Sr. No. 100359 Roll No.

B.TECH. (CE /ME) - 1ST SEMESTER EXAMINATIONS; DEC.-2017

(SUBJECT: INDUSTRIAL CHEMISTRY; PAPER CODE – 13010105/13030105)

Time: 03:00 Hrs. **Max Mark: 50**

Instructions:

1. Write your Roll No. on the Question Paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regards, if any, should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter.
3. Each Part is Compulsory. Marks are indicated against each question.
4. Draw the diagram wherever required.

PART-A (OBJECTIVE TYPE QUESTIONS OMR SHEETS)

ATTEMPT ALL QUESTIONS:-

Q. 1. Which one of the following is not an example of thermoplastic:- **(1)**
a) Polyvinyl chloride **b)** Nylon **c)** Polyesters **d)** Epoxy

Q. 2. Which of the following is not a unit of hardness:- **(1)**
a) Parts per million **b)** Degree Centigrade **c)** Degree Clarke **d)** Degree French

Q. 3. Small molecules which combine to form polymer are called:- **(1)**
a) Resins **b)** Monomers **c)** Plastic **d)** Blocks

Q. 4. The basis of reverse osmosis is:- **(1)**
a) Osmotic pressure is greater than hydrostatic pressure
b) Osmotic pressure is equal to hydrostatic pressure
c) Hydrostatic pressure is greater than osmotic pressure
d) Osmotic pressure does not exist

Q. 5. The alkalinity due to bicarbonate ion is M-2P when:- **(1)**
a) P = M **b)** P > M/2 **c)** P = M/2 **d)** P < M/2

Q. 6. If the precipitate formed is soft, loose and slimy, these are _____ and if the precipitate is hard and adhering on the inner wall, it is called _____:- **(1)**
a) Sludges, scale **b)** Scale, sludges **c)** Sludges, rodent **d)** Scale, rodent

Q. 7. Hardness of water is due to the presence of salts of:- **(1)**
a) Potassium **b)** Boron **c)** Magnesium **d)** Chlorine

Q. 8. Select the incorrect statement from the following options:- **(1)**
a) When in form ready for further working, polymers are called resins
b) Chemical process leading to the formation of polymer is known as polymerisation
c) Number of monomeric units contained in polymer is called degree of polymerisation
d) Due to their small size, polymers are also called micro-molecules

Q. 9. Select the incorrect statement from the following option:- **(1)**
a) Thermosets are formed by condensation polymerisation reactions
b) Thermosets have 3-D, cross-linked network structure
c) Thermosets soften on heating and stiffen on cooling
d) Thermosets are generally insoluble in any solvent

Q. 10. A system, after passing through different states returns back to its original state, is called:- **(1)**
a) Cyclic process **b)** Isothermal process **c)** Adiabatic process **d)** Isobaric process

Q. 11. The point at which all the three phases i.e. ice , water and vapors co-exist in equilibrium is known as:- (1)

a) End Point b) Triple Point c) Critical Point d) None of these

Q. 12. The phenomenon during which the boiler material becomes brittle due to accumulation of caustic substances is known as:- (1)

a) Foaming
b) Priming
c) Corrosion
d) Caustic embrittlement

Q. 13. The reaction rate is defined as the rate at which the concentration of the reactants _____ with time or the concentration of products _____with time:- (1)

a) Increase, increase
b) Decrease, decrease
c) Decrease, increase
d) Increase, decrease

Q. 14. Which of the following indicator is pink in basic medium:- (1)

a) Methyl orange b) Phenolphthalein c) Starch d) Litmus paper

Q. 15. Find the correct sequence step of free radical of polymerization:- (1)

a) chain initiation, chain termination, chain propagation
b) chain initiation, chain propagation, chain termination
c) chain termination, chain propagation, chain initiation
d) chain propagation, chain termination, chain initiation

Q. 16. If the characteristic groups (side gps) are arranged on the same direction of the chain, it is called:- (1)

a) Isotactic
b) Syndiotactic
c) Atactic
d) None of the these

Q. 17. Which of the following option is incorrect about the sludges:- (1)

a) Sludges are soft, loose and slimy precipitate
b) They are non-adherent deposits and can be easily removed
c) Formed generally at heated portions of the boiler
d) Can be removed by blow down operation

