

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

Sub Divisional Engineer (Mechanical)

(under Baba Farid University of Health Sciences, Faridkot)

QUESTION BOOKLET

THUMB IMPRESSION OF THE CANDIDATE

OMR ANSWER SHEET

ROLL NO:

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FULL SIGNATURE OF THE CANDIDATE

Co-ordinator stamp

FULL SIGNATURE OF INVIGILATOR

Time Allowed: 01:00 Hour (02:00 PM to 03:00 PM)

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.
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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 **03:00 PM**.

1. A mild steel bar of cross-sectional area A is initially loaded with an axial tensile load of P . The load is doubled while the area is reduced to half. The ratio of final to initial stress would be
 - (a) 1
 - (b) 2
 - (c) 4
 - (d) 8
2. The ratio of the lateral to the linear is called
 - (a) modulus of elasticity
 - (b) modulus of rigidity
 - (c) bulk modulus
 - (d) Poisson's ratio.
3. A steel bar 2m long, 20 mm wide and 10 mm thick is subjected to a pull of 2kN. If the same bar is subjected to a push of 2 kN. The Poisson's ratio of the bar in tension will be the Poisson's ratio the bar in compression.
 - (a) equal to
 - (b) less than
 - (c) greater than
 - (d) 2 times
4. Mohr's Circle is used to determine the stresses on an oblique section of a body subjected to
 - (a) Direct tensile stress in one accompanied by a shear stress.
 - (b) Direct tensile stress into mutually perpendicular directions
 - (c) Direct tensile stress in two mutually perpendicular directions accompanied by a simple shear stress.
 - (d) All of the above.
5. Failure due to excessive deformation is controlled by:
 - (a) Material properties
 - (b) Design & Dimensions
 - (c) Both (a)&(b)
 - (d) None of these
6. When a cantilever beam is loaded with concentrated loads, the bending moment diagram will be a
 - (a) horizontal straight line
 - (b) vertical straight line
 - (c) inclined straight line
 - (d) Parabolic curve.
7. A shear force in the center of simply supported beam carrying a uniformly distributed load of w per unit length is
 - (a) Zero
 - (b) $wl^2/2$
 - (c) $wl^2/4$
 - (d) $wl^2/8$
8. When two shaft of same length, one of which is hollow, transmit equal torques and have equal maximum stress, then they should have equal
 - (a) polar moment of inertia
 - (b) polar modulus
 - (c) diameter
 - (d) angle of twist
9. Two springs having stiffness 2 N/m and 4 N/m per meter are connected in parallel. The total stiffness of the system should be
 - (a) 2 N/m
 - (b) 6 N/m
 - (c) 8 N/m
 - (d) $4/3$ N/m
10. Rivets are generally specified by
 - (a) thickness of plates to be joined
 - (b) overall length
 - (c) shank diameter
 - (d) diameter of head

11. The height of water column equivalent to a pressure of 0.15 MPa is
 (a) 15.3 m (b) 25.3 m
 (c) 35.3 (d) 45.5
12. The pressure measure with the help of pressure gauge is called
 (a) atmospheric pressure (b) gauge pressure
 (c) absolute pressure (d) mean pressure
13. The point at which the resultant pressure on an immersed surface acts, is known as
 (a) centre of gravity (b) centre of depth
 (c) centre of pressure (d) centre of immersed surface.
14. The stability of dam is checked for
 (a) tension at the base (b) overturning of the wall or dam
 (c) sliding of the wall or dam (d) all of the above.
15. When a body is placed over a liquid, it will sink down if
 (a) gravitational force is equal to upthrust of the liquid
 (b) gravitation force is less than the upthrust of the liquid
 (c) gravitational force is more than the up thrust of the liquid
 (d) none of the above.
16. The body will be float if the force of buoyancy is.....the weight of the liquid displaced.
 (a) equal to (b) less than
 (c) more than (d) 5 times
17. A body float in stable equilibrium, if
 (a) metacenter is above C.G. (b) metacentric height is zero
 (c) C.G. is above the centre of buoyancy (d) C.G. is below or at the centre of buoyancy.
18. A flow whose streamline is represented by a straight line is called,.....dimensionless flow.
 (a) one (b) two
 (c) three (d) four
19. Barometer is used to measure
 (a) velocity of liquid (b) atmospheric pressure
 (c) pressure in pipe and channels (d) difference of pressure between two points in a pipe.
20. Which of the following device is used to measure the velocity of a fluid in a pipe?
 (a) venturimeter (b) pitot tube
 (c) orifice meter (d) rectangular notch.
21. The viscosity of water at 20°C is
 (a) one stoke (b) one centistoke
 (c) one poise (d) one centipoise
22. The property of a working substance which increases or decreases as the heat is supplied or removed in a reversible manner is known as
 (a) enthalpy (b) internal energy
 (c) entropy (d) external energy

