

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

Junior Engineer (Electrical)
(under Baba Farid University of Health Sciences, Faridkot)

QUESTION BOOK

OMR ANSWER SHEET

ROLL NO:

Coordinator's stamp									
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THUMB IMPRESSION OF THE CANDIDATE

FULL SIGNATURE OF THE CANDIDATE

FULL SIGNATURE OF INVIGILATOR

Time Allowed: 1:00 Hour (11:00 AM to 12:00 Noon)

Maximum Marks: 50

1. Use BLACK FINE TIP BALL PEN only. Use of pencil is not allowed.
2. Write your Roll number on the OMR answer-sheet and also on the question-booklet only in the space provided for the purpose and at no other place in the question booklets and Answer-sheet
3. Enter the Question Booklet Set and Number on the OMR Answer-sheet and also darken the corresponding bubbles with BLACK FINE TIP BALL PEN.
4. Do not put any marks anywhere in the Question booklet /on the OMR Answer-sheet.
5. **There are 50 objective type questions in all of 1 Mark each.** Before attempting the questions, check that the Question-booklet is complete. In case any question/part of question or page is missing, inform the Centre Superintendent within 5 minutes of the start of the examination. After that no claim will be entertained.
6. **Each question is followed by four alternative responses listed as A), B), C) and D) out of which only one is correct / most correct. In case, all the ovals are left blank, there will be deduction of marks @ 0.25 mark for each such unattempted question. Fifth oval 'E' (introduced for security purpose) is to be darkened in case you do not want to attempt the question to avoid negative marking.**
7. To open the question booklet, remove the seal gently when asked to do so. Handover the OMR Answer-sheet to the officer on duty on the completion of the time before you leave the examination hall.
8. **The candidates are permitted to carry his/her question booklet after completion of the examination but OMR Sheets are compulsory required to be deposited with the invigilator.**
9. A candidate who create disturbance of any kind or changes his/her seat or is found in possession of any paper possibility of any assistance to him/her or unfair means will be expelled from the examination by the Centre superintendent/Observer, whose decision shall be final. ("Expulsion" for this purpose would mean cancellation of the entire examination of the candidate).
10. **THE CANDIDATES ARE NOT PERMITTED TO CARRY ANY TELECOMMUNICATION EQUIPMENT SUCH AS WATCH, CELLULAR PHONE, WIRELESS SET, SCANNER ETC. INSIDE THE EXAMINATION HALL.**
11. For rough work, use only the blank space of the Question booklet.
12. The candidates will not be allowed to leave the examination hall during the examination.
13. Borrowing any material is not allowed.
14. The answer-sheet is designed for Computer evaluation. If the instructions are not followed properly, the candidate alone shall be responsible for the resultant loss.
15. Smoking/Refreshment shall not be allowed in the Entrance Test Centre/Hall.
16. Male candidates shall affix their Left Thumb Impression (LTI) while Female candidates shall affix Right Thumb Impression (RTI) at the prescribed place on the OMR answer sheet, Question Booklet and attendance sheet. The Centre superintendent shall also obtain and retain it for record.
17. The candidate must fill both the question booklet number and OMR answer sheet number on the attendance sheet.
18. No candidate shall be allowed to leave the centre before **12:00 Noon.**

1. A substance that has a high retentiveness can be used for the manufacture of-
 A) Electromagnets B) Paramagnets
 C) Temporary magnets D) Permanent magnets
2. In a transmission system, a feeder feeds power to-
 A) Power plant substation B) Generating substations
 C) Service mains. D) Distributors
3. DC series motor is
 A) Variable Speed Motor B) Constant Speed Motor
 C) Both constant speed and variable speed motor D) Low torque motor
4. Open circuit test on transformers is conducted to determine which of the following?
 A) Core losses. B) Eddy current losses
 C) Hysteresis losses D) Copper losses
5. Q factor is defined as the ratio of
 (A) Resistance /inductance of reactive element
 (B) Resistance/capacitance of reactive element
 (C) Resistance to reactance of reactive element
 (D) Resistance to susceptance of reactive element
6. Three resistors of $4\ \Omega$, $6\ \Omega$ and $9\ \Omega$ are connected in parallel. Which resistor consumes the maximum power?
 (A) $4\ \Omega$. (C) $9\ \Omega$
 (B) $6\ \Omega$. (D) $17\ \Omega$
7. According to Biot-Savart's laws the magnetic field at a point due to an incremental element of length dl carrying a current is
 (A) Inversely proportional to the current carried by the element
 (B) Directly proportional to the current carried by the element
 (C) Directly proportional to the square of the distance
 (D) Inversely proportional to the length of the element
8. The direction of rotation of a three- three-phase induction motor can be reversed by
 (A) Reversing All the Power Terminals.
 (B) Interchanging any two phases of the power supply.
 (C) Changing Permeability of rotor material.
 (D) Changing Position of shaded pole w.r.t main pole element
9. A 150 kW electric motor has an efficiency of 92 %, when it operates at full load. Calculate the losses in the machine.
 (A) 92 kW
 (B) 150 kW
 (C) 163 kW
 (D) 13 kW

