Pathology Interview Questions And Answers Guide.

Pathology Job Interview Preparation Guide.

Question # 1

What is a "gene expression signature" for a tumor?

Answer:-

A collection of genes that are expressed consistently higher or lower in the tumor than is the population norm for non-tumorous tissue of the same type.

Read More Answers.

Question # 2

What are the benefits of high-throughput expression analysis in molecular biological investigations?

Answer:-

These techniques allow simultaneous analysis of the expression of many genes. Patterns of increased or decreased expression is associated with disease may then be identified and may contribute to improved diagnosis and prognosis.

Read More Answers.

Question # 3

To what 2 aspects of a usability assessment should the word "representative" apply?

Answer:-

(1) Representative tasks
(2) Representative users

Read More Answers.

Question # 4

Dr Jones is a pathologist who has recently developed a virtual microscope program for teenagers to use while they are hospitalized. He thinks that teens might use this program to learn more about their illness and the role that pathology plays in the hospital. He has heard that usability is important, so he asks a few of his colleagues to try the program out in their free time and to e-mail their comments to him. Describe 3 specific things that Dr Jones should have done differently in order; to more appropriately assess the usability of his program.

Answer:-

(1) Have teens test the program, not physicians;
(2) select specific representative tasks for the assessment (not just "try the program out"); and
(3) observe the participants using the program and have them think aloud during the session rather than e-mail comments.

Read More Answers.

Question # 5

There are about 40 000 human genes and ESTs (expressed sequence tags) available on the Affymetrix Gene Chips for gene expression. Make some reasonable assumptions and estimate, for a normal organ, the number of genes that will appear to be expressed significantly greater than or less than the population norm (95% confidence interval).

Answer:-

If we assume that each gene is independent and occurs in a normally distributed population, then one might expect approximately 5% of 40 000 or 2000 genes to appear over expressed or under expressed.

Read More Answers.

Question # 6

In ionizing radiation, cells in G1 phase of the cell cycle are most sensitive?

Answer:-

False

Read More Answers.

Question # 7

In ionizing radiation, mitosis does not occur in irradiated cells?

Answer:-

False

Question # 8

In ionizing radiation, cells experiencing hypoxia are vulnerable to radiation damage?

Answer:-

False

Question # 9

In ionizing radiation granulation tissue, formation is delayed in wounds, which have been radiated?

Answer:-

True

Question # 10

In ionizing radiation, undifferentiated tumors are usually more sensitive to radiation than differentiated tumors.

Answer:-

True

Question # 11

Early suture removal does not affect the granulomatous response.

Answer:-

False

Question # 12

Monocytes clean the debris left by phagocytes.

Answer:-

True

Question # 13

The epidermal and dermal epithelia grow downwards along the suture track.

Answer:-

True

Question # 14

Fibroblasts have a contractile function, which helps to produce a small scar.

Answer:-

True

Question # 15

The wound site becomes vascular as time passes.

Answer:-

False

Question # 16

Gangrene refers to tissue necrosis with or without infection.

Answer:-

False

Question # 17

Acute inflammation usually occurs around necrotic tissues.

Answer:-

True

Read More Answers.

Question # 18

Apoptosis does not usually cause inflammation.

Answer:-

True

Read More Answers.

Question # 19

Autolytic changes in the nucleus are pathognomonic of necrosis.

Answer:-

True

Read More Answers.

Question # 20

The blood vessels surrounding an acutely inflamed site usually show progressive vasodilatation from the time of injury.

Answer:-

False

Read More Answers.

Question # 21

With regard to cell growth, ionizing radiation can cause atrophy.

Answer:-

True

Read More Answers.

Question # 22

With regard to cell growth, hypocalcaemia can lead to enlargement of the parathyroid gland.

Answer:-

True

Read More Answers.

Question # 23

With regard to cell growth, the main stimulus for hypertrophy is hormonal

Answer:-

False

Read More Answers.