Q. 18. If the vapour and liquid of a pure component are in equilibrium, the equilibrium pressure is called:- (1)

a) Partial pressure
b) Vapour pressure
c) Liquid pressure
d) None of the mentioned

Q. 19. Which one of the following is an example of non-electrolyte:- (1)

a) H_2CO_3 b) Urea c) CH_3COOH d) HCl

Q. 20. Which type of chemical reaction is observed at cathode, in electrochemical corrosion:- (1)

a) Oxidation reaction
b) Peretectic reaction
c) Reduction reaction
d) None of these

Q. 21. Which of the following metal does not resists the corrosion process:- (1)

a) Ni b) Cu c) Pb d) Fe

Q. 22. Calculate degree of freedom at triple point of phase diagram of H_2O:- (1)

a) F=1 b) F=2 c) F=3 d) F=0

Q. 23. Find the correct sequence of polymerization:- (1)

a) monomer, dimer, trimer, tetramer
b) dimer, monomer, trimer, tetramer
c) Tetramer, trimer, dimer, monomer
d) trimer, tetramer, monomer, dimer

Q. 24. Example of strong electrolyte is:- (1)

a) HCl b) H_2CO_3 c) H_2CO_3 d) CH_3COOH

Q. 25. Study of rate of chemical reactions is called as:- (1)

a) reaction rate b) reaction kinetics c) reaction speed d) reaction power

PART-B (DESCRIPTIVE TYPE)

ATTEMPT ALL THE FOLLOWING:-

Q.1. Define Faraday's first Law of electrolysis. (2)

Q.2. Write down the mechanism of electrochemical (Wet) corrosion. (2)

Q.3. How will you determination of order of a reaction. Explain by giving suitable example. (2)

Q.4. Describe Co-current deionization process. (2)

Q.5. What are the factors affecting corrosion? (2)

Q.6. Calculate the alkaline, non- alkaline and total hardness of a sample of water containing the following salts in mg/L. (3)

$MgSO_4$= 16.0, Mg $(HCO_3)_2$=17, $CaSO_4$= 8, Ca $(HCO_3)_2$= 17, $MgCl_2$= 19.0

ATTEMPT ANY TWO OF THE FOLLOWING:-

Q.7. Explain the free radical polymerization mechanism by considering an example of Polyvinyl chloride. (6)

Q.8. Draw the phase diagram of Water. Calculate degree of freedom (F) at all its different Curves. (6)

Q.9. Derive the Clausius-Clapeyron equation. (6)

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Sr. No. 100360 Roll No.

B.TECH. (CE/ME) - 1ST SEMESTER EXAMINATIONS; DEC.-2017

(SUBJECT: ENGINEERING DRAWING; PAPER CODE – 13010106/13030106)

Time: 03:00 Hrs. **Max Mark: 100**

Instructions:

1. Write your Roll No. on the Question Paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regards, If any, should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter.
3. Each Part is Compulsory. Marks are indicated against each question.
4. Draw the diagram wherever required.

PART-A (OBJECTIVE TYPE QUESTIONS OMR SHEETS)

ATTEMPT ALL QUESTIONS:-

Q. 1. Which of the following line is used for dimension line:- (2)

a) continuous thick b) continuous thin c) chain thin line d) short zigzag thin

Q. 2. The internal angle of regular pentagon is ___ degree:- (2)

a) 72 b) 120 c) 108 d) 150

Q. 3. Which set of lead grades has a grade out of sequence:- (2)

a) H, HB, B, 3B b) 7B, H, F, 3H c) 6B, B, H, 4H d) 9H, HB, B, 2B

Q. 4. Which type of line is part of dimension:- (2)

a) Break line b) Cutting plane line c) Extension line d) Hidden line

Q. 5. What is icosahedron:- (2)

a) solid made up of triangles
b) solid made up of pentagons
c) solid made up of rectangles
d) solid made up of squares

