

**POST GRADUATE DIPLOMA IN CLINICAL
CARDIOLOGY (PGDCC)**

00484

Term-End Examination

June, 2016

MCC-006 : CARDIOVASCULAR EPIDEMIOLOGY

Time : 2 hours

Maximum Marks : 60

Note :

- (i) *There will be multiple choice type of questions in this examination which are to be answered in OMR Answer Sheets.*
- (ii) *All questions are compulsory.*
- (iii) *Each question will have four options and only one of them is correct. Answers have to be marked in figures in the appropriate rectangular boxes corresponding to what is the correct answer and then blacken the circle for the same number in that column by using HB or lead pencil and not by ball pen in OMR Answer Sheets.*
- (iv) *If any candidate marks more than one option, it will be taken as the wrong answer and no marks will be awarded for this.*
- (v) *Erase completely any error or unintended marks.*
- (vi) *There will be 90 questions in this paper and each question carries equal marks.*
- (vii) *There will be no negative marking for wrong answers.*
- (viii) *No candidate shall leave the examination hall at least for one hour after the commencement of the examination.*

1. Which of the following statement regarding Lp (a) is **incorrect** ?
 - (1) Increased Lp (a) is less commonly seen in Indians settled in Europe
 - (2) Increased Lp (a) is associated with increased incidence of coronary artery disease
 - (3) Elevated Lp (a) levels cause premature atherosclerosis
 - (4) Elevated Lp (a) are associated with genetic predisposition

2. In Atherosclerosis early fatty streaks usually appear at what age ?
 - (1) 25 years
 - (2) 40 years
 - (3) 50 years
 - (4) 10 years

3. In insulin resistance syndrome all the following components are seen **except** one :
 - (1) Abdominal obesity
 - (2) High HDL levels
 - (3) High Triglyceride levels
 - (4) Hypersecretion of insulin

4. All the following variables are included in diagnostic criteria of NCEP ATP III **except** one :
 - (1) Blood pressure
 - (2) HDL-C
 - (3) Waist circumference
 - (4) Total cholesterol

5. What is Barker hypothesis ?
 - (1) Increased incidence of coronary artery disease in diabetic patients
 - (2) Sedentary patients have high incidence of coronary artery disease
 - (3) Lack of exercise has inverse proportion to increased incidence of coronary artery disease
 - (4) Low birth weight in new borns have enhanced susceptibility to coronary artery disease in adults

6. Which of the following statement is **incorrect** regarding primordial prevention of coronary artery disease ?
 - (1) Treating patients aggressively with statins irrespective of lipid levels
 - (2) Primordial prevention is the most effective strategy in prevention of coronary artery disease
 - (3) It is very difficult to motivate population
 - (4) Needs massive education of population

7. Left ventricular hypertrophy is said to be present in women when left ventricular mass exceeds :
 - (1) $> 80 \text{ g/m}^2$
 - (2) $> 100 \text{ g/m}^2$
 - (3) $> 130 \text{ g/m}^2$
 - (4) $> 150 \text{ g/m}^2$

8. All the following factors have shown increased incidence of coronary artery disease **except** one :
 - (1) Elevated homocysteine levels
 - (2) Elevated vitamin D levels
 - (3) Elevated LDL levels
 - (4) Low HDL levels

9. What is the incidence of coronary artery disease in the population without any conventional risk factor ?
 - (1) Less than 20%
 - (2) Less than 10%
 - (3) Less than 30%
 - (4) Less than 5%

