Uva Wellassa University, Sri Lanka

End of the Semester Examination- Second Semester 2007

SCT 102-3 Basic Mathematics and Engineering Technology

Answer for all questions (16 questions)
Time: 30 minutes

Index No._____

1. What is the commercial unit of electricity?
   A. kW **B.** KWh **C.** kWh **D.** kWm

2. Following equation states motion of an object. Where D is the displacement in meters and t is the time in seconds. What is the unit of f? $D = ut + \frac{1}{2}ft^2$
   A. ms^{-1} **B.** ms^{-2} **C.** $m^{-1}s^{-1}$ **D.** sm^{-2}

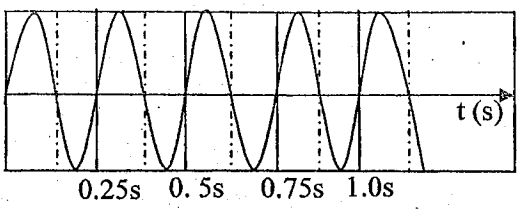
3. Density of water is $1000kgm^{-3}$. The mass of the water of $50cm^3$ is
   A. 50g **B.** 500g **C.** 5g **D.** 50kg

4. Linear momentum is given by **m*v**, where **m** is the mass of the object and **v** is the velocity. What is the SI unit of the linear momentum?
   A. $kgms^{-2}$ **B.** $kgms^{-1}$ **C.** $kgm^{-1}s$ **D.** $kgm^{-2}s$

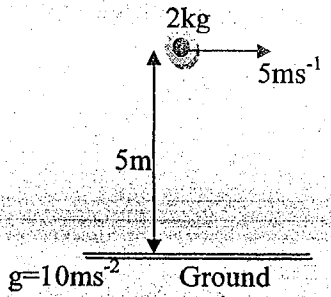
5. Suppose there is a vehicle travelling speed of **$50kmh^{-1}$**. The distance travel in 20minutes is
   A. 100,000/6 m **B.** 100/6 m **C.** 10,000/6 m **D.** 100 m

6. The frequency range of the ultrasonic sound is
   A. 5Hz – 20Hz
   B. 20Hz- 20000Hz
   C. More than 20kHz
   D. Below 1kHz

7. Following diagram shows motion of a particle in time space. What are the periodic time and the frequency of that particle?
   A. 0.25s, 4Hz
   B. 0.25s, 8Hz
   C. 0.5s, 4Hz
   D. 025s,0.25Hz



8. As shown in following diagram an object with 2kg mass travels velocity of $5ms^{-1}$ and 5m away from the ground. Total energy is
   A. 105J
   B. 120J
   C. 100J
   D. 125J



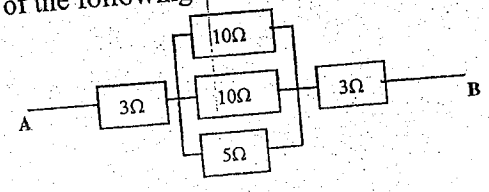
9. In electromagnetic spectrum, the visible range of human eye is
   A. 200nm-900nm **B.** 100nm-400nm **C.**400nm-700nm **D.**50nm- 900nm

10. Ultraviolet, infrared and yellow rays are three rays of the electromagnetic spectrum. The frequency order of those rays is

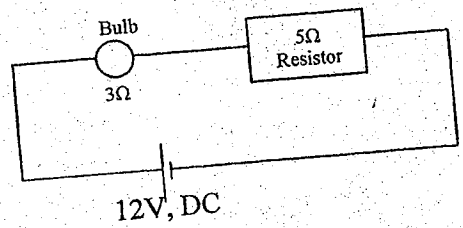
   A. Ultraviolet > yellow > infrared
   B. Infrared > yellow > ultraviolet
   C. Ultraviolet > infrared > yellow
   D. Yellow > infrared > ultraviolet

11. What is the incorrect statement regarding to the electromagnetic (EM) waves
   A. EM waves travel $3x108ms^{-1}$ in air
   B. EM waves cannot travels in a vacuum
   C. EM waves are transverse waves
   D. EM waves can be reflected

12. Resultant resistance between A and B, of the following circuit is
   A. 8.5Ω
   B. 26.5Ω
   C. 5.5Ω
   D. 31Ω

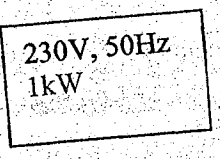


13. Calculate the flowing current and the voltage drop due to the 5Ω resister which is shown in following diagram.
   A. 9/2 V, 1.5 A
   B. 15/2 V, 1.5 A
   C. 15/2 V, 9/2 A
   D. 1.5 V, 9/2 A



14. Find the output power and the energy losing type due to the 5Ω resister in above circuit.
   A. 45/4 W, light **B.** 4/45 W, heat **C.** 45/4 W, heat **D.** 4/45 W, light

15. The specification of a heater is given by the following cage. How much energy will produce this heater within 5minutes?
   A. 12,000J
   B. 25,000J
   C. 20,000J
   D. 30,000J



16. What are the colors use in house wiring (phase and neutral wires) according to the new standards?
   A. Red and Black **B.** Brown and Blue **C.** Red and Yellow **D.** Black and Gray

(100%)