No. of Printed Pages : 20

MCC-005

01434

POST GRADUATE DIPLOMA IN CLINICAL CARDIOLOGY (PGDCC)

Term-End Examination

June, 2015

MCC-005 : COMMON CARDIOVASCULAR DISEASES – III

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. Christiaan Barnard in 1967 performed the first successful
   (1) Heart transplant
   (2) CABG
   (3) Valve replacement
   (4) None of the above

2. Surgery in infective endocarditis is indicated in
   (1) Refractory heart failure
   (2) Acute aortic regurgitation
   (3) Aortic root abscess
   (4) All of the above

3. Peak pressure gradient in severe pulmonary stenosis is above
   (1) 50 mmHg (2) 60 mmHg
   (3) 70 mmHg (4) 80 mmHg

4. Significant functional TR is seen in
   (1) Severe mitral stenosis
   (2) Severe pulmonic stenosis
   (3) Severe pulmonary artery hypertension
   (4) All of the above

5. Surgery in asymptomatic AS is indicated in all of the following *except*
   (1) To prevent sudden cardiac death
   (2) Presence of hypotension during exercise
   (3) Ventricular tachycardia
   (4) None of the above

6. Valve area in severe AS is less than
   (1) 1·5 sq.cm (2) 1·2 sq.cm
   (3) 1·3 sq.cm (4) 1·0 sq.cm

7. BMV is indicated in moderate or severe MS when
   (1) Pulmonary systolic pressure > 60 mmHg on exercise
   (2) New onset atrial fibrillation in the absence of LA thrombus
   (3) Both of the above
   (4) None of the above

8. Bioprosthetic valves can be inserted in

(1) Adults
(2) Children
(3) Both of the above
(4) None of the above

9. Ideal INR for bi-leaflet aortic prosthesis is

(1) 2·0 – 2·5
(2) 2·5 – 3·5
(3) 3·0 – 3·5
(4) None of the above

10. IABP is indicated in all of the following *except*

(1) Post-infarction VSD
(2) PTCA in cardiogenic shock
(3) Post-CABG left ventricular failure
(4) None of the above

11. Emergency surgery of aortic regurgitation is indicated in

(1) Acute thrombosis of prosthetic valve not responding to thrombolysis
(2) Infective endocarditis with uncontrolled failure
(3) Dissecting aneurysm extending into the valve
(4) All of the above

12. Following are required to maintain effective circulation and carry out functions of lungs during an open heart operation *except*

(1) Blood pump
(2) Oxygenator
(3) Heat exchangers
(4) None of the above

13. Amount of blood pumped by blood pump per minute is

(1) 5 L
(2) 6 L
(3) 7 L
(4) 8 L

14. Oxygenator usually used for open heart surgeries presently is

(1) Film oxygenator
(2) Membrane oxygenator
(3) Disc oxygenator
(4) Bubble oxygenator