Question # 24

With regard to cell growth, in metaplasia, there is a change of a type of differentiated cell to a type of undifferentiated cell

Answer:-

False

Read More Answers.

Question # 25

With regard to cell growth, achondroplasia does not affect membranous bone

Answer:-

True

Read More Answers.

Question # 26

During wound healing, the inflammation is greater for catgut than nylon

Answer:-

True

Read More Answers.

Question # 27

During wound healing, with absorbable suture, the wound strength decreases from the time of suturing.

Answer:-

True

Read More Answers.

Question # 28

During wound healing, in scurvy the wound is weak due to increased activity of collagenase.

Answer:-

False

Read More Answers.

Question # 29

During wound healing, in infected wound collagen lysis is increase.

Answer:-

True

Read More Answers.

Question # 30

During wound healing, during collagen synthesis, lysine and proline are directly incorporated into the collagen molecules.

Answer:-

False

Read More Answers.

Question # 31

Atherosclerosis occurs in the retinal artery.

Answer:-

False

Read More Answers.

Question # 32

In atherosclerosis, foamy macrophages are seen in type I plaque.

Answer:-

False

Read More Answers.

Question # 33

In atherosclerosis, thinning of the intima is a feature.

Answer:-

False

Read More Answers.

Question # 34

In atherosclerosis, proliferation of smooth muscle cells in the intima is typical.

Answer:-

True

Read More Answers.

Question # 35

In atherosclerosis, raised HDL is associated with atherosclerosis.

Answer:-

False

Read More Answers.

Question # 36

Protein C deficiency may cause central retinal vein occlusion in a young patient.

Answer:-

True

Read More Answers.

Question # 37

Excess protein S may cause central retinal vein occlusion in a young patient.

Answer:-

False

Read More Answers.

Question # 38

Antithrombin III deficiency may cause central retinal vein occlusion in a young patient.

Answer:-

True

Read More Answers.

Question # 39

Atrial fibrillation may cause central retinal vein occlusion in a young patient.

Answer:-

False

Read More Answers.

Question # 40

Factor V Leiden mutation may cause central retinal vein occlusion in a young patient.

Answer:-

True

Read More Answers.

Question # 41

In cerebral infarction, the area of infarct tends to be wedge-shaped.

Answer:-

True

Read More Answers.

Question # 42

Cerebral infarction can result from thrombosis of the external carotid artery disease.

Answer:-

False

Read More Answers.

Question # 43

In cerebral infarction, coagulative necrosis occurs in the brain tissue.

Answer:-

False

Read More Answers.

Question # 44

In cerebral infarction, cortical blindness can result from infarction of the anterior cerebral artery.

Answer:-

False

Read More Answers.

Question # 45

In cerebral infarction, the necrotic tissue is eventually replaced by Schwann cells.

Answer:-

False

Read More Answers.

Question # 46

Phthsical eye can give rise to metastatic calcification.

Answer:-

False

Read More Answers.

Question # 47

Sarcoidosis can give rise to metastatic calcification.

Answer:-

True

Read More Answers.

Question # 48

Renal failure can give rise to metastatic calcification.

Answer:-

True

Read More Answers.

Question # 49

Pulmonary tuberculosis can give rise to metastatic calcification.

Answer:-

False

Read More Answers.

Question # 50

Multiple myeloma can give rise to metastatic calcification.

Answer:-

True

Read More Answers.

Question # 51

In the presence of inflammation, platelets are raised.

Answer:-

True

Read More Answers.

Question # 52

In the presence of inflammation, ferritins are raised.

Answer:-

True

Read More Answers.

Question # 53

In the presence of inflammation, caeruloplasmin are raised.

Answer:-

True

Read More Answers.

Question # 54

In the presence of inflammation, fibrinogens are raised.

Answer:-

True

Read More Answers.

Question # 55

In the presence of inflammation, complement proteins are raised.

Answer:-

True

Read More Answers.

Question # 56

Hyperplasia results in increased cell size.