23. For the same compression ratio, the efficiency of Diesel cycle isOtto cycle.
 (a) greater than (b) less than
 (c) equal to (d) not comparable with
24. During which of the following process does heat rejection take place in Carnot cycle?
 (a) isothermal expansion (b) isentropic expansion
 (c) isothermal compression (d) isentropic compression
25. Which of the following statement is correct?
 (a) A fire tube boiler occupies less space than a water tube boiler for a given power.
 (b) Steam at a high pressure and in large quantities can be produced with a simple vertical boiler.
 (c) A simple vertical boiler has one fire tube.
 (d) all of the above.
26. The number of fire tubes in a Cochran boiler are
 (a) 75 (b) 115
 (c) 165 (d) 225
27. Which of the following is not a boiler mounting?
 (a) Blow off cock (b) Feed check valve
 (c) Economiser (d) Fusible plug
28. In a nozzle, the effect of supersaturation is to
 (a) decrease dryness fraction of steam.
 (b) decrease specific volume of steam
 (c) increase the entropy
 (d) increase the heat drop
29. A single stage impulse turbine with a diameter of 1.2 m run at 3000 r.p.m. If the blade speed ratio is 0.42, then the inlet velocity of steam will be
 (a) 79 m/s (b) 188 m/s
 (c) 459 m/s (d) 100 m/s
30. A gas engine has a swept volume of 300 cm^3 and clearance volume of 25 cm^3 . Its volumetric efficiency is 0.88 and mechanical efficiency is 0.90. The volume of mixture taken is per stroke is
 (a) 248 cm^3 (b) 252 cm^3
 (c) 264 cm^3 (d) 286 cm^3
31. Morse test is used to determine the I.P. of a
 (a) single cylinder petrol engine (b) four stroke engine
 (c) single cylinder diesel engine (d) multi-cylinder engine
32. The compression ratio in a gas turbine is
 (a) 4 (b) 7
 (c) 9 (d) 12

33. Reynold number is the ratio of
 (a) energy transferred by convection to that by conduction
 (b) kinematic viscosity to thermal diffusivity
 (c) inertia force to viscous force
 (d) none of the above
34. The ratio of Nusselt number and the product of Reynold's number and Prandtl number is equal to
 (a) Satnton number (b) Biot number
 (c) Peclet number (d) Grashoff number
35. One tonne of refrigeration (1TR) means that the heat removing capacity is
 (a) 21 kJ/min. (b) 210 kJ/min.
 (c) 420 kJ/min. (d) 620 kJ/min.
36. In a steam engine, the link constitute a
 (a) piston, piston rod and cross head
 (b) connecting rod with big and small end brasses, caps and bolts
 (c) crank pin, crankshaft and flywheel
 (d) all of the above
37. The inversion of a mechanism is
 (a) changing of a higher pair to a lower pair
 (b) turning its upside down
 (c) obtained by fixing different links in a kinematic chain
 (d) obtained by reversing the input and output motion
38. When two links are connected by a pin joint, their instantaneous centre lies
 (a) on their point of contact (b) at the centre of curvature
 (c) at the centre of circle (d) at the pin joint
39. The minimum force required to slide a body of weight W on a rough horizontal plane is
 (a) $W \sin \theta$ (b) $W \cos \theta$
 (c) $W \tan \theta$ (d) $W \operatorname{cosec} \theta$
40. The two parallel and coplanar shafts are connected by gears having teeth parallel to the axis of the shaft. This arrangement is known as
 (a) spur gearing (b) helical gearing
 (c) bevel gearing (d) spiral gearing
41. Stress concentration is caused due to
 (a) variations in load acting on a member
 (b) variation in properties of materials in a member
 (c) abrupt change of cross-section
 (d) all of the above
42. A pressure vessel is said to be a thick shell, if the ratio of wall thickness to its diameter is
 (a) equal to $1/10$ (b) less than $1/10$
 (c) greater than $1/10$ (d) none of these