15. For safe cardio-pulmonary bypass ACT should be kept above

(1) 200 secs (2) 300 secs

(3) 400 secs (4) 500 secs

16. Following device is used as a bridge to cardiac transplantation :

(1) IABP

(2) Total artificial heart

(3) Ventricular assist device

(4) None of the above

17. Following are true about OPCAB *except*

(1) Performed on beating heart

(2) Small area of the heart over coronary artery is stabilized

(3) Blood loss is minimal

(4) None of the above

18. Following can be used as arterial conduit for CABG :

(1) Internal mammary artery

(2) Gastro-epiploic artery

(3) Inferior epigastric artery

(4) All of the above

19. Percentage of saphenous venous graft patent after 10 years is

(1) 20% (2) 30%

(3) 40% (4) 50%

20. Left main equivalent lesion means

(1) Significant block in proximal LAD and proximal RCA

(2) Significant block in proximal LAD and proximal LCx

(3) Significant block in proximal LAD and proximal Ramus

(4) None of the above

21. CABG is the best choice for proximal LAD lesion when

(1) Ejection fraction < 50%

(2) Non-invasive tests show extensive reversible ischemia

(3) Both of the above

(4) None of the above

22. In total arterial revascularization end of the following arteries are anastomosed with side of LIMA :

(1) RIMA
(2) RA
(3) Both of the above
(4) None of the above

23. Of all congenital defects ASD as an isolated anomaly occurs in

(1) 2 – 3%
(2) 5 – 10%
(3) 15 – 20%
(4) None of the above

24. Heart murmur in ASD originates from

(1) Septal defect
(2) Aortic valve
(3) Pulmonary valve
(4) None of the above

25. Heart failure in ASD occurs in

(1) 2^{nd} – 3^{rd} decade
(2) 3^{rd} – 4^{th} decade
(3) 5^{th} – 6^{th} decade
(4) None of the above