Q. 6. A tetrahedron has four equal ____ faces:- (2)

a) square b) triangle c) rectangle d) none of the above

Q. 7. The front view of a regular square pyramid is:- (2)

a) circle b) rectangle c) triangle d) parallelogram

Q. 8. Which of the following are the possible projections for plane:- (2)

i) Perpendicular to both the planes
ii) Parallel to both the planes
iii) Perpendicular to one plane and parallel to other plane.
iv) Inclined to both the planes

a) i and iii b) i, ii and iii c) i, iii and iv d) All of the above

Q. 9. The solids of revolutions are:- (2)

i) Frustum
ii) Cone
iii) Circle.
iv) Dodecahedron

a) i, ii and iii b) I and ii c) i, iii and iv d) All of the above

Q. 10. Match the following given solids with their total no of faces:- (2)

Type of solid:	Total no of faces:
P. Icosahedron	1. 20
Q. Dodecahedron	2. 10
R. Octahedron	3. 12
	4. 6
	5. 8

a) P-1 Q-3 R-5 b) P-5 Q-4 R-3 c) P-2 Q-3 R-1 d) P-4 Q-5 R-3

Q. 11. Match the different lines with their applications:- (2)

Type of line:	Application
P. Continuous thick line	1. For accurate dimension
Q. Leader line	2. Note carrying line
R. Extension line	3. Hatching
S. section line	4. Outlines

a) P-1, Q-2, R-3, S-4 b) P-3, Q-4, R-2, S-1 c) P-2, Q-3, R-4, S-1 d) P-4, Q-2, R-1, S-3

Q. 12. Which of the following represent reducing scale:- (2)

a) 1:1 b) 1:2 c) 2:1 d) 10:1

Q. 13. The internal angle of regular hexagon is ___ degree:- (2)

a) 72 b) 120 c) 108 d) 150

Q. 14. The following is the method for development of a sphere:- (2)

a) Parallel line method b) Radial line method
c) Triangulation method d) approximate method

Q. 15. The isometric projection of a sphere is a:- (2)

a) circle b) ellipse c) parabola d) hyperbola

Q. 16. Line composed of closely and evenly spaced short dashes in a drawing represents:- (2)

a) visible edge b) hidden edge c) hatching d) pitch circle of gears

Q. 17. If the vertical trace of a line lies 30 mm above reference line, then its position will be:- (2)

a) 30 mm in front of V.P. b) 30 mm behind V.P.
c) 30 mm above H.P. d) 30 mm below H.P.

Q. 18. A solid having four equal equilateral triangular faces is called:- (2)

a) cone b) triangle c) triangular prism d) tetrahedron

Q. 19. A plane is inclined with horizontal plane and perpendicular with vertical plane, front view is:- (2)

a) straight line b) inclined line c) straight rectangle d) inclined rectangle

Q. 20. If an object lies in third quadrant, its position with respect to reference planes will be:- (2)

a) in front of V.P. above H.P. b) behind V.P. above H.P.
c) behind V.P. below H.P. d) in front of V.P. below H.P.

Q. 21. Long break lines are shown by continuous thin with zig-zag:- (2)

a) True b) False

Q. 22. **Wireframe modeling of solids involves the edge of the solid:-**
a) True b) False (2)

Q. 23. **A cone is generated by revolution of rectangle about its altitude:-**
a) True b) False (2)

Q. 24. **Assertion (A): Orthographic projection needs minimum two views for complete description.** (2)

Reason (R): In orthographic projection, projectors are parallel to each other and perpendicular to the plane of projection

a) Both A and R are individually true and R is the correct explanation of A
b) Both A and R are individually true and R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

Q. 25. **Assertion (A): second quadrant is dead quadrant.-** (2)

Reason (R): There is no independent front view and top view.

a) Both A and R are individually true and R is the correct explanation of A
b) Both A and R are individually true and R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

PART-B (DESCRIPTIVE TYPE)

Short Answer Type Questions

Attempted any five questions from given seven questions under short answer type question.