43. If a bearing is designated by the number 305, it means that the bearing is of
(a) light series whose bore is 5 mm
(b) light series whose bore is 25 mm
(c) medium series whose bore is 5 mm
(d) medium series whose bore is 25 mm
44. In skew bevel gearing, the axes of shafts are
(a) intersecting and the teeth are curved
(b) non-intersecting and non-parallel and the teeth are straight
(c) non-intersecting and non-parallel and the teeth are straight
(d) none of the above
45. The size of a gear is usually specified by
(a) pressure angle
(b) pitch circle diameter
(c) circular pitch
(d) diametral pitch
46. In spur gear, the circle on which the involute is generated, is called
(a) base circle
(b) clearance circle
(c) pitch circle
(d) addendum circle
47. In processing of steel, eutectoid reaction occurs at
(a) 600°C
(b) 723 °C
(c) 1147 °C
(d) 1493°C
48. A steel is heated at about 875 °C where the structure consists of entirely austenite. It is then cooled suddenly at a temperature of about 250 °C to 525 °C. This process of heat treatment is known as
(a) normalizing
(b) annealing
(c) austempering
(d) martempering
49. When a pattern is made in three parts, the top part is known as
(a) drag
(b) cheek
(c) cope
(d) none of the above
50. During casting of metal, the purpose of riser is to
(a) Deliver molten metal into the mould cavity
(b) Act as a reservoir for the molten metal
(c) Feed the molten metal to the casting in order to compensate for the shrinkage
(d) Deliver the molten metal from pouring basin to gate

Answer Key			
Screening Written test conducted on 30/06/2026 for post of Sub Divisional Engineer (Mechanical) under Department of BFUHS, Faridkot vide Advt. no. BFU-26/18			
1	C	26	C
2	D	27	C
3	A	28	C
4	D	29	C
5	C	30	C
6	C	31	D
7	A	32	B
8	B	33	C
9	B	34	A
10	C	35	B
11	A	36	D
12	B	37	C
13	C	38	D
14	D	39	A
15	C	40	A
16	C	41	A
17	A	42	C
18	A	43	D
19	B	44	C
20	B	45	B
21	D	46	A
22	C	47	B
23	B	48	C
24	C	49	C
25	C	50	C

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

Sub Divisional Engineer (Electrical)

(under Baba Farid University of Health Sciences, Faridkot)

QUESTION BOOKLET N

UMB IMPRESSION OF THE CANDIDATE

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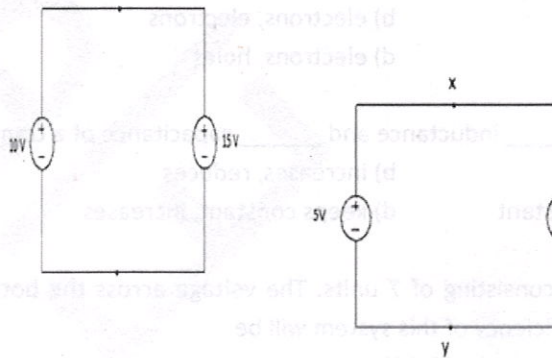
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- Which of the motions in actuators are preferred?
 - Rotary
 - Stationary
 - Non-stationary
 - Translator
- Which of the following is the input of a controller?
 - Signal of fixed amplitude not dependent on desired variable value
 - Desired variable value
 - Sensed signal
 - Error signal
- A control system is generally met with the time response specifications:
 - Damping factor
 - Setting time
 - Steady state accuracy*
 - All of the mentioned
- Which of the below is valid?