26. In VSD the increased volume of blood finally reaches

(1) LA/LV
(2) RA/RV
(3) Pulmonary capillaries
(4) None of the above

27. Pansystolic murmur in VSD ends

(1) Before S2
(2) With S2
(3) Beyond S2
(4) None of the above

28. In VSD with very high PVR, second heart sound will be

(1) Widely split
(2) Closely split
(3) Single
(4) None of the above

29. Anatomical closure of PDA occurs between

(1) 12 – 24 hrs
(2) 2 – 3 weeks
(3) 4 – 5 weeks
(4) 6 – 7 weeks

30. Radio-femoral delay is seen in

(1) ASD (2) VSD

(3) PDA (4) Coarctation of Aorta

31. In TOF, pulmonary stenosis can be at

(1) Valvular level

(2) Sub-valvular level

(3) Both of the above

(4) None of the above

32. In TOF, the severity of pulmonary stenosis is

(1) Directly proportional to cyanosis

(2) Inversely proportional to ejection systolic murmur

(3) None of the above

(4) Both of the above

33. Cyanosis is usually present from neonatal period in all of the following *except*

(1) TOF (2) TGA with VSD, PS

(3) DORV with PS (4) cTGA with VSD, PS

34. The most common form of congenital heart disease in adults is

(1) ASD (2) VSD

(3) Bicuspid aortic valve (4) PDA

35. Cyanotic spells can be seen in

(1) Single ventricle with PS

(2) DORV, VSD, PS

(3) TOF

(4) All of the above

36. ASDs unlikely to close spontaneously are greater than

(1) 7 mm (2) 8 mm

(3) 9 mm (4) 10 mm

37. Cyanotic spell is treated by

(1) Knee-chest position

(2) Subcutaneous morphine

(3) Beta-blockade

(4) All of the above

38. Following post-operative patients will not require infective endocarditis *except*

(1) Post-ASD repair

(2) Post-VSD repair

(3) Post-TOF repair

(4) None of the above

39. Balloon valvotomy is the treatment of choice for

(1) Congenital valvular PS

(2) Congenital valvular AS

(3) Both of the above

(4) None of the above

40. Most VSDs close or become smaller in size by

(1) 1 years (2) 2 years

(3) 3 years (4) 4 years

41. Fast sodium channel is blocked by drugs belonging to

(1) Class I (2) Class II

(3) Class III (4) Class IV

42. Torsades de pointes can be precipitated by

(1) Class I A drugs (2) Class III drugs

(3) Digoxin (4) All of the above

43. Episodes of atrial fibrillation are acutely terminated by

(1) Ibutalide (2) Digoxin

(3) Verapamil (4) None of the above

44. Drug used to reduce shocks in patients with AICD is

(1) Sotalol (2) Amiodarone

(3) Carvedilol (4) None of the above

45. Following device ***does not*** interact with pacemaker function :

(1) Mobile phone not held in close proximity

(2) Microwave oven

(3) Arc welding equipment

(4) None of the above

46. Which of the following conditions are acyanotic ?

(a) Rupture sinus of Valsalva into right atrium

(b) Partial anomalous pulmonary venous connection

(c) Unroofed coronary sinus

(d) Pulmonary AV fistula

(1) a + b (2) c + d

(3) a + d (4) a + b + c

47. Which of the following statements about atrial septal defect are *correct* ?

(a) Occurs as an isolated anomaly in 5 – 10% of all congenital heart disease

(b) Compliance of the ventricles determines the magnitude of shunt

(c) Pressure gradient between right and left atrium accounts for the shunt

(d) Pulmonary hypertension develops in the first decade of life

(1) a + b (2) c + d

(3) a + d (4) a + b + c

48. Which of the following statements regarding ventricular septal defect are *correct* ?

(a) Muscular defects are classified as central, marginal and apical defects

(b) Level of pulmonary vascular resistance influences the magnitude of shunt

(c) Left to right shunt across the defect stops before aortic valve closure

(d) A2 is delayed because of volume load of left ventricle

(1) a + b (2) c + d

(3) a + d (4) a + b + c

49. Which of the following statements regarding ductus arteriosus are *correct* ?

(a) With patent ductus arteriosus, pulmonary vascular resistance determines the left to right shunt

(b) Left to right shunt occurs throughout cardiac cycle

(c) Large shunts can cause paradoxical split of S2

(d) Anatomic closure of ductus occurs within 24 hours after birth

(1) a + b (2) c + d

(3) a + d (4) a + b + c

50. Which of the following statements are *correct* regarding congenital aortic stenosis ?

(a) Valve is usually bicuspid

(b) Has male preponderance

(c) Severe aortic stenosis can present with neonatal left ventricular failure

(d) Systolic murmur is loudest over left sternal border

(1) a + b (2) c + d

(3) a + d (4) a + b + c

51. Which of the following statements are *correct* with respect to congenital right ventricular outflow tract obstruction ?

(a) Pulmonary stenosis can be valvular, infundibular or supravalvular

(b) Dysplastic pulmonary valve occurs in Noonan syndrome

(c) Cyanosis is not a feature of critical pulmonary stenosis in neonates

(d) Valvular pulmonary stenosis is a feature of William syndrome

(1) a + b (2) c + d

(3) a + d (4) a + b + c

52. Which of the following statements are *correct* regarding coarctation of aorta ?

(a) Female preponderance

(b) Coarct segment is proximal to attachment of ligamentum arteriosum

(c) May present as left ventricular failure in infancy

(d) Systolic murmur may be heard in left inter-scapular region

(1) a + b (2) c + d

(3) a + d (4) a + b + c

53. Which of the following congenital heart diseases have decreased pulmonary blood flow ?

(a) Tetralogy of Fallot

(b) Double outlet right ventricle with pulmonary stenosis

(c) Pulmonary atresia with ventricular septal defect

(d) Corrected transposition of great arteries with ventricular septal defect

(1) a + b (2) c + d

(3) a + d (4) a + b + c

54. Which of the following statements are *correct* regarding tetralogy of Fallot ?

(a) Cyanosis may be present from neonatal period

(b) Heart murmur is audible at birth

(c) Second sound is widely split

(d) Loud S4 occurs because of pulmonary stenosis

(1) a + b (2) c + d

(3) a + d (4) a + b + c

55. Following are *true* regarding pulmonary atresia with intact ventricular septum :

(a) There is obligatory right-to-left shunt at atrial level

(b) Patent ductus arteriosus is a major source of blood flow to lungs

(c) Right ventricle is normal in size

(d) Dominant right ventricular hypertrophy in ECG

(1) a + b (2) c + d

(3) a + d (4) a + b + c

56. Which of the following are common congenital heart diseases which survive to adulthood ?

(a) Obstructed total anomalous pulmonary venous connection

(b) Transposition of great arteries with intact ventricular septum

(c) Coronary AV fistula

(d) Corrected transposition of great arteries

(1) a + b (2) c + d

(3) a + d (4) a + b + c

57. Which of the following statements are *correct* regarding corrected transposition of great arteries ?

(a) Ventriculoarterial discordance is present

(b) Atrioventricular discordance is present

(c) Visceroatrial discordance is present

(d) Atrial inversion discordance is present

(1) a + b (2) c + d

(3) a + d (4) a + b + c

58. Which of the following statements are *correct* regarding transposition of great arteries ?

(a) There is malposition of great vessels

(b) Aortic valve is anterior, superior and to the right of pulmonary valve

(c) Inter circulatory connection is necessary for survival

(d) Cyanosis improves with closure of ductus arteriosus within first week of life