Q.1. Differentiate the followings:-
a) Copy and array command.
b) Prism and pyramid. (3)

Q.2. What do you understand by the perpendicular and oblique projections of plane? (3)

Q.3. Explain Solids of Revolution with example. (6)

Q.4. What are different methods of Development of solids? Explain each method with appropriate example. (6)

Q.5. What is 3D Modeling? Differentiate between wire frame, surface and solid modeling. (6)

Q.6. Differentiate between Orthographic and Oblique projection with example. (6)

Q.7. Explain Isometric projection. (6)

Long Answer Type Questions

Attempted any two questions from given three questions under long answer type questions.

Q.8. Draw the projections of the plane ABCD of 25 mm side is perpendicular to horizontal plane and inclined at 30^0 to vertical plane and the side nearer to vertical plane is 20 mm in front of the vertical plane and 25 mm above the horizontal plane. Also find the trace of the plane. (10)

Q.9. Draw the projections of pentagonal pyramid resting on vertical plane with base having an edge parallel to horizontal plane and length of the edge is 25 mm. (10)

Q.10. What do you understand by the Coordinate System? Explain at least five commands for each Drawing, Editing and Display. (10)

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Sr. No 100376 (RE) Roll No. _____

B.TECH.(CE/ME) – 1st SEMESTER EXAMINATION; DECEMBER.-2017
(SUBJECT- ENGINEERING DRAWING; PAPER CODE- 13010106/1303106)

Time : 03:00 Hours **Maximum Marks – 50**

Instruction :

1. Write your Roll No. on the question paper.
2. Candidate should ensure that they have been provided with correct question paper. Complaints in this regard, if any, should be reported to the invigilator on duty in the examination hall within 15 minutes of the commencement of the exams. No complaints shall be entertained thereafter.
3. Attempt five (05) questions in all Q.No.1. is compulsory. Students are required to attempt four questions selecting one from each unit in addition to Q.No.1. Marks are indicated against each
4. Draw diagram whenever required.

Q1 . Write in brief about **(5x2=10)**

a) First angle projection of point.
b) define reducing scale with example.
c) types and use of different types of pencils.
d) isometric projections.
e) isometric projection.

UNIT- I

Q2 . Explain in detail about drawing equipment and sheet layout. (10)

OR

A straight line AB 50mm long makes an angle of 30deg. to the HP. The end A is 12mm above the HP and 15mm in front of VP. Draw the top view and front view of line AB. **(10)**

UNIT- II

Q3 . A right circular cone, diameter of base 50mm and height 60mm, lies on one of its elements in HP, such that its axis parallel to VP. A section plane parallel to the HP and perpendicular to the VP cuts the cone, meeting the axis at a distance of 15mm from the base. Draw its front view and sectional top view. **(10)**

OR

What do mean by orthographic projections, also differentiate between orthographic and isometric projection with example. **(10)**

UNIT- III

Q4 . A right regular hexagonal prism, side of the base 30mm and height 60mm, rests on its base on HP with one of its base side parallel to VP. A horizontal circular hole of diameter 40mm drilled centrally through it, such that the axis of the hole is perpendicular to it. Develop its lateral surface. **(10)**

OR

Describe various methods of development of surface with suitable example. **(10)**

P.T.O.

UNIT- IV

Q5 . Explain polar and Cartesian co-ordinate system. **(10)**

OR

Explain the following commands:- line, point, rectangle, arc ellipse, erase, move, copy, offset, fillet, zoom, pan, redraw and regenerate. **(10)**

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Sr. No. 100362 Roll No.

B.TECH. (CE /ME) - 1ST SEMESTER EXAMINATIONS; DEC.-2017

(SUBJECT: ELEMENTS OF MECHANICAL ENGINEERING; PAPER CODE – 13010113/13030113)

Time: 03:00 Hrs. **Max Mark: 100**

Instructions:

1. Write your Roll No. on the Question Paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regards, If any, should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter.
3. Each Part is Compulsory. Marks are indicated against each question.
4. Draw the diagram wherever required.