Answer:-

True

Read More Answers.

Question # 57

Hyperplasia results in increased cell numbers.

Answer:-

True

Question # 58

Hyperplasia occurs in corneal endothelium.

Answer:-

False

Question # 59

Hyperplasia occurs in retinal pigment epithelium.

Answer:-

True

Question # 60

Hyperplasia occurs in myocardium.

Answer:-

False

Question # 61

Amyloid occurs in chronic inflammatory disorders.

Answer:-

True

Question # 62

Amyloid occurs in medullary carcinoma of the thyroid.

Answer:-

True

Question # 63

Amyloid is a basophilic substance, which can be stained with Congo red.

Answer:-

False

Question # 64

Amyloid weakens the walls of blood vessels.

Answer:-

True

Question # 65

Amyloid causes renal failure.

Answer:-

True

Question # 66

Hamartoma is usually present at birth.

Answer:-

True

Question # 67

Hamartoma contains cells from all three germ layers.

Answer:-

False

Read More Answers.

Question # 68

Hamartoma does not predispose to malignancy.

Answer:-

True

Read More Answers.

Question # 69

Hamartoma contains metaplastic cell types.

Answer:-

False

Read More Answers.

Question # 70

Aadenoma sebaceum seen in tuberous sclerosis is a type of hamartoma.

Answer:-

True

Read More Answers.

Question # 71

Solar keratosis predisposes the squamous cell carcinoma.

Answer:-

True

Read More Answers.

Question # 72

Bowens disease predisposes the squamous cell carcinoma.

Answer:-

True

Read More Answers.

Question # 73

Chronic eczema predisposes the squamous cell carcinoma.

Answer:-

False

Read More Answers.

Question # 74

Chronic ulceration predisposes the squamous cell carcinoma.

Answer:-

True

Read More Answers.

Question # 75

Keratoacanthoma predispose the squamous cell carcinoma.

Answer:-

False

Read More Answers.

Question # 76

In sickle cell disease, the disorder is a single gene disorder.

Answer:-

True

Read More Answers.

Question # 77

In sickle cell disease, carrier has normal blood test.

Answer:-

False

Read More Answers.

Question # 78

In sickle cell disease, the abnormality involves the alpha chain of the globin molecule.

Answer:-

False

Read More Answers.

Question # 79

In sickle cell disease, there is absence of HbA.

Answer:-

True

Read More Answers.

Question # 80

In sickle cell disease, sickle cell crisis does not affect carrier of the disease.

Answer:-

False

Read More Answers.

Question # 81

Bowens disease causes increased risk of skin malignancy.

Answer:-

True

Read More Answers.

Question # 82

Solar keratosis causes increased risk of skin malignancy.

Answer:-

True

Read More Answers.

Question # 83

Aacanthosis nigricans causes increased risk of skin malignancy.

Answer:-

False

Read More Answers.

Question # 84

Squamous papilloma causes increased risk of skin malignancy.

Answer:-

False

Read More Answers.

Question # 85

Keratoacanthoma causes increased risk of skin malignancy.

Answer:-

False

Read More Answers.

Question # 86

Keratoacanthoma is also called molluscum sebaceum.

Answer:-

True

Read More Answers.

Question # 87

Keratoacanthoma usually remits spontaneously without leaving scar.

Answer:-

False

Question # 88

Keratoacanthoma is caused by a poxvirus.

Answer:-

False

Question # 89

In Keratoacanthoma, central necrosis is uncommon.

Answer:-

False

Question # 90

Keratoacanthoma is histologically difficult to distinguish from squamous cell carcinoma.

Answer:-

True

Question # 91

Abnormalities of blood clotting occur in patients taking brufen.

Answer:-

True

Question # 92

Abnormalities of blood clotting occur in thalassaemia.

Answer:-

False

Question # 93

Abnormalities of blood clotting occur in sickle cell disease?

Answer:-

False

Question # 94

Abnormalities of blood clotting occur in Christmas disease?