10. 45 years male, chronic smoker, has diabetes mellitus and hypertension since 9 years, his total cholesterol is 285 mg/dl. What is the estimated coronary risk in 10 years period ?
 (1) 40% (2) 100% (3) 24% (4) 35%
11. According to INTERHEART study in what percentage of population the coronary artery disease is preventable ?
 (1) 100% (2) 80% (3) 90% (4) 70%
12. In INTERHEART study which of the following risk factor was shown as strongest predictor of Acute myocardial infarction ?
 (1) Waist to hip circumference (2) Central obesity
 (3) Elevated homocysteine levels (4) Abnormal Apo - B/Apo A - 1 ratio
13. Which of the following is newer risk factor for coronary artery disease ?
 (1) Smoking (2) Central obesity
 (3) Left ventricular hypertrophy (4) Excess alcohol consumption
14. When do you say morbid obesity ?
 (1) When BMI is more than 20% ideal body weight
 (2) When BMI is more than 25% ideal body weight
 (3) When BMI is more than 35% ideal body weight
 (4) When BMI is more than 40% ideal body weight
15. All the following are biochemical risk factors for coronary artery disease **except** one :
 (1) Diabetes mellitus (2) Dyslipidemia
 (3) Smoking (4) Lipoprotein (a)
16. What is the prevalence of rheumatic heart disease in India ?
 (1) 1.5/1000 (2) 3.9/1000 (3) 5.4/1000 (4) 6.9/1000
17. According to ATP III Triglyceride levels are said to be high at what levels ?
 (1) More than 120 mg/dl (2) More than 1000 mg/dl
 (3) More than 150 mg/dl (4) More than 200 mg/dl
18. All the following are non pharmacological methods of control of hypertension **except** one :
 (1) Increased intake of fruits and vegetables
 (2) Reduction of salt intake
 (3) Moderate consumption of alcohol
 (4) Lower intake of saturated fat
19. In prevention of cardiovascular disease what is the ideal target of achieving blood pressure would be ?
 (1) < 120/80 mmHg (2) < 130/70 mmHg
 (3) < 140/90 mmHg (4) < 110/80 mmHg

20. In HOPE study which of the following ACE inhibitor was used ?
 (1) Carvadelol (2) Ramipril (3) Lisinopril (4) Enalapril
21. Which of the following is a primary prevention trials using statins in coronary atherosclerosis ?
 (1) CARE trial (2) Scandinavian Simvastatin Survival Study
 (3) WOSCOPS trial (4) Lipid trial
22. In insulin resistance all the following changes are seen **except** one :
 (1) Hypersecretion of insulin by pancreatic B cells
 (2) Increased glucose uptake by skeletal muscle
 (3) Increased release of fatty acids from adipose tissue
 (4) Over production of glucose by liver
23. Serum levels of Lp (a) are influenced by what ?
 (1) Diet (2) Male gender (3) Genetically (4) Smoking
24. Increased levels of homocysteine are seen in all the following conditions **except** one :
 (1) Folate deficiency (2) Vitamin B12 deficiency
 (3) Vitamin C deficiency (4) Vitamin B6 deficiency
25. In Indian population the recommended fat intake in the diet should be how much percent ?
 (1) < 20% (2) < 30% (3) < 10% (4) < 40%
26. Monounsaturated fats are found in high concentrations in all the following diets **except** one :
 (1) Sun flower (2) Peanut (3) Olive oil (4) Canola
27. Dr. Pekka Puska has initiated life style changes by changing their food habits of the population in the province of which country ?
 (1) Sweden (2) Finland (3) Russia (4) USA
28. High saturated fats are present in all the following oils **except** one :
 (1) Coconut oil (2) Palm oil (3) Hard margarine (4) Olive oil
29. Pathological effects of Lp (a) in atherosclerosis are seen at what levels of Lp (a) in the blood ?
 (1) > 2.5 - 5 mg/dl (2) > 5 - 7.5 mg/dl
 (3) > 20 - 30 mg/dl (4) > 7.5 - 10 mg/dl
30. All the following are non modifiable risk factors for coronary artery disease **except** ?
 (1) Gender (2) Heredity (3) Age (4) Obesity

