Question Bank

Course	B.E(ME)
Batch	2015
Semester	V
Subject code	UAEE515
subject Name	Electrical Estimation and Wiring

PART-A **Marks: 2**

UNIT-1 Electrical Wiring and I.E Rules

1. List types of Electrical Installation
2. Draw the symbols for the following i) Distribution board ii)) SP Switch
3. Define Earnest money Deposit
4. Define the term Bare Conductor
5. List out four examples of commercial unit
6. State the principle of circuit design in lighting circuit
7. State the purpose of the comparative statement
8. State the two important functions of ELCB.
9. Define Insulated Conductor
10. Define necessity of earthing.
11. Whot is the powe-rating of ceiling fon?
12. Convert 10HP into watts.
13. Whot atethe important points to be considered for selection of wiring?
14. What are the different types of wiring?
15. Write the types of electrical installation.
16. What is meant by schedule of materials?
17. What is meant by meggar?
18. What is meant by colour rendering index?
19. Define lamp circuit efficacy
20. What is the necessity of earthing?

PART-B **UNIT-1(Marks: 6)**

1. State the importance of Electrical Drawing.
2. State four IE Rules related to Residential installation.
3. State various different testing of wring installation.
4. Draw a layout & show the position of lamps, fans etc. calculate the rating of equipments
5. Explain the types of Tree system systems
6. Explain the types of Distributions systems
7. Explain the details about of Selection wiring systems
8. State the sequence followed to prepare estimate for a factory installation
9. Explain different types of cables
10. Compare the different methods of wiring systems used for industrial installation
11. Explain the purpose of estimating and costing.
12. State the necessity of testing of electrical installation before its commissioning.
13. Explain about mounting arrangements & positioning of switch boards & distribution boards, main switch in a commercial installation
14. Explain of Selection of Cable for wiring installations
15. Explain of Selection of sizes of wiring

PART-C 10 Marks

1. Explain the details about of Types of system of wiring
2. What are the different sytems of wiring used for domostic installations ?what are the tests to be performaed underthe indian electricty rules before energising a domestic installation?
3. State the procedure of determination of conductor size in domestic installation.
4. What are the factors to be considered while desiding the Distribution board & main switch for electrical motor in Industrial installation
5. Describe the procedure for laying concealed conduit wiring in a buliding .Describe the methods of draining cables through a conduit.Explain why a conduit is earthed.
6. Explain the types of Wiring system in Domestic applications.

UNIT-2 Elements of Estimating

PART-A Marks: 2

1. What is energy audit?
2. What are the different types of energy audit?
3. What is the benefit of energy audit?
4. Write ony four aspects to be considered in selecting the cables?
5. What are the different tests conducted on cables?
6. What is meant by Luminous Instensity ?
7. Write the steps to follow fhe preparation of electrical estimotion?
8. Define services board.
9. Define the Space height ratio
10. Distinguish between overhead and underground service connection.
11. Define the Reduction factor
12. Define the utillization factor
13. State the Depreciation factor
14. State the purpose of maintenance of electrical installation.
15. State any two factors for selection of layout of commercial installation.
16. Explain the differences between shop and street lighting
17. In commercial installation which earthing is used and why.
18. Define radiant efficiency.
19. State the grounding systems.
20. Define the ungrounding systems.

PART-B UNIT-2(Marks: 6)

1. Explain the necessity of Earthing and Factor Governing Resistance of Earth Electrode .
2. Comparison between Netural and Earth Wiring.
3. Explain in detail the methodology for energy audit
4. Explain the overhead lines
5. Explain the earthing of overhead lines.
6. Comparison between overhead systems and underground systems.
7. Draw a neat labeled sketch of pipe earthing
8. State the sequence followed to prepare estimate for a factory installation
9. Write four important rules followed in motor wiring.
10. Explain the details about Blaviers test
11. Expalin the details about Murray loop test .
12. What are the factors to be considered while desiding the Distribution board & main switch for electrical motor in Industrial installation
13. Explain the about varley about test.
14. Explain the design consideration of electrical installation in commercial building
15. State the general conditions included in tender

PART-C UNIT-2(Marks: 10)

1. Explain the testing of wiring installations
2. State the necessity of testing of electrical installation before its commissioning
3. State the factors governing number of lighting sub circuit's & Power sub circuits in commercial installation
4. Explain the design consideration of electrical installation in commercial building
5. It is desired to illumations a drawing hall with an average illuminations of 200 lux . The hall is 30x20m2.the lamps are to be fitted 4m from ground floor .find the number of lamps and wattage/lamp for the ground floor .find the number lamps availble as 25lum/watt,depreciations factor 0.8 and coefficeint of utilisations 0.75, space height ratio between 0.8 and and 1.2 .Give satisfactory spacing arrangement .
6. Explain variable frequency drives applied to pumps with a neat diagram.