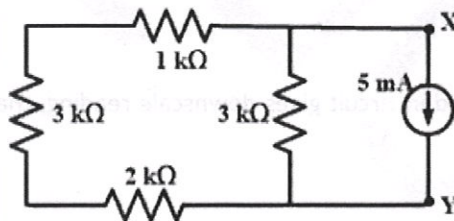
- 1
 - 2
 - Both
 - Neither 1 nor 2
- The opposing capacity of materials against the current flow is
 - Conductance
 - Inductance
 - Susceptance
 - Resistance
 - Relation between power, voltage and conductance
 - $V = P^2 \cdot G$
 - $V = P^2 / G$
 - $P = V^2 / G$
 - $P = V^2 \cdot G$
 - Single line diagram of which of the following power system is possible?
 - Power system with LG fault
 - Balanced power system
 - Power system with LL fault
 - Power system with LLG fault

8. A 50-bus power system, Y-bus has 80% sparsity. The total number of transmission lines will be _____
- 225
 - 563
 - 345
 - 456
9. Which of the following is an essential requirement for a peak load plant?
- Economical and speedy repair
 - Capability of working continuously
 - Low operating cost
 - Capability of quick start
10. Which of the following is the most popular method for measuring low resistance?
- Wheatstone bridge method
 - kelvin double bridge method
 - ammeter-voltmeter method
 - potentiometer method
11. In the p & n regions of the p-n junction the _____ & the _____ are the majority charge carriers respectively.
- holes, holes
 - electrons, electrons
 - holes, electrons
 - electrons, holes
12. Bundle conductor _____ inductance and _____ capacitance of a transmission line.
- reduces, increases
 - increases, reduces
 - reduces, keeps constant
 - keeps constant, increases
13. A string of insulators consisting of 7 units. The voltage across the bottom most unit is 25% of the total voltage. The string efficiency of this system will be
- 57.14 %
 - 50.6 %
 - 80.4 %
 - 67.7 %
14. Consider the loop transfer function $G(s) = K(s+6)/(s+3)(s+5)$. In root locus diagram, the centroid will be located at:
- 4
 - 1
 - 2
 - 3
15. Input data of smart sensor will be _____
- Analog
 - Digital
 - Analog and digital
 - None of the mentioned
16. RAID stands for _____
- Recorded Array of Inexpensive Disc
 - Redundant Array of Inexpensive Disc
 - Redundant Array of Intelligent Disc
 - Redundant Array of Inexpensive Display
17. In an inductive circuit, if the active and reactive components of line current are equal, then its power factor is:
- 0.707 leading
 - 0.707 lagging
 - zero
 - 0.5 lagging

18. The type of commutation in which the pulse to turn off the SCR is obtained by separate voltage source is --

- class B commutation
 - class C commutation
 - class D commutation
 - class E commutation
19. Line-commutated inverters have
- AC on the supply side and DC on the load side
 - AC on both supply and load side
 - DC on both supply and load side
 - DC on the supply side and AC on the load side
20. Two capacitors of capacitors 2pF and 6pF are connected in parallel across a 120V dc source. The sum total of the charges on the capacitors is
- 15pC
 - 1980pC
 - 180pC
 - 960pC
21. The average value of a sinusoidal current is 100 A. Its r.m.s. value will be
- 63.7 A
 - 70.7A
 - 111A
 - 141.4 A
22. The Q factor of a coil is _____ resistance of coil.
- Inversely proportional to
 - Directly proportional to
 - Independent
 - None of the above
23. A moving coil instrument having meter resistance of 5 ohm is to be used as voltmeter of range 0-100 V. If the full-scale deflection current is 10mA, then required series resistance is _____
- 20 ohm
 - 1000 ohm
 - 9995 ohm
 - None of the above
24. If the wattmeter connected in circuit gives downscale reading, then we normally change the connections of _____
- current coil
 - potential coil
 - both current and potential coil
 - None of above
25. An 8 pole, 250 V, wave wound generator has 400 conductors. if the generator is to be lap-wound, the number of conductors required is _____
- 800
 - 100
 - 3200
 - 1600
26. In DC generator, the main function of compensating winding is to
- assist the commutation
 - reduce demagnetizing effect of armature reaction
 - reduce distorting effect of armature reaction
 - eliminate reactance voltage