31. Atherosclerosis principally affects which of the component of the vessel wall ?
 (1) Adventitia (2) Media (3) Intima (4) Endothelium
32. The foam cell is lipid laden cell derived from :
 (1) Endothelium (2) Smooth muscle cell
 (3) Macrophage (4) Lymphocyte
33. The LDL - NCEP goal for treatment of lipids in patients with known CAD or CAD equivalent risk is :
 (1) < 180 mg/dl (2) < 160 mg/dl (3) < 100 mg/dl (4) < 130 mg/dl
34. 58 years old man was evaluated for risk evaluation. He has hypertension and abdominal aortic aneurysm. He never smokes. His HDL is 46 mg/dl. He has no family history of premature CAD. What is his LDL target ?
 (1) < 180 mg/dl (2) < 160 mg/dl (3) < 130 mg/dl (4) < 100 mg/dl
35. 49 years male patient without documented heart disease, has the following lipid profile LDL-138 mg/dl, HDL - 20 mg/dl, triglycerides - 946. Which of the following drug is first line of treatment ?
 (1) Atorvastatin (2) Simvastatin (3) Lovastatin (4) Fenofibrate
36. Which of the following is considered as CAD risk equivalent ?
 (1) Hypertension (2) Smoking
 (3) Diabetes Mellitus (4) Obesity
37. The advantages of physical activities are all **except** :
 (1) Decrease in LDL (2) Increase in Insulin Sensitivity
 (3) Increase in Triglycerides (4) Increase in Cardiac Reserve
38. Which of the following diet has shown to decrease the risk of future cardiovascular events after acute myocardial infarction ?
 (1) Atkins diet (2) AHA step 2 diet
 (3) Mediterranean diet (4) Low fat diet (< 10% of total calorie intake)
39. All the following statements regarding plasma homocysteine are true **except** :
 (1) Elevated levels increase the risk of atherosclerotic vascular disease
 (2) Interventions to lower homocysteine levels, reduce mortality from coronary artery disease
 (3) Vitamin B12 deficiency tends to increase homocysteine levels
 (4) Vitamin B6 treatment, lowers homocysteine levels
40. According to NCEP adult program, all the following criteria are required to label as metabolic syndrome **except** :
 (1) Hs CRP > 3 mg/dl (2) Serum glucose concentration > 110 mg/dl
 (3) HDL < 40 mg/dl (4) Serum TGL > 150 mg/dl

41. What percentage of population have shown in primary prevention trail with aspirin to reduce vascular events and non fatal MI ?
(1) 10% (2) 23% (3) 52% (4) 75%
42. In primary prevention trail with aspirin to reduce non fatal MI, what dose of aspirin was beneficial ?
(1) Baby Aspirin (2) 150 mg (3) 250 mg (4) 365 mg
43. Which of the following drugs were used in combination in polypills trail ?
(1) Clopidogrel, Angiotensin receptor blockers, Statins
(2) Aspirin, Statin, ACE inhibitors
(3) Betablockers, Aspirin, ACE inhibitors
(4) Calcium channel blockers, Betablocker, Clopidogrel
44. All the following statements regarding HDL reduction are true **except** :
(1) High dose of niacin supplementation has consistently shown reduction of HDL has reduced significant cerebrovascular events
(2) AIM - HIGH trail has shown niacin supplementation resulted in increasing HDL cholesterol > 40 mg/dl
(3) Increasing HDL cholesterol by niacin has not shown any beneficial effect on cardiovascular events
(4) Cholesterol Ester Transfer Protein (CETP) has shown no benefit in reducing the cardiovascular events
45. 36 years old female obese, hypertensive since 4 years, diabetic since 1 year on metformin, came for routine evaluation of her lipid profile - Total cholesterol 180 mg/dl; Triglyceride - 750 mg/dl; HDL - 28 mg/dl; LDL - 69 mg/dl. Which of the following drug is recommended ?
(1) Omega 3 fatty acid supplementation
(2) Fenofibrate
(3) Atorvastatin
(4) Simvastatin
46. All the following statements are true regarding coronary artery disease in Indians **except** :
(1) The process is severe, diffuse extensive involving multiple vessels
(2) The disease manifest at a younger age
(3) The rate of first myocardial infarction is five times lower in Indians than Europeans
(4) The coronary artery size in Indians are small
47. Which is the earliest recognizable pathological lesion in atherosclerosis ?
(1) Atheroma (2) Fibrous plaque (3) Fatty streak (4) Soft plaque

