – 20 Nos

80 mm dia pipe – 40 Nos.

100 mm dia pipe – 100 Nos.

150 mm dia pipe – 275 Nos.

82. What are the main characteristics of sprinkler to control fire?

ANSWER:

(a) Thermal sensitivity
(b) Temperature rating
(c) Orifice Size
(d) Installation Orientation
(e) Water distribution

83. What are the classifications of fire according to NFPA?

ANSWER:

(a) Class A – Solid fires such as paper, wood, plastic etc.
(b) Class B – Flammable liquids such as petrol, oil, paraffin etc.
(c) Class C – Electrical fire. Water can be a dangerous extinguisher medium for class C fires because of the risk of electrical shock.
(d) Class D – Metal fires
(e) Class K – Kitchen fires

84. What is maximum sprinkler which can be placed on a single branch line?

ANSWER:

08 Sprinklers

85. What are types of sprinklers?

ANSWER:

(a) Upright Sprinklers
(b) Pendent Sprinklers
(c) Sidewall Sprinklers
(d) Extended coverage sprinklers
(e) Open sprinklers

86. What is the flow at LV and K-Factor?

ANSWER:

Minimum flow – 250 gpm for hose size 2-1/2".
K – Factor: 31

87. What is the size of hose for Class I and II systems and length of hose?
    ANSWER:
    (a) Dia 2-1/2"(63 mm) for Class I
    (b) Dia 1-1/2"(38 mm) for Class II
    (c) Hose Length – 30 Mtr

88. What is the size of hose with branch pipe and what are different positions?
    ANSWER:
    Size of hose with branch pipe: 2-1/2"
    Branch pipe positions: off, Jet and Fog

89. What should be the design flow for Landing Valve size 2-1/2 inch?
    ANSWER:
    250 gpm.
    Generally for flow calculations consider 2 nos. of LV in operation i.e. 250 gpm*2 = 500

90. What should be the standard size of fire hose reel cabinet and what are its components?
    ANSWER:
    Standard Size: 160x80x40 cm
    Components:
    (a) Fire Hose Reel
    (b) Dry Powder Fire Extinguisher
    (c) Water/gas type fire extinguisher
    (d) Landing Valve
    (e) Nozzle
    (f) Fire Hose

91. What should be the fire tank capacity if the pump flow is 1000 gpm?
    ANSWER:
    Tank Capacity = pump capacity x 60 minutes. (1 cum = 264 Gallons)

92. What are the components of pump room test line?

93. What is the difference between NFPA and LPC pumps?
    NFPA pumps – Automatic turn off
    LPC pumps - Manual

94. What is difference between pressure relief valve and pressure reducing valve?

Pressure Relief Valve	Pressure Reducing Valve
Automatic	Manual
Having drain port to tank	No drain port

95. What is minimum and maximum height of pump control panel?

    Minimum distance between control panel and surface is 30 cm.

96. How many FHR are used in a helipad?
    Minimum 02 Nos of FHR

97. What is the allowed concentration in foam system
    3% and 6%

98. What is the pressure drop when foam is injected
    35%

99. Why do we use 1% foam concentrate in place of 3% or 6%
    It is economical

KFD Test Paper Sample Questions - 2

1. Describe different type of foam concentrate?
   ANS: **1%, 3% and 6%**

2. Explain different types of pumps for fire hydrant system?
3. What welding is used in carbon steel pipe above 50 mm?
   ANS: **Arc welding**
4. What is the specification of pipes used underground for 6 inch and above?
   Ductile iron pipes

5. When do we use dry chemical and wet chemical systems?
   ANS:
   (a) Dry chemicals: Class B (Liquids fires) and class C (Electrical fires).
   Agent: Potassium bicarbonate and ammonium phosphate multistage can be used for Class A, B and C fires
   (b) Wet chemicals: Class K (Kitchen fire) and Class D (Metal Fires).
   Agent: Solution of water + potassium carbonate

6. What is the type of nozzle used in deluge system?
   ANS:
   Open sprinklers controlled by a quick opening valve (Deluge valve) which is operated by a system of approved heat detectors.

