17/B/C/S-4/4/E

M

033/231, 035/233,
041/234

PAPER – II
ELECTRICIAN/ ELECTROPLATER/ LIFT MECHANIC/
LIFT & ESCALATOR MACHNIC
(WORKSHOP CALCULATION & SCIENCE)
SEMESTER – IV

TIME: 3 HRS. **MARKS: 75**

Note: Attempt all questions.
All questions carry equal marks.
This paper carries negative marking. 25% marks will be deducted for each wrong answer.

Choose the correct answer.

1. Convert decimal 64 to binary.
a) 01010010 b) 01000000 c) 00110110 d) 01001000

2. Convert hexadecimal value C1 to binary.
a) 11000001 b) 1000111 c) 111000100 d) 111000001

3. Convert the following octal number to decimal 17_8.
a) 51 b) 82 c) 57 d) 15

4. Convert the following binary number of octal 010111100_2.
a) 172_8 b) 272_8 c) 174_8 d) 274_8

5. How many binary digits are required to count to 100_{10}?
a) 7 b) 2 c) 3 d) 100

6. The BCD number for decimal 347 is _____.
a) 1100 1011 1000 b) 0011 0100 0111 c) 0011 0100 0001 d) 1100 1011 0110

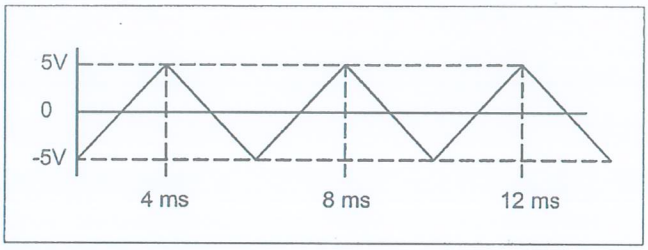
7. In a parallel RLC circuit, which value may always be used as a vector reference?
a) Current b) Reactance c) Resistance d) Voltage

8. How much current will flow in a 100 Hz series RLC circuit if $V_S = 20$ V, $R_T = 66$ ohms, and $X_T = 47$ ohms?
a) 1.05 A b) 303 mA c) 247 mA d) 107 mA

9. What is the Q (Quality factor) of a series circuit that resonates at 6 kHz, has equal reactance of 4 kilo-ohms each, and a resistor value of 50 ohms?
a) 0.001 b) 50 c) 80 d) 4.0

Contd...2/-

10.



What type of waveform is shown in the given circuit?

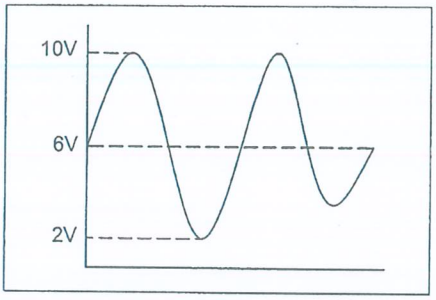
a) Sine wave b) Square wave c) Triangle wave d) Sawtooth wave

11. In both induction and synchronous AC motor.

a) The operating speed is very steady b) The stator magnetic field is stationary

c) The stator magnetic field rotates d) The "squirrel cage" forms the rotor

12.



What is the peak-to-peak voltage of the waveform in the given circuit?

a) 2V b) 4V c) 6V d) 8V

13. Most practical alternators generate electricity from _____.

a) A coil rotating within a magnetic field

b) A magnetic field rotating around fixed windings

c) A permanent magnet rotating within a varying electromagnetic field

d) None of these

14. A half-cycle average voltage of 12V is equal to what rms voltage?

a) 13.33V b) 8.48V c) 18.84V d) 7.64V

15. When the speed at which a conductor is moved through a magnetic field is increased, the induced voltage?

a) Increases b) Decreases c) Remains constant d) Reaches zero

16. The induced voltage across a coil with 250 turns that is located in a magnetic field that is changing at a rate of 8 Wb/s is _____.

a) 1,000 V b) 2,000 V c) 31.25 V d) 3, 125 V

17. For a given wirewound core, an increase in current through the coil _____

a) Reverse the flux lines b) Decreases the flux density

c) Increases the flux density d) Causes no change in flux density

Contd...3/

18. If the cross-sectional area of a magnetic field increase, but the flux remains the same, the flux density.
a) Increases b) Decreases c) Remains the same d) Doubles

19. When the current through the coil of an electromagnet reverses, the _____
a) Direction of the magnetic field reverses
b) Direction of the magnetic field remains unchanged
c) Magnetic field expands
d) Magnetic field collapses

20. A pitot tube is used to measure _____.
a) Pressure
b) Difference in pressure
c) Velocity of flow
d) None of these

21. The value of bulk modulus of a fluid is required to determine _____.
a) Reynold's number b) Froude's number c) Mach number d) Euler's number

22. Euler's formula holds good only for _____.
a) Short columns b) Long columns c) Both (a) & (b) d) Weak columns

23. Thermoplastic materials are those materials which?
a) Are formed into shape under heat and pressure and results in a permanently hard product
b) Do not become hard with the application of heat and pressure and no chemical change occurs
c) Are flexible and cab withstand considerable wear under suitable conditions
d) Are used as a friction lining for clutches and brakes

24. Which of the following material has maximum ductility?
a) Mild steel b) Copper c) Nickel d) Aluminium

25. Shock resisting steels should have _____.
a) Low wear resistance
b) Low hardness
c) Low tensile strength
d) Toughness

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