10. Copper losses in a transformer occur in
(A) Windings
(B) Core
(C) Conservator
(D) None of the above
11. A shunt motor rotating at 1500 r/min is fed by a 120 V source. The line current is 51 A and the shunt field resistance is 120 ohm. If the armature resistance is 0.1 ohm, calculate the current in the armature.
(A) 1 A
(B) 51 A
(C) 50 A
(D) 12 A
12. For a two-port network to be reciprocal:
(A) $Z_{11} = Z_{22}$
(B) $Y_{12} = Y_{21}$
(C) $h_{21} = h_{22}$
(D) $AD - BC = 0$
13. Fermi level is the measure of
(A) Doping of electrons
(B) Probability of occupancy of electrons or holes
(C) Probability of occupancy of photons
(D) Probability of occupancy of wavelength
14. What is the time constant of an RC series circuit?
(A) R/C
(B) C/R
(C) $1/RC$
(D) RC
15. A resistance of 3 ohms is connected in series with an inductive reactance of 4 ohms. Total impedance of the circuit is
(A) 7 ohms
(B) 12 ohms
(C) 0.75 ohm
(D) 5 ohm
16. What is the purpose of providing a fuse in an electric circuit?
(A) To safeguard the installation against heavy current
(B) To reduce the current flowing in the circuit
(C) To reduce the power consumption
(D) To improve power factor
17. For a transient stability analysis, as long as equal area criterion is satisfied, the maximum angle to which the rotor angle can oscillate is:
(A) 0° to 20°
(B) 45° to 50°
(C) Greater than 90°
(D) 65° to 85°

18. What is the equivalent resistance of one limb A when delta connection is transformed into star?
- (A) $R_1R_3/R_1+R_2+R_3$
 - (B) $R_2R_3/R_1+R_2+R_3$
 - (C) $R_1R_2R_3/R_1+R_2+R_3$
 - (D) $R_1+R_2+R_3$
19. Norton's Theorem is a way to reduce a network to
- (A) An equivalent circuit composed of a single current source, series resistance, and series load
 - (B) An equivalent circuit composed of a single voltage source, parallel resistance, and parallel load
 - (C) An equivalent circuit composed of a single voltage source, series resistance, and series load
 - (D) An equivalent circuit composed of a single current source, parallel resistance, and parallel load
20. A thyristor power converter is said to be in discontinuous when:
- (A) The load current is zero even though the load voltage is present.
 - (B) Both load voltage and load current are zero simultaneously.
 - (C) The load current is present even though load voltage is zero.
 - (D) When load current is ripple free.
21. For measuring the frequency of an unknown A.C. source. Which of the following device is necessary to obtain a standard waveform?
- (A) Operational amplifier
 - (B) Astable multivibrator
 - (C) Schmitt trigger
 - (D) Monostable multivibrator
22. Candela is a unit of:
- (A) Luminous intensity
 - (B) Power
 - (C) Lamp efficiency
 - (D) Frequency
23. In a synchronous machine, the field winding is on
- (A) Stator
 - (B) Rotor
 - (C) Yoke
 - (D) None of the above
24. A network has 4 nodes and 3 independent loops. What is the number of branches in the network?
- (A) 5
 - (B) 7
 - (C) 8
 - (D) 6
25. Losses occurring on the rotor of a phase induction motor are
- (A) Core Losses
 - (B) Copper Losses
 - (C) Eddy current losses
 - (D) None of the above

