Q1. Two impedances ZA = 4 + j6 ? and ZB = 6 + j12 ? are connected in parallel. The apparent power for the impedance B is 1490 VA. Determine the total apparent power.
a) 4250 VA
b) 3290 VA
c) 2652 VA
d) 8031 VA

Q2. If x increases uniformly at the rate of 0.001 ft/sec, at what rate is the expression (1 -

increasing when x becomes 9 ft?
a) 0.001 cfs
b) 0.003 cfs
c) 0.3 cfs
d) 1.003 cfs

Q3. A 15 MVA, 34.5 kV/6.24 kV transformer is connected at an infinite bus. The percent impedance of the transformer is 2.5%. What is the current at the 34.5 kV side for a three-phase fault at the 6.24 kV side?
a) 55,500 A
b) 10,000 A
c) 5,000 A
d) 25,000 A

Q4. The over voltage surges in the power system may be caused by
a) lightning
b) switching
c) resonance
d) any of the above

Q5. Which of the ff is not an octal number?
a) 19
b) 105
c) 77
d) 15

Q6. What is the period of an oscillating body whose mass is 0.025 kg if the spring constant k = 0.44 N/m?
a) 1.0 sec
b) 2.5 sec
c) 2.0 sec
d) 1.5 sec

Q7. Evaluate the limit of $\sin(2x)\cot(4x)$ as x approaches zero.

a) 0
b) infinity
c) 01-Feb
d) 01-Apr

Q8. Two corridors respectively 2.5 m and 1.0 m wide intersect at right angles. Find the length in meters of the largest thin rod that will go horizontally around the corner.
a) 3.97
b) 4.79
c) 5.32
d) 5.23

Q9. In the periodic table of elements, which of the ff is NOT a transition metals?

a) Copper
b) Sodium
c) Silver
d) Nickel

Q10. A material used for insulation.
a) Rubber
b) all of these
c) asbestos
d) Mica

Q11. If the population of electronics engineers doubled in the last 29 years from 1970 to 1999, in what year will it triple assuming that the rate of increase is proportional to the number of electrical engineers?
a) 2016
b) 2045
c) 2050
d) 2060

Q12. Meter accuracy is determined by
a) half-scale deflection
b) full-scale deflection
c) one-fourth of full-scale deflection
d) one-tenth of full-scale deflection

Q13. The velocity of a point moving in rectilinear motion is given by the equation $v = \exp(t) \sin(t)$. Find the acceleration when t = 0.
a) -1
b) 1
c) 1.5
d) -2

Q14. The sum of the six roots of units are
a) 1
b) -1
c) 6
d) 0

Q15. A power plant has an annual load factor, capacity factor and plant use factor of 58.5%, 40.9%, and 45.2% respectively. The reserve capacity of the plant is 8.9 MW. What is the installed capacity?
a) 20.7 MW
b) 29.6 MW
c) 25.9 MW
d) 30.75 MW

Q16. The effective voltage across a circuit element is (20 + j10) V and the effective current through the element is 4 - j3 A. Calculate the true and reactive power taken by the element.
a) 50 watts & 100 Vars lagging
b) 50 watts & 100 Vars leading
c) 110 watts & 20 Vars lagging
d) 110 watts & 20 Vars leading

Q17. Which is not a standard device protection rating?
a) 50
b) 1500

c) 225
d) 110

Q18. Polymers that favor crystallization are least to have which of the ff?
a) An atactic configuration of side groups.
b) Small side groups
c) Only one repeating unit
d) Small chain lengths

Q19. Pick out the item that does not belong to the computer.
a) OCR
b) Mouse
c) MICR
d) Plotter

Q20. The zero and negative sequence component fault current does not appear on this type of fault
a) line to line fault
b) three phase symmetrical fault
c) single line to ground fault
d) double line to ground fault

Q21. If A, B, C, and D are the constants of the medium transmission line, which of the following relation is correct?
a) AB - CD = -1
b) AD + BD = 1
c) BC - AD = -1
d) AC - BD = 1

Q22. A 3-phase breaker is rated at 2000 MVA, 33 kV, its making current will be:
a) 35 kA
b) 49 kA
c) 70 kA
d) 89 kA

Q23. Which one of the ff elements has the largest atomic radius?
a) Lithium
b) Sodium
c) Beryllium
d) Magnesium

Q24. Given the Fourier series in cosine form $F(t) = 5 \cos 20 \pi t + 2 \cos 40 \pi t + \cos 80 \pi t$. What is the frequency of the fundamental?
a) 20
b) 40
c) 10
d) 60

Q25. A line 30 units long is inclined at 45 degrees with respect to horizontal plane and another line 20 units long is inclined at 15 degrees with the horizontal plane. Determine the distance between their respective tip.
a) 14.16
b) 16.15
c) 15.64
d) 11.65

Q26. A storage battery discharges at a rate proportional to the charge. If the charge is reduced to 50% of its original value at the end of two (2) days, how long will it take to reduce the charge to 25% of its original charge?
a) 3
b) 4
c) 8
d) 7

Q27. Which of the ff may cause any number of the Board to be removed by President of the Philippines
a) Incompetence
b) Malpractice
c) All of these
d) Neglect of duty

Q28. Which of the ff is not correct?
a) Steady flows do not change with time at any point.
b) Bernoulli's equation only holds on the same streamline.
c) The Reynold's number is the ratio of the viscous force to the inertial force.
d) For a fluid at rest, the pressure is equall in all lateral direction.

Q29. Which of the ff statements is FALSE?
a) Wavelengths of visible light is greater than wavelengths of microwaves.
b) Frequency of ultraviolet is greater than the frequency of infrared.
c) Frequency of radio waves is less than frequency of infrared waves.
d) Wavelengths of x-rays is greater than the wavelengths of gamma rays.

Q30. Two meters X and Y require 40 mA and 50 mA, respectively, to give scale deflection, then
a) X is more sensitive
b) Y is more sensitive
c) both are sensitive
d) sensitivity cannot be judged with the given information