7. Explain weekly maintenance Electric Driven Fire Pumps.
   ANS:
   Weekly test for fire pumps:
   (1) Valves and piping: Check pump suction, discharge and bypass valves to ensure that they are open and piping is free of leaks
   (2) Automatic start: Test automatic start by opening a test line to reduce system pressure
   (3) Electric motors: Check operation of the starting devices and allow the pump to run for at least 10 minutes
   (4) Pump Controller: (a) Check for alarm conditions (b) Check for controller is in automatic start mode (c) Verify receipt of remote –monitoring alarm during automatic start test.
   (5) Pressure relief: Verify that relief valve operates properly. Usually this means water should not be flowing through them
   (6) Pump Cooling: Check water flow out of the shaft seal packing in the stuffing box. Slight leakage is normal and indicates water lubrication and cooling is adequate. Also check the pump casing and bearing for overheating and signs of excess vibrator.
   (7) Water supplies: Overflow the suction tank or check them usually
   (8) Pump room temperature: Minimum temperature should be 4 deg C. For internal combustion engine minimum temperature should be 21 deg C.

KFD Test Paper Sample Questions - 2

8. Explain weekly and monthly maintenance in Diesel Driven Fire Pumps.
   ANS:
   Weekly maintenance:
   (1) Fuel tank level: When it is below ¾, the tank must be re-filled
   (2) Any valves in the fuel supply lines from tank to the driver
   (3) Oil level using the dipstick on the engine crankcase
   (4) Battery charger and batteries
   (5) Cleanliness of the strainer in the engine cooling system
   (6) Proper operation of the engine instruments like rpm, oil pressure, temp, amps

   Monthly maintenance:
   (1) Check the level and specific gravity of the diesel engine battery electrolyte
   (2) Check for corrosion of diesel engine battery terminates condition of cable lines and connections.

9. What is chemical formula of FM200?
   ANS:

10. How to avoid water hammers?
    ANS:
    Water hammers are hydraulic forces that result when the valve operates. When valve is opened or closed suddenly.
    To avoid water hammers (a) Allow the water to fill the system slowly and (b) Allow air to escape from the piping

11. How foam is fixed in foam system before it is discharged?
    ANS:
    Foam is mixed using devices such as bladder tank, balanced pressure pump or line proportioned. Foam maker incorporate an orifice, air inlet and mixing barrel.

12. How much volt battery kit is used in diesel generators?
    ANS:
    12 Volt Battery.

13. When PRV are used in fire hydrant systems?
    ANS:
    When pressure exceeds 7 bar (100 psi)

KFD Test Paper Sample Questions - 2

14. Why type of pipe is used in underground purpose?
    ANS:
    Ductile iron pipes

15. How will you test that pump is working?
    ANS:
    By installing a test line which includes globe valve and flow meter. When globe valve is opened, pressure is reduced and pumps starts.

16. What is the thickness of fire pump casing?
    ANS:
    Minimum 10 mm for big pumps and 8 mm for small pumps

17. What is the colour of pipes where clean agent systems are used?
    ANS:
    Green

18. What is pressure tank and where it is used?
    ANS:
    Pressure tank (Bladder tank) is used foam system

19. What is the maximum time required to re-fill pressure tank?
    ANS:
    4 Hours

20. How will you separate fire zone?
    ANS:
    By installing quick response sprinklers.

21. What is the size of riser required in 40 floors building with 1500 GPM flow?
    ANS:
    8 inch

22. When to use multistage pumps?
    ANS:
    In high rise building

23. What is the maximum pressure of fire pumps when it is switched off?
    ANS:
    120% split case and 140% in end suction pump

KFD Test Paper Sample Questions - 2

24. What is the maximum pressure allowed in sprinkler system?
    ANS:
    12 bar

25. What is the minimum height of foam when it is discharged?
    ANS:
    50 cm

26. How many pumps are required according to (a) NFPA (b) LPC?

27. What is the suitable location to install Landing Valves?
    ANS:
    In staircase and entrance of the building protected

28. If spherical tanks are used, what is the maximum distance between pump and sprinkler?

29. When do we use turbine pumps?
    ANS:
    Vertical turbine fire pumps are used where a flooded suction cannot be maintained. Underground water sources or below ground tank with above ground pump room.