27. A 250 V dc shunt motor takes a total load current of 20 A and runs at 800 r.p.m. Resistance of shunt field is 50 ohm and that of armature 0.1 ohm. The iron and friction losses amount to 1600 W. What is the driving power of the motor?
- a) 16050 W b) 14500 W
c) 12600 W d) 18500 W
28. A 230/460 V transformer has a primary resistance of 0.2 ohm and a reactance of 0.5 ohm and the corresponding values for the secondary are 0.75 ohm and 1.8 ohm respectively. The total voltage drops on the secondary when supplying 10A at 0.8 p.f. lagging is
- a) 35.2 V b) 18.6 V
c) 13.7 V d) 24.2 V
29. In a 3-phase induction motor, the mechanical power developed in terms of air gap power (P_{ag}) is
- a) $(s-1) P_{ag}$ b) $s(1-s) P_{ag}$
c) $(1+s) P_{ag}$ d) $(1-s) P_{ag}$
30. If we increase the spacing between the phase conductors, the line capacitance
- a) increases
b) decreases
c) remains unaffected
d) none of the above
31. Four identical alternators each are rated for 20 MVA, 11 KV having a sub transient reactance of 16% are working in parallel. The short circuit level at the busbar is
- a) 500 MVA b) 400 MVA
c) 125 MVA d) 100 MVA
32. What is the Thevenin's equivalent resistance at the terminals X, Y for the circuit shown in the figure?



- a) 3
b) 9
c) 6
d) 2
33. XOR circuits can be constructed using
- a) OR gates only b) AND, OR gates
c) AND, NOT gates d) AND, NOT and OR gates

34. A full adder logic circuit will have _____
- Two inputs and one output
 - Three inputs and three outputs
 - Two inputs and two outputs
 - Three inputs and two outputs
35. A 10 kVA, 2000/400 V single-phase transformer has a primary resistance and inductive reactance of 5 ohm and 12 ohm respectively. The secondary values are 0.2 ohm and 0.48 ohm respectively. The equivalent impedance of the transformer referred to primary side is
- 12 ohm
 - 28 ohm
 - 31 ohm
 - 36 ohm
36. If the excitation of an alternator operates in parallel with another alternator is decreased, its _____
- P.F becomes more leading
 - P.F becomes more lagging
 - output kW will change
 - None of the above
37. The generating station has an average demand of 15 MW. If the plant capacity factor is 50 %, What is the plant capacity?
- 20 MW
 - 10 MW
 - 25 MW
 - 30 MW
38. If the fault current is 2000 A, the relay setting is 50% and CT ratio is 400: 5, then plug setting of multiplier will be
- 10
 - 15
 - 25
 - 50
39. Bundled conductors used in the EHV transmission lines result into
- reduced inductance
 - increase capacitance
 - increase inductance
 - increase resistance
40. Transposition is the mean to balance
- Inductance
 - Voltage
 - Current
 - All of the mentioned
41. What is Demand factor?
- Ratio of connected load to maximum demand
 - Ratio of average load to connected load
 - Ratio of maximum demand to the connected load
 - Ratio of kilowatt hour consumed to 24 hours
42. Which of the following error is caused by a reversal of measured property?
- Hysteresis
 - Noise
 - Digitization error
 - Quantization error