PART-A (OBJECTIVE TYPE QUESTIONS OMR SHEETS)

ATTEMPT ALL QUESTIONS:-

Q. 1. A process, in which the temperature of the working substance remains constant during its expansion or compression, is called:- (2)

a) isothermal process **b)** hyperbolic process **c)** adiabatic process **d)** polytropic process

Q. 2. When two bodies are in thermal equilibrium with a third body, they are also in thermal equilibrium with each other. This statement is called:- (2)

a) 1st law of Thermodynamics **b)** 2nd law of Thermodynamics
c) Zeroth law of Thermodynamics **d)** 3rd law of Thermodynamics

Q. 3. The state of a substance whose evaporation from its liquid state is complete, is known as:- (2)

a) Vapour **b)** Perfect Gas **c)** Air **d)** Steam

Q. 4. According to First law of thermodynamics:- (2)

a) total internal energy of a system during a process remains constant
b) total energy of a system remains constant
c) workdone by a system is equal to the heat transferred by the system
d) internal energy, enthalpy and entropy during a process remains constant

Q. 5. In psychrometric chart, dew point temperature lines are:- (2)

a) horizontal **b)** vertical
c) curved **d)** straight lines slopping downwards to the right

Q. 6. The COP of a domestic air conditioning in comparison to domestic refrigerator will be:- (2)

a) same **b)** less
c) more **d)** depends upon weather conditions

Q. 7. Chemical name of Freon 22 is:- (2)

a) Dichloro difluoro methane **b)** Monochloro difluoro methane
c) Trichloro monofluoro methane **d)** Dichloro monofluoro methane

Q. 8. One micron of vaccum is equal to:- (2)

a) 0.1 MM Hg **b)** 0.01 MM Hg **c)** 0.001 MM Hg **d)** 0.0001 MM Hg

Q. 9. hydraulic turbine converts the potential energy of water into:- (2)

a) Kinetic energy **b)** Heat energy **c)** Thermal energy **d)** Gravitational energy

Q. 10. Francis turbine is _____:- (2)

a) Tangential flow **b)** Radial flow **c)** Axial flow **d)** Mixed flow

Q. 11. Power required to drive a centrifugal pump is directly proportional to _____ of it's impeller:- (2)

a) Diameter
b) square of diameter
c) cube of diameter
d) fourth power of diameter

Q. 12. A Pelton wheel develops 1750 kW under a head of 100 metres while running at 200 r.p.m. and discharging 2500 litres of water per second. The unit power of the wheel is:- (2)

a) 0.25 kW b) 0.75 kW c) 1.75 kW d) 3.75 kW

Q. 13. In order to avoid cavitation in centrifugal pumps:- (2)

a) the suction pressure should be high
b) the delivery pressure should be high
c) the suction pressure should be low
d) the delivery pressure should be low

Q. 14. In a reciprocating pump, air vessels are used to:- (2)

a) smoothen the flow
b) reduce suction head
c) increase delivery head
d) reduce acceleration head

Q. 15. A Pelton wheel develops 1750 kW under a head of 100 metres while running at 200 r.p.m. and discharging 2500 litres of water per second. The unit speed of the wheel is:- (2)

a) 10 b) 20 c) 40 d) 80

Q. 16. Determine power rating of an electric motor if it runs at 1440 r.p.m and line shaft transmits torque of 75 Nm. Assume Reduction ratio = 1.6:- (2)

a) 10.36 kW b) 11.3 kW c) 7.068 kW d) 9.12 kW

Q. 17. In which power transmitting drive polygon effect is observed:- (2)

a) Belt drive b) Chain drive c) Both a. and b d) None of the above

Q. 18. Which of the following is not true for internal combustion engine as compare to external combustion engine:- (2)

a) It has lower ratio of weight to output
b) They are self starting
c) Higher overall efficiency
d) Mechanical simplicity