Answer:-

True

Question # 95

Abnormalities of blood clotting occur in von Willebrands disease.

Answer:-

True

Question # 96

Berry aneurysm is most often found in the circle of Willis.

Answer:-

True

Question # 97

Berry aneurysms result from atheroma.

Answer:-

False

Question # 98

Berry aneurysms are associated with diabetes mellitus.

Answer:-

False

Question # 99

Berry aneurysms are associated with polycystic renal disease.

Answer:-

True

Question # 100

In corneal transplantation in the UK, whole eye is kept in the culture medium in the eye bank.

Answer:-

False

Question # 101

In corneal transplantation in the UK, the cornea is kept at sub-zero temperature in the bank.

Answer:-

False

Question # 102

In corneal transplantation in the UK, donor eyes older than 65 years of age are rejected.

Answer:-

False

Question # 103

In corneal transplantation in the UK, specular microscopy is used to count the number of endothelial cells.

Answer:-

True

Question # 104

In corneal transplantation in the UK, HLA matching is routinely carried out before use.

Answer:-

False

Question # 105

Squamous cell carcinoma is a commoner malignant skin tumor than basal cell carcinoma.

Answer:-

False

Question # 106

Squamous cell carcinoma only occurs in the skin.

Answer:-

False

Question # 107

Squamous cell carcinoma is the most common skin tumor seen in transplant patient.

Answer:-

True

Read More Answers.

Question # 108

In Squamous cell carcinoma, metastasis is usually to the regional lymph nodes.

Answer:-

True

Read More Answers.

Question # 109

In Squamous cell carcinoma, the tumours typically have everted edges.

Answer:-

True

Read More Answers.

Question # 110

Sebaceous cyst arises in the dermis.

Answer:-

True

Read More Answers.

Question # 111

In Sebaceous cyst, central punctum is a common feature

Answer:-

True

Read More Answers.

Question # 112

In Sebaceous cyst, scalp is a common location.

Answer:-

True

Read More Answers.

Question # 113

Sebaceous cyst is firmly adheres to the skin.

Answer:-

False

Read More Answers.

Question # 114

Sebaceous cyst contains mucopolysaccharides.

Answer:-

False

Read More Answers.

Question # 115

If dermoid cyst found in the orbital region is usually located in the medial angle of the eye.

Answer:-

False

Read More Answers.

Question # 116

Dermoid cyst is lined by squamous epithelium.

Answer:-

True

Read More Answers.

Question # 117

In Dermoid, cyst hair may be found in the cyst.

Answer:-

True

Read More Answers.

Question # 118

In most cases dermoid cyst are congenital.

Answer:-

True

Read More Answers.

Question # 119

In Dermoid, cyst rupture of the cyst is associated with foreign body type inflammation.

Answer:-

True

Read More Answers.

Question # 120

A true aneurysm is covered by all three layers of the vessel.

Answer:-

True

Read More Answers.

Question # 121

Dissecting aneurysm results from destruction of the vessel media layer.

Answer:-

True

Read More Answers.

Question # 122

Hypertension is associated with formation of true aneurysm.

Answer:-

True

Read More Answers.

Question # 123

Berry aneurysm is associated with hypercholesterolaemia.

Answer:-

False

Read More Answers.

Question # 124

An internal carotid aneurysm in the cavernous sinus can give rise to ipsilateral miosis.

Answer:-

True

Read More Answers.

Question # 125

Malignant melanoma is commoner in females than males.

Answer:-

False

Read More Answers.

Question # 126

In malignant melanoma, amelanotic type is more aggressive than pigmented type.

Answer:-

True

Read More Answers.

Question # 127

In malignant melanoma, malignant transformation in common moles is about 1:10,000.

Answer:-

False

Read More Answers.

Question # 128

In malignant melanoma, staging is according to the size of the tumor.

Answer:-

False

Read More Answers.

Question # 129

Malignant melanoma is found exclusively in the skin.

