قائمة الاسئلة

الجينات -المستوى الثاني -طب وجراحة-درجةالاختبار(40)

د. رياض الحمادي

1) Medical student should study medical genetics because
   1) + Around 1 in 50 people are affected by a known single-gene disorder
   2) - Around 1 in 2 people are affected by a chromosomal disorder
   3) - Most of genetic disorders are treatable
   4) - There are < 60 known genetic disorders
2) X-chromosome inactivation
   1) - Normally takes place in males but not females
   2) + Results in genetically turning off one of the two X chromosomes in female
   3) - Is the cause of the Y chromosome being genetically inactive
   4) - Takes place in humans so that the both X chromosome is inactive in all of the cells of a female
3) Karyotype is lined up of human chromosomes in pairs during
   1) - Prophase
   2) + Metaphase
   3) - Anaphase
   4) - Telophase
4) A 42-year-old woman comes to the physician for a follow-up visit. The physician explains that her child has a chromosomal abnormality that will likely result in mental retardation, short stature, depressed nasal bridge, congenital heart defects and increased risk of acute lymphoblastic leukemia. Her child most likely has which of the following chromosomal abnormalities?
   1) - Trisomy 13
   2) - Trisomy 18
   3) + Trisomy 21
   4) - 45, XO
5) G6PD Deficiency is X-Linked Recessive Disorders therefore the son of affected father and normal mothers has
   1) - 50% chance of being affected.
   2) - 50% chance of being a carrier
   3) - 100% chance of being affected
   4) + 100% chance of being normal
6) The most of common diseases such as diabetes are caused by
   1) + Multiple genes and expression are often influenced by environmental factors.
   2) - Single gene disorders on X-chromosome
   3) - Single gene disorders on Y-chromosome
   4) - Single gene disorders on both X-chromosome and Y-chromosome
7) Sickle cell anemia is a genetic disease which is
   1) - Autosomal dominant disorders
   2) - X-Linked Recessive disorders
   3) + Autosomal recessive disorder
   4) - X-Linked dominant disorders
8) A man who is affected with haemophilia A (X-linked recessive) mates with a woman who is a heterozygous carrier of this disorder. What proportion of this couple's daughters will be affected, and what proportion of the daughters will be heterozygous carriers?
   1) - 0%; 50%
   2) - 100%; 0%
   3) - 0%; 100%

4) + 50%; 50%

9) Fragile X Syndrome is a leading inherited form of mental retardation which is
1) + X-linked inheritance
2) - Y-linked inheritance
3) - Mitochondrial gene disorders
4) - Autosomal inheritance

10) Which of the following syndromes is monosomic (2n-1)
1) - Patau Syndrome
2) - Edward Syndrome
3) - Down syndrome
4) + Turner syndrome

11) A male newborn has a Cleft palate, small eyes, and six fingers on each hand. Echocardiogram shows congenital heart defects. Which of the following genetic conditions is most likely responsible for the findings seen in this newborn?
1) + Trisomy 13
2) - Trisomy 18
3) - Trisomy 21
4) - XXY

12) Which of the following Autosomal Dominant Disorders is the most common
1) - Myotonic dystrophy
2) - Osteogenesis imperfecta
3) + Scheuermann's disease
4) - Huntington's disease

13) A man and women are both has heterozygous of Polycystic Kidney Disease (an autosomal dominant disorder) The estimated penetrance for Polycystic Kidney Disease is approximately 90%. What is the probability that they will have normal phenotype children?
1) - 0.5
2) - 0.45
3) - 0.25
4) + 0.333

14) All the following statements regarding Lebers hereditary optic neuropathy is correct EXCEPT
1) - The defective gene is present on the mitochondrial chromosomes
2) - Effect generally energy metabolism
3) - Shows maternal inheritance
4) + Affected fathers transmit the disease to their children

15) A 25-year-old man is brought to the physician because of a failure to develop normal male secondary sexual characteristics. Physical examination shows small testes and gynecomastia. This patient's condition is most likely to be related to which of the following genetic abnormalities?
1) - Nondisjunction of an autosomal chromosome
2) + Nondisjunction of a sex chromosome (Klinefelter Syndrome, 47,XXY)
3) - Trisomy 18
4) - Trisomy 21