26. For the power semiconductor devices IGBT, MOSFET, Diode and Thyristor, which one of the following statements is TRUE?
- (A) All the four are majority carrier devices.
 - (B) All the four are minority carrier devices.
 - (C) IGBT and MOSFET are majority carrier devices, whereas Diode and Thyristor are minority carrier devices.
 - (D) MOSFET is majority carrier device, whereas IGBT, Diode Thyristor are minority carrier devices.
27. Which of the following statements for Piezoelectric transducer is correct?
- (A) Piezoelectric transducer can be used for the measurement of static displacement only.
 - (B) Piezoelectric transducer can be used for the measurement of dynamic displacement only
 - (C) Piezoelectric transducer can be used for the measurement of both static and dynamic displacement.
 - (D) Piezoelectric transducer cannot be used for the measurement of both static and dynamic displacement.
28. Which bridge method is limited to the measurement of low Q values from 1-10?
- (A) Anderson Bridge
 - (B) Maxwell Bridge
 - (C) Schering Bridge
 - (D) Hay's Bridge
29. Which of the following methods is the strongest tool to determine the stability and the transient response of the system?
- (A) Routh- Hurwitz criterion
 - (B) Bode plot
 - (C) Nyquist plot
 - (D) Root locus
30. A DC shunt machine develops an EMF of 250 V at 1500 rpm. Find the torque developed for an armature current of 50 A.
- (A) 59.6 N-m
 - (B) 79.6 N-m
 - (C) 69.6 N-m
 - (D) 49.6 N-m
31. A reverse biased diode has
- (A) High Resistance
 - (B) Low Resistance
 - (C) High forward current
 - (D) Low forward current
32. Star-Delta starter is used for
- (A) DC motor
 - (B) Synchronous Motor
 - (C) Single-phase Induction Motor
 - (D) Three-Phase Induction Motor

33. What type of insulators are used whenever the conductors are dead ended and there is a change in the direction of transmission line?
- (A) Shackle type
 - (B) Strain type
 - (C) Pin type
 - (D) Suspension type
34. The core of electrical machines is laminated to reduce
- (A) Copper Loss
 - (B) Friction and Windage Loss
 - (C) Hysteresis Loss
 - (D) Eddy Current Loss
35. The usual value of slip of a 3Φ induction motor at full load is about:
- (A) 15%- 25%
 - (B) 2%- 5%
 - (C) 0
 - (D) More than 45%
36. A deep bar rotor is used for
- (A) High Torque applications
 - (B) Low Torque Applications
 - (C) Low Speed Applications
 - (D) High Speed Applications
37. What is the basic principle of operation of a transformer?
- (A) Self-induction
 - (B) Mutual-induction
 - (C) Static-induction
 - (D) Dynamic-induction
38. What is the nature of supply current in a pure capacitive circuit with reference to the voltage?
- (A) In phase
 - (B) Lags by 90 degree
 - (C) Leads by 90 degree
 - (D) Compensates and becomes zero
39. What is the equivalent resistance of a network having five resistors of 10 ohms value connected in parallel?
- (A) 10 Ohms
 - (B) 50 Ohms
 - (C) 500 Ohms
 - (D) 2 Ohms
40. What is the value of total electric flux coming out of closed surface?
- (A) Zero
 - (B) Equal to volume charge density
 - (C) Equal to the total charge enclosed by the surface
 - (D) Equal to the surface charge density

41. Which of the following gate is called universal gate?
(A) AND
(B) NOT
(C) NOR
(D) EX-OR
42. Signal flow graph is a
(A) Polar plot
(B) Bode plot
(C) Topological representation of a set of differential equations
(D) Truth table
43. Maximum power developed in a synchronous motor occurs at a coupling angle of:
(A) 120°
(B) 60°
(C) 90°
(D) 0°
44. What is peak factor of a sinusoidal wave?
(A) 1.11
(B) 1.414
(C) 3.142
(D) 4.44
45. What does the maximum Surge current rating of an SCR specify?
(A) Repetitive current with sine wave.
(B) Non-repetitive current with rectangular wave.
(C) Non-repetitive current with sine wave.
(D) Repetitive current with rectangular wave.
46. Which of the following serves as donor impurity in Silicon?
(A) Boron
(B) Indium
(C) Germanium
(D) Antimony
47. The reciprocal of resistance is called
(A) Impedance
(B) Conductance
(C) Inductance
(D) Susceptance
48. What is the main drawback of the underground transmission system compared to the overhead transmission system?
(A) Exposure to lightning
(B) Heavy initial cost
(C) Exposure to atmospheric hazards such as smoke, ice, wind
(D) Induction interference between power and communication circuits

49. Which loss has least proportion in DC machines?

- (A) Armature copper loss
- (B) Field copper loss
- (C) Magnetic loss
- (D) Mechanical loss

50. The internal resistance of a cell depends on

- (A) Terminal voltage
- (B) Torque
- (C) Current
- (D) Area of the plates

ANSWER KEY

**Recruitment test conducted on 22/05/2025 for post of Junior Engineer Electrical
under BFUHS, Faridkot**

1	D	26	D
2	D	27	B
3	A	28	B
4	A	29	D
5	C	30	B
6	A	31	A
7	B	32	D
8	B	33	B
9	D	34	D
10	A	35	B
11	C	36	A
12	B	37	B
13	B	38	C
14	D	39	D
15	D	40	C
16	A	41	C
17	C	42	C
18	A	43	C
19	D	44	B
20	B	45	C
21	C	46	D
22	A	47	B
23	B	48	B
24	D	49	D
25	B	50	D