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**AMC Assistant Technical
Supervisor (Light) Official Paper
(Held On_ 18 Aug, 2024)**



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001. A rotor installed in a fixed orientation with the swept area perpendicular to the pre dominate wind direction is called _____
(A) Anemometer (B) nacelle
(C) blades (D) Yaw fixed Machines
002. Which of the following wind mill runs independently of the direction of the wind?
(A) Propeller type (B) Sail type
(C) Darrieus type (D) Multi blade type
003. The amount of energy available in the wind at any instant is proportional to _____ of the wind speed.
(A) Cube power (B) Square root power
(C) Square power (D) Cube root power
004. Solar radiation which reaches the surface without scattering or absorbed is called _____
(A) Infrared Radiation (B) Beam Radiation
(C) Diffuse Radiation (D) Ultraviolet Radiation
005. The complement of the zenith angle is
(A) Solar azimuth angle (B) Slope
(C) Surface azimuth angle (D) Solar altitude angle
006. The most useful material for solar plate collector are
(A) Liquid crystals (B) insulators
(C) semiconductors (D) metals
007. The device which is used in solar PV cell to convert d.c. to a.c. is
(A) rectifier (B) inverter
(C) battery (D) Circuit breaker
008. Which of the following is a common method for converting biomass into usable energy?
(A) Photosynthesis (B) Electrolysis
(C) Gasification (D) Nuclear fission

009. What is the primary component of biomass that is used for energy production?
(A) Carbon (B) Hydrogen
(C) Nitrogen (D) Water
010. A delta connected load having a resistance of each limb is 10Ω . Find the equivalent star connected resistance of each phase in ohm.
(A) $20/3$ ohm (B) $10/3$ ohm
(C) 30 ohm (D) 10 ohm
011. In a magnetic circuit, flux cuts across 200 turns at the rate of 4 weber/second. The induced voltages is:
(A) 800 V (B) 50 V
(C) 200 V (D) 100 V
012. In a Norton equivalent circuit of a given network, $I_N = 10$ A, $R_N = 10 \Omega$ and $R_L = 20 \Omega$. Find the current through R_L .
(A) 5 A (B) 6.66 A
(C) 10 A (D) 3.33 A
013. A three phase 400 V ac system is connected across a delta connected load having load resistance of 100Ω per phase. If one of the phase of delta connected load experiences an open circuit then the power consumed by the load will be:
(A) 1600 W (B) 4800 W
(C) 3200 W (D) 6400 W
014. In a R-L-C Series circuit, the power factor of the circuit at resonance condition is:
(A) 0.9 lagging (B) Unity
(C) 0.9 leading (D) 0.5 lagging
015. A Megger is used for measurement of
(A) High valued resistances, particularly insulation resistance
(B) Low valued resistances
(C) Medium valued resistances
(D) All of the above

[P.T.O.]

016. A 10 mA ammeter has a resistance of 100Ω . It is to be converted to a 50 mA ammeter. The value of shunt resistance is:
- (A) 500Ω (B) 0.25Ω
 (C) 2.5Ω (D) 25Ω
017. High resistances are provided with a guard terminal. This guard terminal is used to :
- (A) Guard the resistance against stray electrostatic fields.
 (B) Guard the resistance against overloads.
 (C) Bypass the leakage current
 (D) None of the above
018. Anderson bridge is used to measure unknown:
- (A) resistance (B) inductance
 (C) frequency (D) capacitance
019. During the measurement of a low resistance using a potentiometer, the following readings were obtained:
1. Voltage drop across the low resistance under test: 0.4 V
 2. Voltage drop across a 0.1Ω standard resistance: 1 V
 Calculate the value of unknown resistance.
- (A) 0.04Ω (B) 0.4Ω
 (C) 0.004Ω (D) 0.0004Ω
020. In houses the illumination is in the range of
- (A) 10-20 lumens/watt (B) 35-40 lumens/watt
 (C) 2-5 lumens/watt (D) 60 - 65 lumens/watt
021. Flood lighting is not used for _____ purpose.
- (A) advertising (B) reading
 (C) industrial (D) aesthetic
022. In sodium vapour lamp the function of the leak transformer is:
- (A) To reduce the supply voltage (B) To stabilize the arc
 (C) Both A & B (D) None of the above
023. Carbon arc lamps are commonly used in
- (A) photography (B) Domestic lighting
 (C) Street lighting (D) Cinema projector

- (A) 0.5 lagging
(C) Unity
(B) 0.8 lagging
(D) 0.8 leading

025. A substance which change its electrical resistance when illuminated by light is called

- (A) Photoconductive
(C) Photoelectric
(B) Photovoltaic
(D) Photosynthesis

026. Which lamp cannot sustain much voltage fluctuations?

- (A) Sodium Vapour Lamp
(C) Mercury Vapour lamp
(B) Fluorescent Lamp
(D) Incandescent Lamp