Answer:-

False

Read More Answers.

Question # 130

Phagocytosis microorganisms are killed by hydrogen peroxide.

Answer:-

True

Read More Answers.

Question # 131

Phagocytosis microorganisms are killed by lysozyme.

Answer:-

True

Read More Answers.

Question # 132

Phagocytosis microorganisms are killed by lymphokines.

Answer:-

False

Read More Answers.

Question # 133

Phagocytosis microorganisms are killed by complement system.

Answer:-

False

Read More Answers.

Question # 134

Phagocytosis microorganisms are killed by IgG.

Answer:-

False

Read More Answers.

Question # 135

Collagens are produced in the endoplasmic reticulum of the fibroblasts.

Answer:-

True

Read More Answers.

Question # 136

Collagens are secreted into the extracellular space as tropocollagen.

Answer:-

True

Read More Answers.

Question # 137

The total amount of collagen in a wound reaches normal level within 4 weeks.

Answer:-

False

Read More Answers.

Question # 138

Collagens synthesis is impaired in the presence of glucocortisoids.

Answer:-

True

Read More Answers.

Question # 139

Collagens production is impaired in vitamin C deficiency.

Answer:-

True

Read More Answers.

Question # 140

Anaphylaxis occurs in 24 hours after the initial stimulus.

Answer:-

False

Read More Answers.

Question # 141

Anaphylaxis causes eosinophilia.

Answer:-

True

Read More Answers.

Question # 142

Anaphylaxis causes degranulation of basophils and mast cells.

Answer:-

True

Read More Answers.

Question # 143

Anaphylaxis is produced by Ig E antibody.

Answer:-

True

Read More Answers.

Question # 144

Anaphylaxis causes urticaria.

Answer:-

True

Read More Answers.

Question # 145

Necrosis is a feature in actinomycosis.

Answer:-

True

Read More Answers.

Question # 146

Necrosis is a feature in syphilis.

Answer:-

True

Read More Answers.

Question # 147

Necrosis is a feature in sarcoidosis.

Answer:-

False

Read More Answers.

Question # 148

Necrosis is a feature in tuberculosis.

Answer:-

True

Read More Answers.

Question # 149

Necrosis is a feature in leprosy.

Answer:-

False

Read More Answers.

Question # 150

Amyloid reacts with the Congo red stains.

Answer:-

True

Read More Answers.

Question # 151

Amyloid reacts with the thioflavine â€"T stains.

Answer:-

True

Read More Answers.

Question # 152

Amyloid reacts with the methyl violet stains.

Answer:-

True

Read More Answers.

Question # 153

Amyloid reacts with the alcian blue stains.

Answer:-

False

Read More Answers.

Question # 154

Amyloid reacts with the Prussian blue stains.

Answer:-

False

Read More Answers.

Question # 155

Outcomes research is often limited in the conclusions that can be drawn because of limitations in the data sources used for the studies. What are the most common data sources and what are their main limitations?

Answer:-

The most common data sources include large local or regional administrative databases from hospitals, insurers, or government agencies. These databases contain very limited clinical information (usually ICD-9 codes), and thus it is difficult to meaningfully stratify patients by the severity of their illness, particular symptoms or test result characteristics, or the details of their therapy.

Read More Answers.

Question # 156

Define "association rules" and describe their use in exploratory data mining.

Answer:-

Association rules express the likelihood of co occurrence of features or events in records in a database (e.g. if a patient has characteristics A and B, he or she has an 80% chance of having characteristic C). Data-mining software can automatically identify associations in large data sets. Although many associations are trivial, some indicate causative or "common cause" relationships. Changing associations over time may also provide useful information.

Read More Answers.

Question # 157
What advantage does a pathologist have over investigators in most other fields in carrying out outcomes or data-mining studies?

Answer:-

Some of the most important and useful data in clinical data mining are derived from pathology services (anatomic pathology diagnoses and laboratory test results). In most places, pathologists manage the systems that contain these key data.