30. What is the colour of CO2 pipes?
    ANS:
    Black

31. What is the acceptable diameter of suction pipe for fire pump in high hazard?
    ANS:
    8 inch

32. What is the specification of fire pumps used in Deluge System?
    ANS:
    Two pumps (01 main electric +01 Diesel stand by)
    Flow: 130% of required flow.
    Pressure: 140% of the system pressure.

KFD Test Paper Sample Questions - 2

33. Explain the maintenance of fire extinguishers?

34. What are the heat sensitive devices used in Deluge System?
    ANS:
    Heat detector and optical flame detector.

35. What is the specification of IGS-01?
    ANS:
    Argon

36. What is the fire protection system used in electrical areas?
    ANS:
    Clean agent (Halogen) fire suppression system.

37. What is the duration of dry powder system release?

38. Why the fire fighting network should be connected to earth line?
    ANS:
    In case of sort-circuit to trip the main breaker and disconnect the power supply to fire pump. Safety purpose.

39. What is the type of isolation valve used in fire hydrant system?
    ANS:
    Buried Gate Valve.

40. What is the size of riser pipe for a building height up to 30 m and flow 1000 gpm?
    ANS:
    6 inch

41. What is the formula for calculating the value of water hydrant?

KFD Test Paper Sample Questions - 2

42. What is the maintenance of fire hydrant weekly, monthly and yearly?

43. What are the types of foam mixing or foam induction?

44. What is the specification of foam?

45. What is the expansion ratio of medium and high expansion foam?

46. What are the number, size and flow of air craft landing hydrant with design density?

47. What is the design density of foam system protecting transformer?

48. What is the design density of water spray for transformer protection?

49. What is size of nozzle for light, ordinary and high hazard sprinklers?

50. Where do we use side wall sprinklers?
    ANS:
    Void area closed at top.

51. What is the distance between light and sprinkler heads?
    ANS:
    It should not be less than 0.5 mtr

52. What is total flooding system?
    ANS:
    Total flooding system means a supply of dry chemical permanently connected to a fixed piping, with fixed nozzle arranged to discharge dry chemical into the enclosed spaces or enclosure about the hazard.

53. What is circulating closed loop system?

54. Explain different types of pumps for fire hydrant system?

55. Diesel engine cause and rectification
    (a) When there is no discharge
    (b) When there is vibration
    (c) When not working
    (d) When there is noise

KFD Test Paper Sample Questions - 2

56. Where do we use dry pipe fire protection system?
    ANS:
    Cold store

57. What pump pressure is at shut-off?
    ANS:
    Maximum 1.5 times the working pressure.

58. What are different types of support and hangers?

59. Explain hydraulic calculation.

60. What is single interlock system?
    ANS:
    In this system admits water to sprinkler piping upon operation of detection devices.

61. What is double interlock system?
    ANS:
    In this system admits water to sprinkler piping upon operation of both – detection devices and automatic sprinklers.

62. What is bladder tank?
    ANS:
    Foam concentrate is often stored in a bladder tank system. With bladder tank foam system, no external power is required. System water pressure is used to squeeze the bladder providing foam concentrate.

63. How to calculate water tank pressure?
    ANS
    Water tank capacity = pump capacity x 60 minutes (Gallons)

64. When do we need overhead tank without pump?
    In situations / occupancies where pressure should not exceeds 3.8 bar. And the distance between the tank and highest sprinkler head should be minimum 15 mtr

65. Maximum distance between two quick response sprinkler shall be 1.8 m

66. Upto 10 floors in residential buildings, sprinklers are required only in basement

67. Area of one zone for smoke ventilation is 2500 sq m

68. Use multistage fire pumps when building height is more than 40 floors.