48. The modifiable risk factor for coronary artery disease includes all **except** one :
- (1) Obesity
 - (2) Psycho-social tension
 - (3) Family history of coronary artery disease
 - (4) Metabolic syndrome
49. Which of the following type of cholesterol in the diet is more atherogenic ?
- (1) Saturated fatty acids
 - (2) Poly unsaturated fatty acids
 - (3) Monounsaturated fatty acids
 - (4) Trans fats
50. Among the following risk factors for coronary artery disease, which is considered as coronary artery disease equivalent ?
- (1) Dyslipidemia
 - (2) Hypertension
 - (3) Diabetes mellitus
 - (4) Smoking
51. All of the following are newer risk factors for coronary artery disease **except** :
- (1) Lipoprotein (a)
 - (2) Homocysteine
 - (3) C-reactive protein
 - (4) Low HDL
52. Which of the following were the strongest predictors of acute MI Risk according to previous studies ?
- (1) Waist hip ratio and obesity
 - (2) Heart rate and blood pressure
 - (3) Diabetes mellitus and dyslipidemia
 - (4) Abnormal Apo B/Apo A ratio and current smoking
53. Types of disease prevention includes all the following **except** one :
- (1) Primordial prevention
 - (2) Primary prevention
 - (3) Secondary prevention
 - (4) Chemo prevention
54. The recommendation of sodium intake per day would be :
- (1) 5000 mg/day
 - (2) 3000 mg/day
 - (3) 2300 mg/day
 - (4) 1600 mg/day
55. Glycemic index of food is defined as :
- (1) Highly processed carbohydrates
 - (2) Energy rich with quick absorption
 - (3) A type of starch
 - (4) Indicative of how quickly and how strongly rises after carbohydrate food
56. Risk factors for Coronary Artery Disease in INTERHEART study were all **except** :
- (1) Psycho-social Impact
 - (2) Fruits and Vegetable Consumption
 - (3) Smoking
 - (4) Family history of Coronary Artery Disease

57. All the following statements regarding hormonal replacement therapy are **correct** except :
- (1) Reduces CAD morbidity and mortality
 - (2) Deleterious effect noted with it on primary prevention
 - (3) HRT does not affect atherosclerosis progression in women with CAD
 - (4) HRT should be given for prevention of CVD in post menopausal women
58. The ideal body mass index to be desired is :
- | | |
|-----------------------------------|--------------------------|
| (1) 18.5 - 24.9 kg/m ² | (2) 25 kg/m ² |
| (3) 25 - 28 kg/m ² | (4) 30 kg/m ² |
59. The following statements about antioxidant supplements are **true** **except** :
- (1) Vitamin E and beta carotene are contraversial in preventing cardiovascular disease
 - (2) Vitamin E and beta carotene and antioxidant supplements are recommended for cardiovascular protection
 - (3) Plant derived foods rich in antioxidant nutrients are recommended for CVD prevention
 - (4) Diet rich in antioxidants especially those that are deeply coloured should be consumed
60. Which of the following statement is **correct** about smoking cessation ?
- (1) Risk of heart attack is reduced by 50% after 1 year of quitting
 - (2) Lung cancer mortality reduces and is similar to that of non smokers after 5 years of quitting
 - (3) Functional capacity does not improve after smoking cessation
 - (4) There is no difference in the benefits of smoking cessation between both sexes
61. What is the ideal pharmacological way to reduce LDL cholesterol ?
- | | |
|---------------|--------------------|
| (1) Fibrates | (2) Statins |
| (3) Ezetamide | (4) Cholestyramine |
62. The following statements are true about regular exercise **except** :
- (1) Prevents or retards atherosclerotic process
 - (2) Produces weight loss
 - (3) Exercise training after heart attack reduces morbidity and sudden cardiac death
 - (4) Rhythmic aerobic exercise should be advised
63. Long term studies on the effect of life style change on CV disease risk and mortality was found in which study ?
- | | |
|-------------------------|-------------------|
| (1) Nurses health study | (2) WOSCOPS study |
| (3) 4S study | (4) AFCAPS study |