Q. 19. In four stroke engine there is one power stroke in _____ of crankshaft rotation:- (2)

a) 180° b) 360° c) 540° d) 720°

Q. 20. The compression ratio in a Compression Ignition (CI) engine is generally in between:-

a) 8 to 13 b) 14 to 23 c) 20 to 28 d) 25 to 32

Q. 21. The ability of the material to deform without breaking is called:- (2)

a) Elasticity b) Plasticity c) Creep d) None of these

Q. 22. Units of strain:- (2)

a) N/cm b) N/m^2 c) N/cm^2 d) No Unit

Q. 23. Following are the basic types of stress except:- (2)

a) Tensile stress b) Compressive stress c) Shear stress d) Volumetric stress

Q. 24. Hooke's law is applicable within:- (2)

a) Elastic limit b) Plastic limit c) Fracture point d) Ultimate strength

Q. 25. A rigid body has Poisson's ratio equal to _____:- (2)

a) 0 b) 1 c) less than 1 d) greater than 1

PART-B (DESCRIPTIVE TYPE)

ATTEMPT ANY FIVE QUESTIONS:-

Q.1. Explain the analysis of Free Expansion and throttling process. **(6)**

Q.2. What is Zeroth, 1st, 2nd and 3rd law of thermodynamics? Also explain the limitations of 1st law of thermodynamics. **(6)**

Q.3. What is Psychrometric chart and its applications. Explain the simple vapour compression refrigeration cycle. **(6)**

Q.4. What is the function of Draft tube in Hydraulic Turbines? Explain the Pelton Turbine with its principle, working and principle parts with suitable diagram. **(6)**

Q.5. Explain four stroke Petrol Engine with diagram. **(6)**

Q.6. What is the principle of single plate clutch and also explain single plate clutch. **(6)**

Q.7. Derive the torsion equation. **(6)**

LONG ANSWER TYPE QUESTIONS:-

Q.8. Derive the equation for specific speed of Turbine. **(6)**

Q.9. Derive the relationship between elastic constants. **(6)**

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Sr. No. 100363 Roll No.

B.TECH. (CE /ME) - 1ST SEMESTER EXAMINATIONS; DEC.-2017

(SUBJECT: ELECTRICAL TECHNOLOGY; PAPER CODE – 13010118/13030116)

Time: 03:00 Hrs. **Max Mark: 50**

Instructions:

1. Write your Roll No. on the Question Paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regards, If any, should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter.
3. Each Part is Compulsory. Marks are indicated against each question.
4. Draw the diagram wherever required.

PART-A (OBJECTIVE TYPE QUESTIONS OMR SHEETS)

ATTEMPT ALL QUESTIONS:-

Q. 1. Maximum power transfer from source to load when:- **(1)**

a) $R_L = 0$ **b)** $R_L = Rth$ **c)** $R_L > Rth$ **d)** $R_L < Rth$

Q. 2. An electric fan and a heater are marked 100 W, 220 V and 1000W, 220 V respectively. The resistance of the heater is:- **(1)**

a) zero **b)** > fan **c)** < fan **d)** equal to that of fan

Q. 3. A primary cell has an emf of 1.5V. When short circuited, it gives a current of 3 A. The internal resistance of the cell is:- **(1)**

a) 4.5 Ω **b)** 2Ω **c)** 0.5Ω **d)** 1/4.5Ω

Q. 4. Power factor of the following circuit will be leading:- **(1)**

a) resistive **b)** inductive **c)** capacitive **d)** both A &B

Q. 5. Open circuit test on transformer is conducted to determine:- **(1)**

a) Hysteresis loss **b)** Eddy current loss **c)** copper loss **d)** both A &B

Q. 6. Which of the following is an passive element of a circuit:- **(1)**

a) resistance **b)** inductance **c)** capacitance **d)** All of these

Q. 7. In the circuit the voltage function is $v(t) = 150 \sin\omega t$. The average power in the 25 Ω resistance will be:- **(1)**

a) 300 W **b)** 450 W **c)** 750 W **d)** 700 W

Q. 8. The impedance in an RLC series circuit at resonance is:- **(1)**

a) maximum **b)** minimum **c)** infinity **d)** zero

Q. 9. An ideal current source should have:- **(1)**

a) zero source R **b)** infinity source R **c)** large value of emf **d)** none of these

