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Residencial electrical wiring
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Review questions chapter 4

1-The largest size solid conductor permitted to be installed in a raceway is 10 AWG.

2- The minimum branch-circuit wire size that you can installed in a dwelling is 14 AWG.

3-The excepcion for the minimum size of conductor used in this residence as 140 AWG are bell wiring, intercom wiring, luminaris wire and other low energy circuit which use conductors size of 16 AWG, 18 AWG and 20 AWG depending upon the length and the connected load in the circuit.

4-The table in the National Electrical Code 310.15 b determine the ampacity of the wire permitted.

5-The unit used to measurement of the wires is mil, 0.001 in.

6-The unit used for the measurement of cross-sectional area of wires is circular mil.

7-the voltage rating of the conductors in type NMC cable is 600v.

8-This is the allowable capacity of types THHN.

14 AWG-25 amps

12 AWG- 30 apms

10 AWG-40 apms

8 AWG- 55 amps

6 AWG- 75 apms

4 AWG- 95 apms

9-The maximum operating temperature of the following conductors are.

14 AWG-90 celsius

12 AWG-75 celsius

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10 AWG-90 celsius

8 AWG-60 celsius

10-The colors of the conductors in non metallic-sheathed cable for 2 wire cable are black and white and for 3 wire cables are black, white and red.

11-The equipment grounding conductor is not permitted to be used as current carrying conductor.

12- This are the size equipments that are used in the following sizes of non metallic sheathed cable.

14 AWG is 14 AWG

12 AWG is 12 AWG

10 AWG is 10 AWG

8 AWG is 10 AWG

13-The non metallic sheathed cable may be finished in the hollow voids of masonry wall only when masonry wall are not expected to exposed to excess moisture or dampness.

14-

(A)the maximum distance between the stramps on a cable installation is not over than

$4\frac{1}{2}$ feet $(1.4$ meter$)$

.

(B)The maximum distance permitted between a box and the first strap in a cable installation should not exceed 12 in.

(C)NEC does not permit 2 wire romex stamped on edge so as to avoid damage to the cable.

(D)The securing requirement for every $4\frac{1}{2}\,\text{ft}\,(1.4\text{ m})$ for not metallic sheathed cable is

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not required when the cable runs through studs horizontally.

15-The difference between type AC and type ACT armored bales is that type AC armoured bales has thermo set instalation with insulation conductor covered and filament retardant and moisture- resistens and type ACT armored cable has thermo platic insulation.

16- The type ACT cables are bet to a radius of not less than five times the diameter of the cable.

17-The type of protection provided for the type AC cable ends are discussed.

18-When installing a cable in a notched stud or joist or when a cable is run through bored holes in a stud or juist whete the distance is less than 1-¼ in. from any edge, than the cable has to be run in the notch and steel plate of at least 1/16 in. thickness must be used protect the cable as per in NEC 300.4 (A)

19-For installing directly a concrete slab conduit may used the armoured cable and non metallic sheathed cable are not listed for installing directly in the concrete slab.

20-

(A) type SE service-entrance cable is for above ground use.

(B) type USE service-entrance cable is suitable for directly burial in the ground.

21-When running NMC through a bored hole in stud, the nearest edge of the bored hole shall not be less than $1\frac{1}{4}\text{ in}\,(32\text{ mm})$ from the face of the stud unless the cable is protected by a 1/16 in. metal steel plate.

22- In the residence the main service entrance panel should be located at a pint after the electrical meter which is readily accessible and nearest to the service point.

23-

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(A) For residential wiring authorization is percent for non metallic sheeted cable.

(B) From state electric board, obtain the source of information.

24-The code does not permit to used metal conductor of length greater than $6\text{ ft}\,(1.8\text{ m})$

when it more than $6\text{ ft}\,(1.8\text{ m})$ length a separate grounding conductor should be used as grounding means.

25-Liquid tight flexible metal conduit may serve as a grounding means in size up to and including 1-¼ in. where used with listed fitting.

TABLE 3-2

Ampere rating for receptacles connected to 15- and 20-ampere branch circuits. See *210.21(B)* and *Table 210.21(B)(3)*.

BRANCH-CIRCUIT RATING	RECEPTACLE RATING
15-ampere lighting branch circuit: Circuit has one or more receptacles or outlets.	15-ampere maximum
20-ampere small-appliance branch circuit: Circuit has two or more receptacles.	15 or 20 amperes
Individual 15-ampere branch circuit: Circuit has only a single receptacle connected.	15 amperes
Individual 20-ampere branch circuit: Circuit has only a single receptacle connected.	20 amperes

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26-

27-It is not permissible for an electrical to connect aluminum, copper, or copper clad aluminum conductors together in the same connector.

28-Terminals of switches and receptacles marked CO/ALR are suitable for use with aluminum, copper and copper clad aluminum.

29- The wire connectors marked AL/CU are suitable for the use with aluminum, copper and copper clad aluminum.

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30-If the connector is not marked AL, CU or ALR thy are to be used only with copper conductors.

32- When non metallic sheathed cable are bundled together for distance of mor than 24 in. without maintaining spacing, their ampacity must be reduced as per in the national electrical code 310.15.

33- diagram A meets the code as it has cable passing through the perpendicular to the long dimension.

34- The letter B that is indicated on non metallic sheathed cable indicates the temperature that is 90 celsius.

35-

$$E_d = \frac{K \times I \times L \times 2}{CMA}$$

(A)The voltage drop in the circuit is 8.788 voltage drop.

(B)The voltage drop is 5.531 v.

(C)The volage drop is 3.47 v.

(D)The drop voltage is 2.187 V.

$$E_d = \frac{(2)(K)(I)(L)}{CMA}$$

36-

$$E_d = \frac{(12)(10)(140)(2)}{4110}$$
$$= \frac{33600}{4110}$$
$$= 8.175 \text{ V} \qquad (\text{which is greater than 3\% of 120 V as per } NEC\ 210.19(A))$$

37-The neutral conductor of recistence service can be smaller than phase conductors only if the neutral conduction in sized to carry the maximum unbalance load caluclated acorrding to

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NEC 215.2..

38-The allowable ampecity of a 4 AWG THHN from table 310.15 is 95 apms.

39-The steel plate of at least1/16 in. to protect the cable from nail or screws as per 300.4 (A).

40-As metal conductor of trade size ⅜ is used, the length is not to exceed 6 feet.

41-A flexible liquidtight metal conduit will be used to connect the air conditioner uint and if the trade size is ¾ a separate equipment grounding conductor need not to be installed in this FLMC to the ground the air conditioner properly.

42-The size of overcurrent device for air air conditioning unit is 30 amps.

43-A close receptacle no receptacles for gas fired range or counter mounted on cook top.

44- $\left(30 \times \frac{80}{100} = 24 \text{ Amperes}\right)$ for continues loads.

45-In non metallic sheathed cables that run through metal metal framing members, bushings are used for cable protection against abrasion.

46-Set screw type connectors are not permitted with armoured cable that has aluminum conductor but listed connectors are suitable for grounding purpose can be used for armoured cable having aluminum conductors.

47-designation for the armored armored cable with 90 celsius conductors is ACTHH.

48-SER type and SEU type Is how you disting two types of SE cables.

49-

(A)the location of the raceway installed underground is wet.

(B)The location of the raceway installed in a concret slab that is in direct contect eath the earth is wet,

(C)he location of the raceway installed in a concret slab between the first and second floor is dry.

(D)the location of the raceway installed on the outside of a buildnig exposed to the weather is

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wet.

(E)The location of the interior of the interior of a raceway installed on the outside of a building exposed to the weather is wet.

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