Read More Answers.

Question # 158
What are process measures in outcomes research and why are they sometimes used in place of actual outcomes data?

Answer:-

A process measure is a piece of data that is closely related to an outcome, but is easier to measure or more available than the actual outcome data. Thus, it is convenient to use as a surrogate measure for the outcome. For example, the effect of diabetes health education program, the number of eye examinations and regular evaluation of glycosylated hemoglobin (i.e., good practices) rather than assessing the actual long-term health of the diabetics.

Read More Answers.

Question # 159
Describe the main difference between the hypothesis-testing and hypothesis-generating approaches to data mining.

Answer:-

In hypothesis testing, data mining is used to determine whether and under what conditions a proposed pattern exists in a large data set. In hypothesis generation, data mining is used to discover patterns in the data without prior knowledge of what kinds of patterns might exist.

Read More Answers.

Question # 160
What is an "entity-relationship" diagram useful for, state briefly?

Answer:-

An entity-relationship diagram is a way of illustrating the structure of a relational database in a simple format. It displays the primary "entities" (tables) in the database and the relationships that exist between the data elements in the tables. It is useful as a basis for discussion during database design and in describing existing databases.

Read More Answers.

Question # 161
Most of the artificial intelligence systems we discussed rely on some kind of knowledge representation, with the notable exception of neural networks. Where is the "knowledge" in a neural network stored?

Answer:-

In the weightings between: the nodes or "neurons."

Read More Answers.

Question # 162
How are neural networks different than Bayesian belief networks along the following dimensions:
(1) inspect ability of knowledge,
(2) need for probabilities acquired from "domain" experts,
(3) need for data to train the system, and
(4) ability of the system to make classifications based on input data. (Note: You may find it helpful to make a 2 Ã- 4 table and include a short phrase or two in each cell.)

Answer:-

Bayesian belief networks are inspectable, known probabilities are required, training data are not needed, and they can classify into multiple categories.
Neural networks are not inspectable, they do not need domain expertise or known probabilities, training data are required, and they are best for a binary classification ("yes" or "no").

Read More Answers.

Question # 163
What is the Arden syntax?

Answer:-

The Arden syntax is a standard language and format for representing the medical knowledge and algorithms required for making medical decisions. It is used in medical decision support systems.

Read More Answers.

Question # 164
You are working with an intensive care unit (ICU) attending physician on a project to see if you can predict readmission for patients with pancreatitis. You have access to a large database of ICU data (such as cardiac catheter values, vital signs, and respiratory parameters), as well as all of the data that can be gleaned from the

LIS. There are approximately 800 measurements of various types for each of 4000 patients. You do not really have any specific ideas about what values would be most predictive; in fact, you think it is likely that the predictors are highly complex combinations of factors. Which of the 3 types of artificial intelligence systems would be most appropriate for this problem, and why?

Answer:-

A neural network is most appropriate, because there is no prior knowledge to allow selection of predictors, the relative weighting of predictors is unknown, a large data set of many discrete potential predictors is available, combinations of predictors may provide better discrimination than individual predictors, and the desired classification is binary (readmission likely or unlikely).

Read More Answers.

Question # 165

Rule-based systems underlie most clinical event monitors (programs that detect important clinical events and notify appropriate medical personnel). Often these systems work in conjunction with data from the clinical pathology LIS. What aspects of clinical pathology make a rule-based system a reasonable approach?

Answer:-

Clinical laboratory databases consist of many discrete test results that have known reference ranges and critical values. Well-established patterns of these results exist that is known as related to important clinical conditions. Writing rules that detect and alert to these patterns is straightforward.

Read More Answers.

Question # 166

Artificial intelligence and data-mining systems often use "training data sets" and "test data sets." Define these terms and describe briefly how these data sets are used.

Answer:-

Training data sets are given to systems initially to teach them to make correct responses. Test data sets are equivalent to the training sets but contain separate data and are used to verify the performance of the systems.

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