027. What does LED stand for?

- (A) Light Emitting Device
(C) Light Emitting Display
(B) Light Emitting Diode
(D) Low Energy Display

028. Lumen/watt is the unit of

- (A) brightness
(C) Luminous efficiency
(B) Light flux
(D) Luminous intensity

029. A 250 volt lamp has a total flux of 3000 lumens and takes a current of 1 amp from a 250 volt source. Its luminous efficiency is:

- (A) 24 lumens/watt
(C) 250 lumens/watt
(B) 12 lumens/watt
(D) 30 lumens/watt

030. A dc series motor should never be switched on no-load because

- (A) The speed becomes dangerously high
(B) It will take too long to accelerate
(C) The machine does not pick up.
(D) Its field current is zero.

031. The most economical method of finding no load losses of a large dc shunt motor is _____ test.

- (A) Hopkinson's
(C) Swinburne's
(B) Field's
(D) Retardation

032. Two transformers A and B having equal output and voltage ratios but unequal percentage impedance of 4 and 2 are operated in parallel. Transformer A having running overload by _____ percent.

- (A) 50 (B) 66
(C) 25 (D) 33

033. A 200 KVA transformer has an iron loss of 1 KW and full load copper loss of 2 KW. Its load KVA corresponding to maximum efficiency is _____ KVA.

- (A) 50 (B) 141.4
(C) 100 (D) 200

034. The load sharing between two steam driven alternators operating in parallel may be adjusted by varying the

- (A) Speed of the alternators
(B) Field strengths of the alternators
(C) Steam supply to their prime movers
(D) Power factors of the alternators

035. Ground wire is used to

- (A) Avoid overloading
(B) Give the support to the tower
(C) Connect a circuit conductor or other device to an earth plate
(D) Give good regulation

036. If string efficiency is 100 %, it means that

- (A) Potential across each disc is same
(B) Potential across each disc is zero
(C) One of the insulator disc is shorted
(D) None of the above

037. A uniformly loaded DC distributor is fed at both ends with equal voltages. As compared to a similar distributor fed at one end only, the drop at the middle point is

- (A) One third (B) One half
(C) twice (D) One fourth

038. Which of the following distribution system is most economical?
(A) Three phase, 3 wire AC system
(B) Three phase, 4 wire AC system
(C) Single phase AC system
(D) DC system
039. In which part of the thermal power plant, the steam pressure is less than that of the atmosphere?
(A) Turbine (B) Boiler
(C) Condenser (D) Superheater
040. For high starting torque, the type of starter used is:
(A) Star-delta (B) Direct on line
(C) Auto transformer (D) All of the above
041. In induction motor, the short circuit test is:
(A) Blocked rotor test (B) No-load test
(C) Open circuit test (D) None of the above
042. The material used for the manufacture of the ground wire is
(A) Cast iron (B) Aluminium
(C) Galvanised steel (D) Stainless steel
043. A lead sheath in the underground cable is provided
(A) To protect the cable against the mechanical injury
(B) To provide proper insulation
(C) To provide strength to the cable
(D) To protect against the entry of moisture
044. Which relay is used to provide protection against incipient faults in case of power transformer?
(A) Over current relay (B) Buchholz relay
(C) Restricted earth fault relay (D) Overvoltage relay
045. Factors involved in the inspection of transformer at the site are
(A) To check the gas pressure
(B) To check the oil level and oil leakage
(C) To check the insulation resistance of the winding
(D) All of the above

| P.T.O.

046. The breaking capacity of a circuit breaker is usually expressed in terms of
(A) MW (B) MVA
(C) KA (D) KV

047. If the fault current is 2000 A, relay setting is 50% and the CT ratio is 400/5 then the plug setting multiplier will be
(A) 25 (B) 50
(C) 10 (D) 20

048. The full load copper loss and iron loss of a transformer are 6400 W and 5000 W respectively. The copper loss and iron loss at half load will be respectively
(A) 1600 W, 5000 W (B) 3200 W, 5000 W
(C) 1600 W, 2500 W (D) 3200 W, 2500 W

049. The chemical used in breather is
(A) Silica gel (B) Sodium chloride
(C) Copper sulphate (D) Silica sand

050. The wind speed is measured using an instrument called
(A) Tachometer (B) Hydrometer
(C) Anemometer (D) Manometer

051. The correct identities of the four control valve types shown below are (in order from left to right):



(A) Globe, Butterfly, Disc, Ball (B) Ball, Disc, Butterfly, Globe
(C) Ball, Gate, Butterfly, Plug (D) Plug, Slide, Rotary, Ball