UNIT-3 Estimating and Costing of Domestic and Industrial wiring

PART-A Marks: 2

1. State reasons for providing separate light circuit and power circuit as subcircuits.
2. Give procedure to calculate motor current in any industrial installation.
3. State rules and regulations for industrial wiring.
4. In commercial installation which earthing is used and why.
5. Explain the differences between shop and street lighting.
6. State any two factors for selection of layout of commercial installation.
7. State any two differences between electrification of residential and commercial installation
8. State purpose of following in conduit wiring Elbow.
9. State purpose of following in conduit wiring Bushing
10. State purpose of following in conduit wiring Nipple
11. State purpose of following in conduit wiring Lock out
12. State purpose of following in conduit wiring Conduit box
13. State purpose of following in conduit wiring Inspection box
14. How the length of earth wire is decided in factory unit ?
15. How the fuse rating and starter are decided in factory unit.
16. State reasons for providing separate light circuit and power circuit as subcircuits.
17. Give procedure to calculate motor current in any industrial installation.
18. State the importance of testing of installation
19. State types of testing of wiring installation.
20. State what is a contract.

PART-B UNIT-3(Marks: 6)

1. In a factory of area 30 m * 12 m one welding machine of 10 KVA, 416 volt phase is to be elected. Estimate the cost of cable.
2. A room is to be wired for single phase a.c supply directly taken from mains which has declared voltage of 200 volts.the length of the wire from the main switch to light and plus point is 30 m.If the wire is to carry 5amps,Determine the size of conductor.
3. Prepare a layout, wiring diagram and estimate for a 7 HP, 3 phase, 400V squired cage motor proposed to be installed in a workshop of size 5m * 5m at the center with main board mounted at one corner of workshop.
4. As per IS describe testing of wiring installation for verification of current.
5. Explain the test for ascertaining the circuit continuity
6. Explain the procedure to perform insulation resistance test between conductors.
7. With diagram explain the procedure to measure earth resistance.
8. State the information required about a contractor for awarding work to him.
9. Explain about mounting arrangements and positioning of switch boards and distribution boards main switch in commercial installation.

10 List any eight examples of commercial electrical installation.
11 State rules and regulations for industrial wiring.
12 What is sequence to be followed to prepare estimate in factory unit ?
13 What are the design considerations of electrical installation in small industry ?
14 With the help of single line diagram, explain motor wiring circuit in factory unit installation.
15 With diagram explain the procedure to measure earth resistance

PART-C UNIT-3(Marks: 10)

1 A room of 12x12x4 is to have direct lighting ,giving illuminations of 80lux, on a woking plane70cm above the floor coefficent of utillisations is 0.5 and maintance factor 0.8.if efficiency of lamps availabe is 14.75lumens/watt,find the number of lamps and their rating
2 It is required to provide an illumainations of 100 lum/m2 in a workshop hall 40x10m.Assume depreciations facor as 0.8 and coefficient of utilliations a 0.4 and efficiency of lamps a 1.4 lum/watt.Calculate number of lamps and their postions when seven trusses are provied at a muthual distance of 5m.
3 A reading room 50m X 15m X 6m .Requires an illuminations of 40meter-candle on the reading table .Assuming a space height ratio of 1.2 calculate (a) the number of lamps reduired (ii)C.P of each .Assuming the utilisation factor as 0.4,depreciations factor as 0.75 effiency of each lamp as 0.75watts per candle .power and the height of lamps above the reading table as 4m. Draw a sketch of arrangement of lamps
4 An illumination of 300lux is to provided In a class roon20m X 10m with 40W fluorescent lamps.Determine the number and layout in the lighting installations .Assume data not given layout in the lighting installations .Assume data not given.
5 Explain the types of wiring systems

UNIT-4 Estimating and Costing of Domestic and Industrial wiring

PART-A Marks: 2

1 List types of engineering contracts.
2 Define the term tender.
3 What are the losses occur in squirrel cage motors?
4 Write fhe expression for energy saving in induction motor.
5 What is sequence to be followed to prepare estimate in factory unit ?
6 What is meant by nominal efficiency and graranteed efficiency of induction motor?
7 What is CRI?
8 What is lumen?
9 State the lighting control used in lighting system.
10 What is the use of VFDs?
11 What are the effects of variations in voltage on the performance of the motor?
12 State the meaning of negotiated tender.
13 How the length of earth wire is decided in factory unit ?
14 How the fuse rating and starter are decided in factory unit.
15 State reasons for providing separate light circuit and power circuit as subcircuits
16 Give procedure to calculate motor current in any industrial installation.
17 Explain the differences between shop and street lighting.
18 State the principle of circuit design in lighting circuit.
19 Distinguish between overhead and underground service connection.
20 Define- Installation and Earth.