43. Single phase half wave bridge inverters require
- Two wire ac supply
 - Two wire dc supply
 - Three wire ac supply
 - Three wire dc supply
44. An SCR is connected in series with $L = 5 \text{ mH}$ and $C = 20 \mu\text{F}$. Find the resonant frequency of the circuit.
- 2569 rad/s
 - 3162 rad/s
 - 2400 rad/s
 - 7889 rad/s
45. What will be the resistance value corresponding to color code yellow, violet, orange, silver?
- $47 \text{ k}\Omega \pm 10\%$
 - $4.7 \text{ k}\Omega \pm 20\%$
 - $2 \text{ k}\Omega \pm 10\%$
 - none of the above
46. A circuit has inductance of 2 H . If the circuit current changes at the rate of 10 A/Sec , then the self-induced e.m.f is
- 5 V
 - 0.2 V
 - 20 V
 - 10 V
47. A wattmeter indicate _____ power.
- active
 - reactive
 - apparent
 - none of the above
48. A 120 V , 50 Hz source is connected to a circuit. If the circuit current is 3 A and the power consumed is 108 W , the circuit resistance is
- 24 ohm
 - 12 ohm
 - 36 ohm
 - none of the above
49. A 50 V range voltmeter has a sensitivity of $20 \text{ k}\Omega/\text{V}$. The total resistance of the voltmeter is
- $2.5 \text{ k}\Omega$
 - $0.4 \text{ k}\Omega$
 - $10 \text{ k}\Omega$
 - $1 \text{ M}\Omega$
50. An energy meter having a meter constant of $1200 \text{ rev. per kWh}$ is found to make 5 revolutions in 75 seconds. The load power is
- 500 W
 - 100 W
 - 200 W
 - 1000 W

Answer Key			
Screening Written test conducted on 30/06/2026 for post of Sub Divisional Engineer (Electrical) under Department of BFUHS, Faridkot vide Advt. no. BFU-26/18			
1	A	26	C
2	D	27	A
3	D	28	A
4	A	29	D
5	D	30	B
6	D	31	A
7	B	32	D
8	A	33	D
9	D	34	D
10	B	35	D
11	C	36	A
12	A	37	D
13	A	38	A
14	C	39	A
15	A	40	A
16	B	41	C
17	B	42	A
18	D	43	D
19	B	44	B
20	D	45	A
21	C	46	C
22	A	47	A
23	C	48	B
24	B	49	D
25	D	50	C

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

Sub Divisional Engineer(Civil) Sub Divisional Engineer(Public Health) (under Baba Farid University of Health Sciences, Faridkot)									
QUESTION BOOKLET NO		RIGHT THUMB IMPRESSION OF THE CANDIDATE							
OMR ANSWER SHEET NO									
ROLL NO:	<table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>								FULL SIGNATURE OF THE CANDIDATE
Co-ordinator stamp		FULL SIGNATURE OF INVIGILATOR							

Time Allowed: 01:00 Hour (02:00 PM to 03:00 PM)

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 **03:00 PM**.

1. Coefficient of friction is less when the pavement surface is
(a) rough (b) dry
(c) smooth and wet (d) smooth and dry
2. Reactive substances are
(a) Unstable under normal conditions. They can cause explosions and/or liberate toxic fumes, gases, and vapors when mixed with water.
(b) Easily ignited and burn vigorously and persistently.
(c) Liquids with pH less than 2 or greater than 12.5, the those that are capable of corroding metal containers.
(d) Harmful or fatal when ingested or absorbed
3. For highway geometric design purposes, the speed used is
(a) 15th percentile (b) 50th percentile
(c) 98th percentile (d) 85th percentile
4. As per IS-456 : 2000, the value of maximum compression strain in concrete in axial compression for limit state of collapse is
(a) 0.001 (b) 0.002
(c) 0.003 (d) 0.004
5. As per IRC the maximum possible width of the vehicle will be
(a) 1.88m (b) 3.44 m
(c) 2.44 m (d) 4m
6. A summit curve is formed at the intersection of a 3% up gradient and 5% down gradient. To provide a stopping distance of 128m, the length of summit curve will be
(a) 271m (b) 322m
(c) 298m (d) 340m
7. For calculating the stopping sight distance, the height of drivers eye and object on the road surface respectively are
(a) 120cm and 15 cm (b) 140cm and 20 cm
(c) 130cm and 15 cm (d) 130cm and 20 cm
8. On a right angle road intersection with two way traffic, the total number of conflict point is
(a) 6 (b) 11
(c) 18 (d) 24
9. Which of the following chemical parameters are associated with the organic content of water?
1. Biological Oxygen Demand (BOD).
2. Chemical Oxygen Demand (COD).
3. Total Organic Carbon (TOC) and Total Oxygen Demand (TOD).
(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3
10. The function of an expansion joint in rigid pavements is to
(a) relieve warping stresses (b) relieve shrinkage stresses
(c) allow free expansion (d) resist stresses due to expansion

