Jules' Workshop

Standard

Unit 5 – Answers

Q1. Explain Fleming's left- and right-hand rules.

Fleming's right-hand rule (for generators) shows the direction of induced current when a conductor attached to a circuit moves in a magnetic field. (Right to generate)

Fleming's left-hand rule (for electric motors) is a simple way of indicating the direction of motion of a conductor in a magnetic field. (Left to motor)

Q2. If the peak voltage of a sine wave is 12 V, what is the RMS and average values?

A. 8.48 A and 7.6 A
B. 7.6 V and 8.48 V
C. 7.6 A and 8.48A
D. 8.48 V and 7.6 V

Q3. What is the instantaneous voltage at 33^0 of a sine wave with a peak-to-peak of 100 V?

A. 54.46 V
B. 27.23 V
C. 3.3 V
D. 33.3 V

Q4. A sine wave has an RMS value of 17.65 V. What is the peak, P to P and average value?

A. 50 V, 100 V and 31.8 V
B. 25 V, 50 V and 15.9 V
C. 50 V, 25 V and 6.37 V
D. Cannot be calculated.

Q 5. What is the period and wavelength of a signal at 144 MHz?

A. 6.9 nS & 2metres
B. 69 nS & 2metres
C. 0.69 nS & 2metres
D. 0.069 nS & 2metres

Q6 A signal has a period of 2 mS, what is the frequency and wavelength?

A. 500 Hz & 600 kM
B. 50 Hz & 600,000 M
C. 5000 Hz & 600 kM
D. 500 Hz & 60 kM

Q7 what is the third harmonic of 1 kHz?

A. 3 kHz
B. 4 kHz
C. 8 kHz
D. 1 kHz

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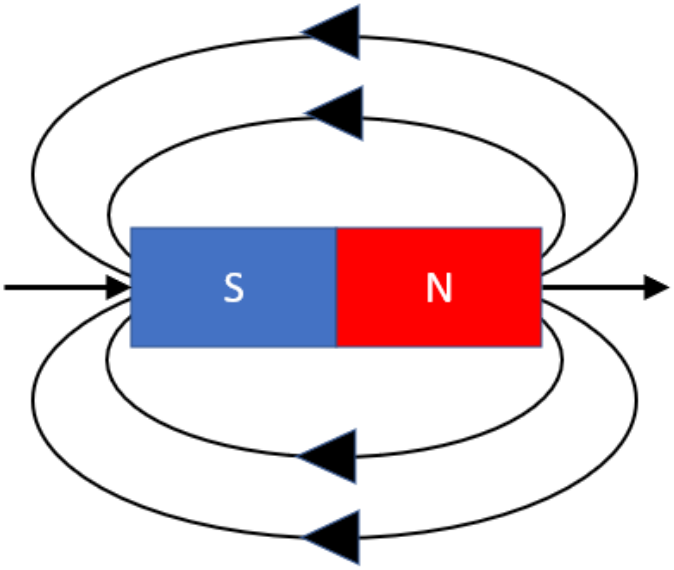
Q8 If one wave is 90 degrees out of phase with another wave, what does this mean?

One wave leads the other by 90 degrees.

Q9 What is the classification of the following signals.

Frequency	Classification
350 MHz	**Ultra High Frequency (UHF)**
33 MHz	**Very High Frequency (VHF)**
33 kHz	**Low Frequency (LF)**

Q10 Draw in the lines of force and direction on the magnet below.



Q 11 Complete the following table.

Peak	Peak to Peak	RMS	Average	Instantaneous at 25 degrees	Wavelength	Frequency	4th Harmonic
60 v	**120v**	**42.42v**	**38.22v**	**25.32v**	9.5m	**31.57MHz**	**126.28MHz**
90v	180v	**63.63v**	**57.33v**	**38.03v**	**12m**	25MHz	100MHz
70.72 v	**141.44V**	50v	**45v**	**29.88v**	**2.08m**	144MHz	**576MHz**
300v	600v	**212.1v**	**191.1v**	**126.78v**	10m	30MHz	120MHz
5v	**10v**	**3.53v**	**3.18v**	**2.11v**	20m	**15MHz**	**60MHz**
106.5 v	**213v**	75v	**67.84v**	**45v**	**2083m**	144kHz	**576kHz**
5v	10v	**3.53v**	**3.18v**	**2.11v**	5m	**60MHz**	**240MHz**
95v	**190v**	**67.16v**	**60.51v**	**40.14v**	**85.7m**	3.5MHz	**14MHz**
141.4 v	**282.8v**	100v	**90.07v**	**59.75v**	100m	**3MHz**	**12MHz**

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Q12 Explain conventional current flow and electron flow in your own words.

Before electricity was really understood, the belief was that the electrons flowed from the positive + terminal to the negative - terminal. This was termed the Conventional Current Flow. When electronics became more sophisticated, the discovery was made that electrons flowed from the negative terminal to the positive terminal.

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