PART-B UNIT-4(Marks: 6)

1 State the meaning of : i)voucher ii)entering payment iii)advanced payment iv)final payment
2 Explain the meaning of Earnest Money Deposit and Security deposit.

3 State the criteria for selecting contractors.
4 Expain the types of Industrial wiring systems.
5 Prepare a tender notice with details for supply of 3 phase, 200KVA, 11KV/400V transformer to your polytechnic.
6 State the meaning of valid contracts. State the conditions for the comparative statements.
7 Explain the meaning of i) Administrative approval ii) Technical sanctionas iii) Interim payment bill.
8 What is sequence to be followed to prepare estimate in factory unit ?
9 What are the design considerations of electrical installation in small industry ?
10 With the help of single line diagram, explain motor wiring circuit in factory unit installation.
11 Give step by step procedure for design consideration of any commercial complex
12 State the design considerations (any eight) of electrical installation system for commercial building.
13 Calculate the total load, no. of lighting and power sub circuit and draw circuit layout for a function hall having a load of power points 10 nos each of 1000 w plug points 20 nos each of 100 w, light points 30 nos each of 40 w fan points 30 nos each of 60 w supplied from a 3 phase 400 V 4 wire 50 Hz supply.
14 A lecture hall of 6 m * 12 m is to be provided with light and fan wiring. Power point is also to be provided. Prepare a branch circuit schedule.
15 Draw neat labeled sketch of plate earthing.

PART-C UNIT-4(Marks: 10)

1 A lecturer hall of 6 m * 12 m is to be provided with light and fan wiring. Power point is also to be provided. Prepare a branch circuit schedule.
2 Prepare a layout, wiring diagram and estimate for a 7 HP, 3 phase, 400V squired cage motor proposed to be installed in a workshop of size 5m X 5m at the center with main board mounted at one corner of workshop.
3 One 10 HP,440 V, 3 phase I.M and one 5 HP, 440V, 3 phase I.M are to be installed in a small workshop of 7.5 m X25 m. The motors are 10 m apart from each other. Prepare the estimate of materials and find out the cost of the installation work. Make necessary assumptions about material and labour costs.
4 In a factory of area 30 m * 12 m one welding machine of 10 KVA, 416 volt phase is to be elected. Estimate the cost of cable.
5 Explain about the Halogen lamp and draw the figure.
6 What types of lamps are used for street lighting and how are street lighting controlled?

UNIT-5 Estimating and costing of reparis and maintance of Electrical devices and Equipment

PART-A Marks: 2

1 Why is an auto-transformer not used as a distribution transformer?
2 What are the conditions for parallel operation of transformer?
3 What are the no load losses in a two winding transformer? And state the reasons for such losses.
4 What are the no load losses in a two winding transformer? And state the reasons for such losses.
5 Why is transformer rated in kVA?
6 Compare two winding transformer and auto-transformer.
7 What is the advantage of a four point starter over a three point starter used for dc motors?
8 What is transformation ratio?
9 What are the various types of three phase transformer connections?
10 Why is starter necessary for a DC motor?
11 Mention the Starters used to start a DC motor.

12 What are the protective devices in a DC/AC motor Starter.
13 What is the function of a starter in dc motor?
14 Give the prime purpose of a starter for motors
15 What is the objective of rotor resistance starter (stator rotor starter)?
16 What type of starter is used for slip ring induction motor?
17 Give some advantages and disadvantages of D.O.L starter.
18 Give the relation between line voltage and phase voltage in a (i) Delta connected network (ii) Star connected network
19 What are the advantages and disadvantages of star delta starter?
20 Write the difference between three point and four point starter.

PART-B UNIT-5(Marks: 6)

1 Explain in deteil looping back, joint box and tree systems of wiring with diagrams.
2 Explain the factor aftecting the pump performonce.
3 Explain the various means of energy savings in lighting system.
4 Explain the installation procedure of cable.
5 Explain the losses thot occur in a transformer and explain the ways to reduce them.
6 Explain the assessment of economic feasibility.
7 State the requirements to conduct energy audit.
8 Explain the benefits of energy audit.
9 Explain ELCB system.
10 what are the various points to be remembered while earthing?
11 It is proposed to install 5HP, 3 phase, 400V induction motor for irrigation purposes. Estimate the moterials required.
12 Discuss the various losses occur in transformer.
13 Discuss the testing of AC Starters
14 Discuss the testing of DC Starters
15 Discuss the testing of Mixer grinder

PART-C UNIT-5(Marks: 10)

1 Explain detail about the D.O.L startors
2 Explain the details about Electric fans and applictions
3 Explain variable frequency drives applied to pumps with a neat diagram.
4 Explain the characteristics of different types of lamps.
5 Explain the various parameters to be specified and their significance while ordering for a cable.
6 Explain detail about the automatic electic iron.