11. As per IRC the maximum load of axle of a vehicle should not exceed
- (a) 9500 kg
 - (b) 9000 kg
 - (c) 8170 kg
 - (d) 7500 kg
12. Flocculation is the process of
- (a) Gently mixing the water and coagulant allowing the formation of large particles of floc.
 - (b) Removing relatively large floating and suspended debris.
 - (c) Flow, which is slowed enough so that gravity will cause the floc to settle.
 - (d) Mixture of solids and liquids collected from the settling tank are dewatered and disposed of.
13. Car has a PCU value of
- (a) 1
 - (b) 2
 - (c) 3
 - (d) 4
14. Which one of the following type of treatments will be used for neutralization of alkaline effluent?
- (a) Lime stone treatment
 - (b) Caustic lime treatment
 - (c) Carbon dioxide treatment
 - (d) Hydrochloric acid treatment
15. Electrostatic precipitators are used for removal of
- 1. Gaseous contaminants
 - 2. Liquid contaminants
 - 3. Particulate contaminants
- (a) 1 only
 - (b) 2 only
 - (c) 3 only
 - (d) 1, 2 and 3
16. Shrinkage limit of a clay whose void ratio in dry state is 0.55, specific gravity is 2.75, is
- (a) 20 %
 - (b) 5%
 - (c) 5.5 %
 - (d) 10 %
17. Critical hydraulic gradient in a saturated sand with water content 35 % and specific gravity of solids 2.65 is
- (a) 0.855
 - (b) 1.170
 - (c) 1.891
 - (d) 0.529
18. Water content of a soil which represents the boundary between plastic state and liquid state, is known as
- (a) liquid limit
 - (b) plastic state
 - (c) semi-solid state
 - (d) solid state
19. Swelling potential of soil is indicated by
- (a) activity of the soil
 - (b) sensitivity of the soil
 - (c) permeability of soil
 - (d) compressibility of soil
20. Rate of flow of water through ground strata, can be estimated by
- (a) Manning's formula
 - (b) Darcy's formula
 - (c) Dupit's formula
 - (d) Strickler's formula
21. The percentage of voids filled with air, in a soil compacted under OMC shall be around
- (a) 0%
 - (b) 5-10%
 - (c) 100%
 - (d) none of the above

22. Under reamed piles are generally
- driven piles
 - bored piles
 - precast piles
 - none of the above
23. The load carrying capacity of a friction pile in clay is 200 kN. The total load carrying capacity of a group of 9 such piles with unknown group efficiency shall be
- 1800 kN
 - < 1800 kN
 - > 1800 kN
 - none of the above
24. Total lateral earth pressure is proportional to
- depth of soil
 - square of the depth of soil
 - angle of internal friction of soil
 - none of the above
25. Length to diameter ratio for cylindrical specimen of soils for triaxial shear test is
- 1
 - 2
 - 3
 - 1.5
26. A pile is embedded quite deep in a clay stratum. The clay has a cohesion of $4t/m^2$. The ultimate point resistance of the pile will be
- 51.2 t/m^2
 - 58.8 t/m^2
 - 62.3 t/m^2
 - 67.2 t/m^2
27. A saturated clay with single drainage takes 2 years to attain 50% degree of consolidation. If the clay layer had double drainage, then the time taken to attain 50% degree of consolidation is
- 1/4 year
 - 1/3 year
 - 1/2 year
 - 3/4 year
28. Soil is arranged in face to face orientation. This type of soil structure is called
- dispersed
 - cohesive matrix
 - honey comb
 - flocculent
29. Unconfined compressive strength test is a
- drained test
 - undrained test
 - consolidated undrained test
 - unconsolidated drained test
30. Active earth pressure on a retaining wall due to increase in wall friction
- increases
 - decreases
 - remains constant
 - uncertain
31. Ratio of linear stress to strain is called
- modulus of elasticity
 - modulus of rigidity
 - bulk modulus
 - Poisson's ratio