Q. 10. Transformer is used to change the value of:- **(1)**

a) voltage **b)** frequency **c)** power **d)** power factor

Q. 11. The emf induced in the secondary winding depends upon:- **(1)**

a) number of turns **b)** flux **c)** supply frequency **d)** All of these

Q. 12. A 3-phase, 50 Hz, 8-pole squirrel cage induction motor will run at speed:-

a) less than 750 rpm
b) 750 rpm
c) greater than 750 rpm
d) 1500 rpm

Q. 13. An alternating voltage is given by v = 200 sin314t. Its RMS value will be:- (1

a) 100 V
b) 282.8 V
c) 141.4 V
d) 121.4 V

Q. 14. The meter used for measuring electrical power is called:- (1

a) ammeter
b) wattmeter
c) multimeter
d) voltmeter

Q. 15. The standard voltage generation in India is:- (1

a) 11 kV
b) 6.6 kV
c) 2.2 kV
d) 33 kV

Q. 16. A synchronous motor can run at:- (1

a) leading power factor
b) laging power factor
c) unity power factor
d) All of these

Q. 17. Voltage equation for dc generator is:- (1

a) $V = E_g + I_aR_a$
b) $V = E_g - I_aR_a$
c) $V - I_aR_a$
d) $V = 0.5\ I_aR_a$

Q. 18. if there are b branches and n loops, the number of KVL equations required will be:- (1)

a) b
b) n
c) n-1
d) $b - n + 1$

Q. 19. A capacitor stores energy in the form of:- (1)

a) electrostatic field
b) electromagnetic field
c) magnetic field
d) core

Q. 20. With the increase in temperature, the conductivity of insulator:- (1)

a) decrease
b) increase
c) becomes zero
d) remains constant

Q. 21. Which of the following material used to manufacture the transformer core:- (1)

a) copper
b) aluminium
c) silicon steel
d) lead

Q. 22. The superposition theorem is used when the circuit contains:- (1)

a) One voltage source
b) number of voltage sources
c) passive elements only
d) none of these

Q. 23. Efficiency of a transformer is maximum when:- (1)

a) iron loss < copper loss
b) iron loss > copper loss
c) iron loss = copper loss
d) losses = 0

Q. 24. In a 3-phase delta connected system, the relation between a line current I_L and phase current I_{ph} is:- (1)

a) $I_L = I_{ph}$
b) $I_L = I_{ph}/\sqrt{3}$
c) $I_L = \sqrt{3}I_{ph}$
d) none of the above

Q. 25. A 3-phase system is said to be balanced if all the phases have the same:- (1)

a) magnitude
b) displaced 120^0 from one another
c) frequency
d) All of the above

PART-B (DESCRIPTIVE TYPE)

ATTEMPT ANY FIVE QUESTIONS:-

Q.1. State and explain Theremins theorem with a suitable Example. (5)

Q.2. Drive an expression for emf equation of single phase. (5)

Q.3. A coil having a resistance of 75 Ω and an inductor of 318 mH. The circuit is supplied from 50 Hz source and the voltage across75Ω resistor is found to be 150 V. Calculate the supply voltage and the phase angle. (5)

Q.4. Why 3- phase synchronous motor is not self stating? Explain. (5)

Q.5. Write a short not on energy meter?. (5)

Q.6. Compare 3-phase star and delta connected circuit. (5)

ATTEMPT ANY TWO QUESTIONS:-

Q.7. Draw and explain the circuit diagram and phasor diagram of a single phase practical transformer at No-load condition. (5)

Q.8. How 3-phase power measure by two wattmeter method. Explain with the circuit and phasor diagram for 3-phase star connected balanced load. (5)

Q.9. In the network shown in figure 1, determine: (5)

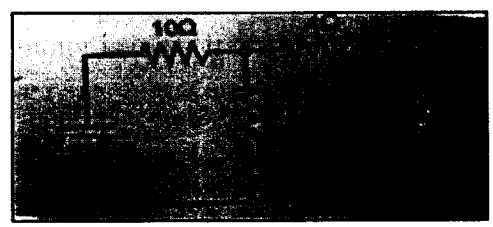

Figure:1

a) The value of R_L to give maximum power transfer.

b) The power delivered to the load.

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