64. Dietary changes advocated by WHO for prevention of heart disease include all of the following **except** :
- (1) Reduction in fat intake to 20-30% of calorie intake
 - (2) A decrease in complex carbohydrates
 - (3) Consumption of saturated fats to be limited to < 10% of total energy intake
 - (4) Reduction of cholesterol to below 100 mg per kcal per day
65. Dyslipidemia in metabolic syndrome is characterized by :
- (1) High triglyceride and Low HDL
 - (2) High HDL and Low triglyceride
 - (3) High triglyceride and High HDL
 - (4) Low VLDL and High HDL
66. Significant family history of coronary artery disease is taken as age below in first degree male relative :
- (1) 45 years
 - (2) 40 years
 - (3) 50 years
 - (4) 55 years
67. Annual stroke risk in India is :
- (1) 69/1,00,000
 - (2) 79/1,00,000
 - (3) 89/1,00,000
 - (4) 99/1,00,000
68. Prevalence of heterozygous familial hypercholesterolemia in general population is :
- (1) 1 in 50
 - (2) 1 in 500
 - (3) 1 in 1000
 - (4) 1 in 1500
69. If two risk factors are present without CAD/equivalent, a patient can still be treated as risk equivalent if their 10 year risk is greater than :
- (1) > 60%
 - (2) > 40%
 - (3) > 20%
 - (4) > 10%
70. Moderate alcohol consumption associated with reduction of cardiovascular events by the following mechanisms **except** :
- (1) By raising HDL levels
 - (2) By reducing LDL levels
 - (3) By reduction of platelet aggregation
 - (4) By improvement in fibrinolytic capacity
71. Reynolds risk score in calculating heart and stroke risk includes all the following criteria **except** :
- (1) Systolic blood pressure
 - (2) LDL cholesterol
 - (3) Hs CRP
 - (4) Whether parents had MI below 60 years
72. All the following statements regarding coronary artery disease in women are true **except** :
- (1) Men suffer more than women from atherosclerosis and coronary artery disease
 - (2) The risk of coronary bypass surgery in women is three times more than men
 - (3) Women are protected to a greater extent by female sex hormones
 - (4) Treatment with estrogens in post-menopausal women has shown significant reduction in cardiovascular events

73. The goal of INTERHEART study was all the following **except** :
- (1) To evaluate the association of risk factors for hypertension
 - (2) The population attributable risk in the context of the prevalence of the condition with in a population
 - (3) To evaluate the association of risk factors for acute myocardial infarction
 - (4) To evaluate the association of risk factors in different ethnic groups
74. 35 years male, hypertensive, euglycemic, non-smoker, no family history of coronary artery disease. His LDL cholesterol was 142 mg/dl. What is the recommendation according to NECP ATP III guidelines ?
- (1) Life style modification
 - (2) Atorvastatin 20 mg/day
 - (3) Rosuvastatin 10 mg/day
 - (4) Gemfibrozil 300 mg/day
75. All the following are common risk factors for sudden cardiac death in young adults **except** :
- (1) Myocarditis
 - (2) Valvular heart disease
 - (3) Hypertrophic cardiomyopathy
 - (4) Brugada syndrome
76. In JUPITER trials, all the following statements regarding statin use are **correct** except :
- (1) In JUPITER trials, the results have shown that, statin reduces Hs CRP
 - (2) In JUPITER trials, reduced inflammation with statins have shown 80% reduction of coronary events
 - (3) In Jupiter trials, statins have shown that, reduced cardiac events are independent of LDL levels
 - (4) In Jupiter trials, results have shown that atorvastatin was superior to rosuvastatin
77. According to several trials, what level of Hs CRP has predicted increased coronary events :
- (1) > 3 mg/liter
 - (2) > 1 mg/liter
 - (3) > 0.6 mg/liter
 - (4) > 0.8 mg/liter
78. Increased Hs CRP levels are seen in all the following conditions **except** :
- (1) Metabolic syndrome
 - (2) Endothelial dysfunction
 - (3) Syndrome X
 - (4) Long QT syndrome
79. All the following statements regarding Lp (a) lipoprotein are **correct** except :
- (1) Lp (a) consists of an LDL particle
 - (2) Lp (a) has sequence homology of plasminogen
 - (3) This lipoprotein increases endogenous fibrinolysis
 - (4) Lp (a) lipoprotein binds and inactivates tissue factor pathway inhibitor
80. All the following statements regarding homocysteine are **correct** except :
- (1) Severe hyper homocysteine levels can predispose to premature atherosclerosis
 - (2) Severe hyper homocysteine levels can predispose to venous thromboembolism
 - (3) In HOPE trail, treatment with folic acid, vitamin B12 and vitamin B6 in patients with vascular disease, have shown that reduction homocysteine levels to normal levels have reduced cardiovascular events significantly
 - (4) Plasma levels higher than 15 mol/litre are more common