- 32. Principle plane is a plane on which the shear stress is**
 (a) zero (b) minimum
 (c) maximum (d) none of these
- 33. The appropriate percentage of water in sewage is**
 (a) 99.90% (b) 90%
 (c) 99% (d) 99.99%
- 34. Which of the following is a correct Torsion equation**
 (a) $T/J = \tau/R = C\theta/L$ (b) $M/I = \sigma/y = E/R$
 (c) $M/R = T/J = C\theta/L$ (d) $T/L = \tau/J = R/C\theta$
- 35. The buckling load for a given column depends upon**
 (a) area of cross section of the column
 (b) length and least radius of gyration of column
 (c) modulus of elasticity for the material of column
 (d) all of the above
- 36. The columns whose slenderness ratio is less than 80 are known as**
 (a) short columns (b) long columns
 (c) weak columns (d) medium columns
- 37. When chlorine is dissolved in water, it reacts to form hypochlorous acid and hypochlorite ions.**
At pH < 5, chlorine exists in water as
 (a) Elemental or molecular chlorine
 (b) Remains in the form of hypochlorous acid
 (c) Remains in the form of hypochlorite ions
 (d) Remains in the form of both hypochlorous acid and hypochlorite ions
- 38. Compared to mild steel, the steel used for prestressing of concrete beams has**
 (a) same modulus of elasticity and higher proof stress.
 (b) higher proof stress and lower modulus of elasticity
 (c) high modulus of elasticity and same proof stress
 (d) higher proof stress and higher modulus of elasticity
- 39. PERT technique of network analysis is mainly useful for**
 (a) research and development projects
 (b) large and complex projects
 (c) small projects
 (d) deterministic activities
- 40. The ratio of 5 day BOD to ultimate BOD is about**
 (a) 1/3
 (c) 3/4
 (b) 2/3
 (d) 1.0
- 41. Main function of alumina in brick earth is**
 (a) to impart plasticity (b) to make the brick durable
 (c) to prevent shrinkage (d) to make the brick impermeable

42. The age of a tree can be known by examining

- (a) annular rings
- (b) cambium layer
- (c) medullary rays
- (d) heart wood

43. Harmful bacteria, which may be present in sewage, may be:

- (a) E coli
- (b) B coli
- (c) Vibrio cholerae
- (d) Entamoeba histolytica

44. Workability of concrete is directly proportional to

- (a) grading of aggregate
- (b) time of transit
- (c) aggregate cement ratio
- (d) all of the above

45. The statical method of plastic analysis satisfies

- (a) equilibrium and mechanism conditions
- (b) equilibrium and plastic moment conditions
- (c) mechanism and plastic moment conditions
- (d) equilibrium condition only

46. Economical depth of plate girder corresponds to

- (a) minimum weight
- (b) minimum depth
- (c) maximum weight
- (d) minimum thickness of web

47. Anaerobic treatment is best suited for

- (a) High efficiency
- (b) Toxic wastes
- (c) Dilute inorganic wastes
- (d) Strong organic wastes

48. Principle of superposition is applicable when

- (a) deflections are linear functions of applied forces
- (b) material obeys Hooke's law
- (c) the action of applied forces will be affected by small deformations of the structures
- (d) none of the above

49. Which one is not a usual form of bitumen

- (a) Bitumen Emulsion
- (b) Blown bitumen
- (c) Foamed bitumen
- (d) Cutback bitumen

50. Which of the following process includes chlorination of water above the break point?

- (a) Plain chlorination
- (b) Dechlorination
- (c) Excess chlorination
- (d) Super chlorination

Answer Key			
Screening Written test conducted on 30/06/2026 for post of Sub Divisional Engineer (Civil & Public Health) under Department of BFUHS, Faridkot vide Advt. no. BFU-26/18			
1	C	26	B
2	A	27	C
3	C	28	A
4	B	29	B
5	C	30	B
6	C	31	A
7	A	32	A
8	D	33	A
9	D	34	A
10	C	35	D
11	C	36	A
12	A	37	A
13	A	38	A
14	D	39	A
15	C	40	B
16	A	41	A
17	A	42	A
18	B	43	C
19	A	44	A
20	B	45	B
21	B	46	A
22	B	47	D
23	B	48	A
24	B	49	C
25	B	50	D