16) A translocation that fuses part of the ABL1 gene from chromosome 9 with part of the BCR gene from chromosome 22 (t(9;22), creating a gene called BCR-ABL1 which may cause
1) - Down syndrome
2) + Chronic myeloid leukemia
3) - WAGR syndrome
4) - Turner syndrome

17) A Karyotyping of patient with Klinefelter syndrome can be seen as

1) + Male with 47 XXY
2) - Female with 47 XXY
3) - Female with 45 XO
4) - Male with 46 XY

18) Deficiency in NADPH oxidase may cause
1) - Lesch–Nyhan syndrome.
2) - Menkes's syndrome.
3) + Chronic granulomatous disease
4) - Mucopolysaccharidosis 11 (Hunter's syndrome)

19) Duchenne Muscular dystrophy is
1) + A defect in Duchenne muscular dystrophy gene
2) - An autosomal dominant inherited disease
3) - An autosomal recessive inherited disease
4) - Caused by increased muscle response to nerve impulses from the brain

20) The short and metacentric chromosomes are belonged to class
1) - class A
2) - class B
3) - class C
4) + class F

21) Vitamin D resistant rickets is
1) - Nullisomic in chromosome number
2) + X-linked hypophosphatemia
3) - Due to Reciprocal translocation
4) - Due to Robertsonian translocation

22) Deletions of genes in the azoospermia factor (AZF) regions may cause
1) - Turner syndrome
2) - Klinefelter syndrome
3) + Y chromosome infertility
4) - Angiokeratoma (Fabry's disease)

23) Mucopolysaccharidoses is Autosomal Recessive Disorders which cause
1) - Scheuermann's Disease
2) + Joint contracture
3) - Loose joints and stretchy skin
4) - Flexible fingers and toes

24) Huntington's disease is due defect in
1) - CGG building blocks of DNA which repeat less more times than they normally do
2) + Huntingtin gene which is toxic to certain cell types in the brain
3) - ATPase Copper Transporting Alpha causing accumulation of copper in liver and kidney and intestinal lining.
4) - Ectodysplasin-A gene which regulates the induction, morphogenesis and maintenance of skin-derived structures

25) The most common Autosomal Recessive Disorders are
1) + Sickle cell anaemia particularly in Taiz and Al Hudaydah Governorates
2) - Marfan Syndrome
3) - Myotonic dystrophy type 1
4) - Ehlers-Danlos Syndrome

26) In nondisjunction during meiosis II
1) - Old age of father is a high-risk factor
2) - Resulting in healthy boy

3) + Old age of mother is a high-risk factor
4) - Resulting in healthy girl

27) Biochemical screening of Trisomy 21 (Down Syndrome) during pregnancy
1) - Amniotic fluid is collected
2) - Blood sample from foetus is collected
3) - An increased nuchal translucency and absence of the nasal bone decrease the risk of Down's syndrome
4) + Blood sample from pregnant women is collected

28) Edward Syndrome is due to
1) - Monosomy: 45, Y
2) + Trisomy 18
3) - Mostly Reciprocal translocation
4) - Mostly Robertsonian translocation

29) When one parent is a Robertsonian translocation carrier:
1) - Alternate segregation produces unbalanced genetic material and most likely loss of pregnancy
2) - Adjacent segregation produces a normal haploid gamete
3) + Adjacent segregation produces unbalanced genetic material and most likely loss of pregnancy.
4) - Both adjacent and alternate segregation produces a normal haploid gamete

30) Patient with Rett syndrome
1) - Can be recognized early before 6 months of life by stereotypic hand movements
2) + Showed normal early development and followed by loss of fine and gross motor skills and communication
3) - Showed loss of fine and gross motor skills and communication in early development before 6 months of life
4) - Will be normal for whole life

31) Which of the following statement regarding apoptosis is correct
1) - Induced by tightly regulated survival program
2) - Inhibited enzyme to prevent degrade cells' own nuclear DNA
3) - Inflammatory response is elicited
4) + Requires ATP

32) Cancer cells can avoid apoptosis by
1) - Decreased expression of anti-apoptotic Bcl2 family members
2) - Expression of caspases stimulators
3) + Blockage of death receptor signalling
4) - Increased of death receptor signalling

33) Increased apoptosis (Excessive cell death) may result in
1) + Infarction and stroke
2) - Cancer (carcinogenesis)
3) - Autoimmune disorders
4) - Increased survival of virus infected cell