052. The time taken to drill a hole through a 25 mm thick plate with the drill rotating at 300 rpm and moving at a feed rate of 0.25 mm/revolution is
(A) 10 sec (B) 20 sec
(C) 60 sec (D) 100 sec

053. Which of the following point angles of a twist drill is used for general purpose work?
(A) 138° (B) 128°
(C) 148° (D) 118°
054. If the depth of cut is 40 mm, then find the value of the diameter of the drill
(A) 10 (B) 20
(C) 40 (D) 80
055. The exertion of Biochemical Oxygen Demand (BOD) by microorganism is called:
(A) transpiration (B) eutrophication
(C) deoxygenation (D) reoxygenation
056. 3 TR is equivalent to how much of cooling effect?
(A) 10 KJ/sec (B) 7 KW
(C) 10.5 kW (D) 5 KJ/sec
057. For Ammonia refrigeration system, the pipe for carrying refrigerant shall be made of following material.
(A) Aluminium (B) Brass
(C) Copper (D) Steel or wrought iron
058. Which of the parameter increases during heating and humidification process
(A) Humidity ratio (B) Dry bulb temperature
(C) Wet bulb temperature (D) All of the above
059. At 100% relative humidity, wet bulb temperature is
(A) More than dew point temperature
(B) Less than dew point temperature
(C) Same as dew point temperature
(D) Has no relation with dew point temperature

[P.T.O.]

060. In which of these treatment systems diaphragm valves are preferred?
(A) Moving Bed Bioreactor(MBBR)
(B) Desalination
(C) Ultrafiltration
(D) Demineralisation systems
061. Which of the following valve is known as a safety valve?
(A) Reflux valve
(B) Altitude valve
(C) Pressure relief valve
(D) Scour valve
062. The cutting edges of a twist drill are known as
(A) Flanks
(B) Wedges
(C) Flutes
(D) Lips
063. What will be the Sludge Volume Index (SVI)(ml/gram)if 100 ml of sludge collected in 30 mins on drying weighs 800 mg?
(A) 125
(B) 8
(C) 0.008
(D) 0.125
064. The activated sludge process is an
(A) Aerobic attached growth system
(B) Anaerobic attached growth system
(C) Anaerobic suspended growth system
(D) Aerobic suspended system
065. Which of the following detail is not included in tender notice?
(A) Name of work
(B) Name of Officer inviting tender
(C) Name of Department
(D) Name of Contractor
066. What is the full form of EMD?
(A) Earnest Money Deposit
(B) Early Money Deposit
(C) Extra Money Deposit
(D) Exact monetary deposit
067. Pre-qualification of contractor is a process that is done _____ to actual tendering process
(A) After
(B) Before
(C) Simultaneously
(D) Repetitively

068. Gear pump and Vane pump are the types of
(A) Rotary pump (B) Centrifugal pump
(C) Reciprocating pump (D) None of the above
069. In an oxidation pond the sewage is made non-putrescible primarily by
(A) Algae bacteria symbiosis only
(B) Bacterial oxidation only
(C) Chemical oxidation only
(D) Algae photosynthesis and Algae bacteria symbiosis
070. Which of the following statements is true for trickling filters sludge?
(A) It is more difficult to dewater than activated sludge
(B) It is bulky
(C) It has a comparatively low concentration of sludge solids
(D) It has a comparatively low sludge volume index
071. The suitable layout of a distribution system for an irregularly growing town is
(A) Dead end system (B) Grid iron system
(C) Radial system (D) Ring system
072. Air is normally dehumidified by
(A) Injecting water (B) Heating
(C) Superheating (D) Cooling
073. Adiabatic saturation is the process of
(A) Increasing humidity ratio without change in heat content
(B) Keeping humidity ratio constant with change in dry bulb temperature
(C) Adding moisture at same wet bulb temperature
(D) Heating air without change in heat content
074. Which instrument is used to measure the total pressure in an air duct?
(A) Hygrometer (B) Velocimeter
(C) Anemometer (D) Pilot tube manometer
075. What is the function of a butterfly valve?
(A) On/off control (B) Flow regulation
(C) Pressure control (D) Hydraulic control

076. In which of the following waste water treatment units is organic matter destroyed and stabilized by anaerobic bacteria?
- (A) Trickling filter (B) Oxidation pond
(C) Sedimentation tank (D) Septic tank
077. Which of the following factors is taken into consideration when determining the maximum suction height of a centrifugal pump?
- (A) Mechanical efficiency (B) Cavitation
(C) Manometric efficiency (D) Priming
078. How does the presence of sand and silt in water affect the performance and longevity of a submersible pump?
- (A) Improve pump efficiency
(B) Has no significant effect
(C) Increases water flow rate
(D) Causes wear and tear on pump components
079. In a double acting reciprocating pump, if the area of piston is 200 cm^2 and length of stroke is 15 cm and crank is rotating at 60 rpm, then neglecting the losses, the discharge of the pump is:
- (A) 6 liter/ min (B) 60 liter/ min
(C) 360 liter/ min (D) 200 liter/ min
080. The SCADA systems used to _____
- (A) Monitor (B) Control
(C) Both a and b (D) None of the above
081. The standard form of RTU is
- (A) Reverse Terminal Unit
(B) Remote Terminal Unit
(C) Reserve Terminal Unit
(D) None of the above
082. What are the types of SCADA systems?
- (A) Monolithic, Distributed
(B) Monolithic, Networked
(C) Monolithic, Distributed, Networked
(D) None of the above

