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06CS/IS832

Eighth Semester B.E. Degree Examination, December 2011
Web 2.0 and Rich Internet Applications

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. What is web 2.0? Explain the concepts involved in web 2.0. **(06 Marks)**

b. Explain any two web services. **(06 Marks)**

c. What is JSON? How it is differ with XML. Explain syntax and literals of JSON. **(08 Marks)**

2 a. Distinguish between traditional web application model and Ajax web application model. **(06 Marks)**

b. What is hidden frame technique? Explain hidden frame technique with an GET method. Also list advantages and disadvantages of the same. **(08 Marks)**

c. Explain the principles of Ajax. List the technologies behind Ajax. **(06 Marks)**

3 a. Explain XHR object with both GET and POST method. Also list the advantages and disadvantages of the same. **(10 Marks)**

b. Briefly explain the Ajax design patterns. **(10 Marks)**

4 a. List and explain the different categories of flex class library. **(08 Marks)**

b. Compare and contrast traditional and flex web applications. **(06 Marks)**

c. Explain application document and component document of MXML. **(06 Marks)**

PART – B

5 a. Explain four basic options used during embedding action script within flex. **(08 Marks)**

b. Explain the following terms related to action scripts i) Methods ; ii) Interfaces. **(06 Marks)**

c. Explain the runtime error handling capability of action script. **(06 Marks)**

6 a. Explain flex application life cycle. **(06 Marks)**

b. List and explain the flex layout rules. **(06 Marks)**

c. Explain the class diagram of container components with the help of a neat diagram. **(08 Marks)**

7 a. Explain the different categories of UI components. Also list the properties of common UI components. **(08 Marks)**

b. Explain the list – based controls and tree control of flex. **(06 Marks)**

c. Explain the data binding features of flex framework. **(06 Marks)**

8 Write short notes on :

a. Mashup techniques.

b. Building RSS reader with Ajax.

c. Web services in flex.

d. Fluid interface. **(20 Marks)**

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PART – B

5 a. Derive the Zorenz force equation and mention the application of the solution. **(06 Marks)**

b. The point charge Q = 18 nc has a velocity of 5×10^6 m/sec in the direction $a_v = 0.6\vec{a}_x + 0.75\vec{a}_y + 0.3\vec{a}_z$. Calculate the magnitude of the force exerted on the charge by the field

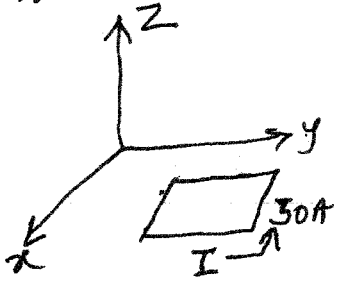
i) $\vec{E} = -3\vec{a}_x + 4\vec{a}_y + 6\vec{a}_z$ KV/m

ii) $-3\vec{a}_x + 4\vec{a}_y + 6\vec{a}_z$ mT

iii) $\vec{B}$ and $\vec{E}$ acting together. **(08 Marks)**

c. The magnetic flux density in a region of free space is given as $B = -3xa_x + 5ya_y - 2za_z$ Tesla. Find the total force on the rectangular loop shown in Fig.Q.5(c) below ; if it lies z = 0 and is bounded by x = 1, x = 3 and y = 2, y = 5

Fig.Q.5(c)



All dimensions are in cms.

(06 Marks)

6 a. Derive the continuity equation from Maxwell's equations. **(06 Marks)**

b. For time varying fields, show that $E = -\nabla V - \frac{\partial A}{\partial t}$, where A is a vector magnetic potential. **(06 Marks)**

c. The electric field intensity in the region $0 < x < 5$, $0 < y < \pi/2$, $0 < z < 0.06$ m in free space is given by $E = C \sin 12y \sin az \cos 2 \times 10^{10} t\, a_x$ v/m. Beginning with $\nabla \times E$ relationship, use Maxwell's equations and find a numerical value for 'a', if it is known that 'a' is greater than 0. **(08 Marks)**

7 a. State and prove Poynting theorem. **(05 Marks)**

b. Determine the relationship between E and H of an EM wave, travelling in free space, along the x – direction. **(10 Marks)**

c. A certain lossless medium has $\mu_r = 4$ $\epsilon_r = 9$.A 10 MHz uniform plane wave is propagating in the a_y direction with $E_{xo} = 400$ V/m and $E_{yo} = E_{zo} = 0$ at P(0.6, 0.6, 0.6) at t = 60 ns. Find

i) β, λ, v_p and n

ii) E(t)

iii) H(t). **(05 Marks)**

8 a. Discuss the reflection of uniform plane waves at normal incidence. Hence derive the expression for the transmission and reflection coefficient. **(10 Marks)**

b. A uniform plane wave in air is normally incident on to a lossless dielectric plate of thickness $\frac{\lambda}{8}$ and of intrinsic impedance n = 260 Ω. Determine the standing wave ratio in front of the plate. Also find the fraction of the incident power that is transmitted to the other side of the plate. **(06 Marks)**

c. Write short notes on Standing Wave Ratio. **(04 Marks)**

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