81. Which of the following statement is wrong regarding novel imaging tests in predicting coronary atherosclerosis early ?
- (1) 9% increase in future vascular risk for each 0.1 mm increase in Carotid Intima Media Thickness (CIMT)
 - (2) Absence of Coronary Artery Calcium Score (CACs) excludes the occurrence of future coronary events over long term follow up
 - (3) CT coronary angiogram is expensive and radiation exposure, to apply for large population study
 - (4) CT imaging does not detect the non calcified thin capped lesions that appear to cause most clinical events
82. 32 year male came for routine health check up. His blood pressure was 130/82 mmHg. His LDL was 196 mg/dl, triglycerides - 105 mg/dl. His father had CABG at 54 years age. His fasting blood sugar was 112 mg/dl. Which of the following preventive intervention is recommended according to NCEP ATP III ?
- (1) Life style modification
 - (2) High dose niacin
 - (3) Rosuvastatin
 - (4) Atorvastatin and fenofibrates
83. Non HDLC is routinely calculated by which of the following :
- (1) Total cholesterol – Triglycerides
 - (2) LDL cholesterol – HDL cholesterol
 - (3) VLDL cholesterol – Total cholesterol
 - (4) Total cholesterol – HDL cholesterol
84. 44 years old female recently found to have hypertension and diabetes mellitus. Her elder brother had myocardial infarction and on treatment. Her total cholesterol is 250 mg/dl and triglycerides 220 mg/dl, LDL 116 mg/dl. Her HBA1C 7.4%. According to NCEP ATP III which of the following drug is recommended ?
- (1) High dose statins
 - (2) Statins and fenofibrate
 - (3) Ezetamide
 - (4) Omega 3 fatty acids
85. Which of the following statin was studied in CARE (Cholesterol And Recurrent Events) trial ?
- (1) Atorvastatin
 - (2) Simvastatin
 - (3) Pravastatin
 - (4) Rosuvastatin
86. 40 years male normotensive, euglycemic, came for routine health checkup. His LDL cholesterol was 120 mg/dl and Estimated 10 years atherosclerosis, cardiovascular disease risk was 6.5%. What is your recommendation for this patient ?
- (1) Gem fibrogel 300 mg
 - (2) Life style modification alone
 - (3) Fenofibrate 200 mg
 - (4) Atorvastatin 20 mg
87. Which of the following drug reduces cholesterol absorption from dietary and biliary sources by preventing transport to the intestinal valve ?
- (1) Fenofibrates
 - (2) Rosuvastatin
 - (3) Ezetamide
 - (4) Gem fibrogel

88. Which of the following trial, niacin was tested for increasing HDL will reduce cardiovascular events ?
- (1) JUPITER trial
 - (2) ASCOT trial
 - (3) AIM - HIGH trial
 - (4) LIPID trial
89. Framingham risk assessment tool for estimating 10 years risk of having a heart attack includes all the following criteria **except** :
- (1) Total cholesterol
 - (2) Systolic blood pressure
 - (3) LDL cholesterol
 - (4) Age
90. According to International Diabetes Federation (IDF) metabolic syndrome in women is said to be present with all the following criteria **except** :
- (1) Raised triglyceride level > 150 mg/dl
 - (2) Reduced HDLC < 30 mg/dl
 - (3) Raised systolic blood pressure > or equal to 130 mmHg or diastolic BP > or equal to 85 mmHg
 - (4) Raised fasting plasma glucose > or equal to 100 mg/dl
-