083. The fund sharing pattern of the Jal Jeevan Mission (JJM) for the state of Gujarat will be _____
- (A) Central Share 50 % & State Share in 50 %
(B) Central Share 90 % & State Share in 10 %
(C) Central Share 100 % & State Share in 00 %
(D) None of the above
084. 24×7 pressurised water supply system _____.
- (A) Increases contamination. (B) Increases consumption.
(C) Increases life of network. (D) Reduces demand management
085. As per the Ministry of Housing & Urban Affairs (MoHUA), Gol, the Service Level Benchmark for the Per capita supply of water is _____
- (A) 135 LPCD. (B) 114 LPCD.
(C) 108 LPCD. (D) 100 LPCD.
086. Hardness, Common Ionic Constituents Contained in Water is having Chemical designation as _____
- (A) Calcium and magnesium salts in the forms of CaCO_2 , Ca, Mg
(B) Bicarbonate (HCO_3), carbonate (CO_3), and hydrate (OH), expressed as CaCO_3 .
(C) H_2SO_4 , HCL and other acids, expressed as CaCO_3 .
(D) None of the above
087. What is the main advantage of using Advanced Oxidation Processes (AOPs) in water treatment?
- (A) Cost-effective operation
(B) High efficiency in removing organic contaminants
(C) Minimal energy consumption
(D) Simple maintenance requirements
088. Which technology uses membranes to remove impurities from water by applying pressure?
- (A) Coagulation (B) Reverse Osmosis
(C) UV Disinfection (D) Activated Carbon Filtration

089. What is the primary benefit of using UV disinfection in water treatment plants?
- (A) Low operational costs
 - (B) High turbidity tolerance
 - (C) Removes dissolved solids
 - (D) Chemical-free process
090. Which technology is particularly effective in removing heavy metals from wastewater?
- (A) Nanofiltration
 - (B) Sedimentation
 - (C) Chlorination
 - (D) Biological Treatment
091. Which technology is known for its high energy efficiency and low chemical usage in desalination processes?
- (A) Multi-Stage Flash Distillation
 - (B) Reverse Osmosis
 - (C) Electrodialysis
 - (D) Membrane Distillation
092. What is the primary advantage of using Moving Bed Biofilm Reactor (MBBR) technology in wastewater treatment?
- (A) Low initial cost
 - (B) Simple operation and maintenance
 - (C) Minimal energy consumption
 - (D) Reduced footprint and high treatment efficiency
093. What is the main benefit of using anaerobic digestion in wastewater treatment plants?
- (A) High operational costs
 - (B) Generation of large amounts of sludge
 - (C) Production of biogas as a renewable energy source
 - (D) Requirement for large land areas
094. Which element is most crucial in the design of a sustainable urban park?
- (A) Accessibility and inclusivity for all residents
 - (B) High maintenance landscaping
 - (C) Excessive use of artificial materials
 - (D) Exclusive areas for certain groups

095. Which strategy is most effective for improving walkability in city centres?
(A) Widening roads for more vehicle lanes
(B) Installing more traffic signals
(C) Creating pedestrian-only zones and enhancing sidewalks
(D) Increasing parking spaces
096. Which of the following is an advantage of integrating urban greenways in city planning?
(A) They reduce the number of pedestrian pathways
(B) They provide corridors for wildlife and recreational activities
(C) They increase urban heat islands
(D) They limit the development of commercial properties
097. What is the primary purpose of installing fountains in public spaces within cities?
(A) To serve as water reservoirs
(B) To increase property values
(C) To prevent soil erosion
(D) To enhance aesthetic appeal and provide recreational spaces
098. Which aspect of laser lighting is most appealing for public installations?
(A) Monochromatic light output
(B) Versatile color and dynamic effects
(C) High operational temperature
(D) Short lifespan
099. In urban design, what is one of the main purposes of integrating laser light shows in public spaces?
(A) Promoting social gatherings and community events
(B) Enhancing navigation for vehicles
(C) Reducing urban noise levels
(D) Limiting pedestrian access
100. Cavitation in a control valve is caused by
(A) process noise
(B) vibration in the piping
(C) the Von Karman effect
(D) pressure recovery