34) Which of the following is not a Biochemical feature of Apoptosis
1) - Breakdown of nuclear DNA
2) - Cell membrane expresses more receptors for phagocytic cells
3) - Activation of caspases
4) + Lysis and swelling of cells

35) Cancer is
1) - A non-genetic disease and that it is a single-step process
2) - A genetic disease and that it is a single-step process
3) - A non-genetic disease and that it is a multiple-step process

4) + A genetic disease and that it is a multiple-step process

36) All the following are Characteristics of Cancer Cells EXCEPT
1) - They are resistant to apoptosis
2) - They have an uncontrolled ability to divide
3) - They are insensitive to antigrowth factors.
4) + They secrete chemical signals that inhibit the growth of new blood vessels

37) Biochemical and genetic changes in malignant
1) - Decreased replication and transcription
2) - Decreased anaerobic glycolysis
3) + Synthesis of fetal proteins (e.g. Carcinoembryonic antigen, alfa fetoprotein).
4) - Hypocalcemia due to produce parathyroid hormone-related peptide

38) Which is of the following is not environmental cause of Neoplasia
1) - Chemicals
2) + Hereditary
3) - Viruses
4) - Radiation

39) Mutation in the following genes may not-initiate the cancer
1) - Proto-oncogenes
2) - Tumor-suppressor genes
3) - Genes regulating Apoptosis
4) + Genes that responsible for producing enzymes involving in anaerobic glycolysis

40) The gene coding for Signal transudation usually is
1) + Proto-oncogene
2) - Tumor-suppressor gene
3) - Apoptosis regulatory gene
4) - DNA repair gene

41) Hypermethylation in mismatch repair pathway (MMR) genes may lead to
1) - Development of hereditary of breast cancer
2) + Development of hereditary nonpolyposis colorectal cancer
3) - Development of familial adenomatous polyposis coli
4) - Telomerase activation in cancer

42) Anti-cancer drugs such as telomestatin and imetelstat may be targeted to Inhibit
1) - Apoptosis in cancer cells
2) - Multi-step of carcinogenesis
3) - DNA repair in cancer cells
4) + Telomerase in cancer cells

43) Cancer cells that suffer from hypoxia produce hypoxia-inducible factor-1 (HIF-1) which is essential for
1) - Initiation of cancer
2) - Promotion of cancer
3) + Promotion of angiogenesis
4) - Telomere elongation of cancer cells

44) Organs to which cancers metastasize secrete chemokine ligand CXCL12, which binds to chemokine receptor CXCR4 expressed on the surface of
1) - Primary lymphocytes and mediate the progression and metastasis of cancers.
2) - Primary pericytes and mediate the progression and metastasis of cancers.
3) - Primary tip cells and mediate the progression and metastasis of cancers
4) + Primary cancer cells and mediate the progression and metastasis of cancers

45) All the following are ideal tumour marker characteristics EXCEPT
1) - Highly specific to avoid false negative results

2) + The low level of tumor marker should indicate the large cancer mass
3) - Highly sensitive to avoid false positive results
4) - Should detect the malignancy earlier than a clinical diagnosis

46) Human chorionic gonadotrophin (hCG) may be used as tumor marker for
1) - Pancreatic cancer
2) - Colon cancer
3) + Testicular cancer
4) - Liver cancer

47) The most common cancer in the Yemen men is
1) - Pancreatic cancer
2) - Brain cancer
3) - Myeloma
4) + Colorectum cancer

48) The most important risk factor for cervical cancer is infection by
1) + Human papillomavirus type 16 and 18
2) - Hepatitis C
3) - Human T cell leukaemia virus type 1
4) - Human herpes virus type 8

49) Retroviruses cause cancer in variety of animals and humans because of them genetic materials contain
1) - Tumour suppressor gene
2) - Cell cycle regulatory gene
3) + Oncogene
4) - Reverse transcriptase gene

50) Quiescent cells exit G0 phase after mitogen stimulation which induces
1) + Cyclin D transcription, translation and assembly with their CDK4/6.
2) - Cyclin B transcription, translation and assembly with their CDK4/6.
3) - Cyclin A transcription, translation and assembly with their CDK4/6.
4) - Cyclin F transcription, translation and assembly with their CDK4/6.