(1) a + b (2) c + d

(3) a + d (4) a + b + c

59. Which of the following statements regarding a child with transposition of great arteries and large ventricular septal defect are *correct* ?

(a) Cyanosis may be mild and noted only during crying and straining

(b) With fall in pulmonary vascular resistance, symptoms worsen

(c) Cardiac size is normal at six weeks of life

(d) Restrictive inter-atrial communication causes congestive cardiac failure

(1) a + b (2) c + d

(3) a + d (4) a + b + c

60. Which of the following statements regarding prostaglandin E1 are *correct* ?

(a) Causes constriction of ductus

(b) Maintenance dose is 0·05 to 0·1 microgram/kg/min

(c) Not effective in children above the age of 30 days

(d) Can cause apnea, tachycardia and hypotension

(1) a + b (2) c + d

(3) a + d (4) a + b + c

61. Which of the following statements regarding antiarrhythmic drugs are *correct* ?

(a) Class-I A drugs block fast sodium channel and reduce V_{max} and prolong action potential duration

(b) Class-III drugs predominantly block potassium channel and prolong repolarisation

(c) Class-IV drugs block adrenergic receptors

(d) Drugs exerting greater efficacy at rapid heart rate is called reverse use dependence

(1) a + b (2) c + d

(3) a + d (4) a + b + c

62. Which of the following statements regarding antiarrhythmic drugs are ***wrong*** ?

(a) Slow acetylators of procainamide are more prone to develop drug-induced lupus

(b) Rifampicin, phenytoin and barbiturate inhibit hepatic P450 enzyme systems

(c) Cisapride by itself does not cause QT prolongation

(d) Erythromycin stimulates cytochrome P450 system

(1) a + b (2) c + d

(3) a + d (4) a + b + c

63. Which of the following statements regarding Amiodarone are *correct* ?

(a) Prolongs action potential duration

(b) Broad spectrum antiarrhythmic drug

(c) Has effect on accessory pathway

(d) Not to be used along with implantable cardioverter defibrillator

(1) a + b (2) c + d

(3) a + d (4) a + b + c

64. Which of the following statements regarding Magnesium are *correct* ?

(a) Effective therapy for torsade de pointes

(b) Useful against digotoxicity

(c) Preventing arrhythmias after cardiac surgery

(d) Influences sodium calcium pump and thereby contractility

(1) a + b (2) c + d

(3) a + d (4) a + b + c

65. Which of the following statements regarding Digoxin is ***incorrect*** ?

(1) Hyperkalemia aggravates toxicity

(2) Elimination half life is 1 – 7 days

(3) Exerts action on AV node through vagus

(4) Decreases intracellular calcium in myocytes

66. A patient is implanted with DDDRO pacemaker. Which of the following statements are *correct* ?

(a) Spontaneous electrical activity of atrium and ventricles are sensed

(b) Is a rate responsive pacemaker

(c) Has a dual response to sensing

(d) Has multi-site pacing capability

(1) a + b (2) c + d

(3) a + d (4) a + b + c

67. Which of the following statements regarding external pacing are *correct* ?

(a) Electrical current paces from upper part of sternum to left axilla

(b) All muscles including heart muscle are stimulated to contract

(c) Can be used to pace the heart for extended periods of time

(d) Conscious patients will tolerate the procedure

(1) a + b (2) c + d

(3) a + d (4) a + b + c

68. Which of the following statements on history of cardiac surgery are *correct* ?

(a) Aortic stenosis was the earliest intra-cardiac lesion to be treated surgically

(b) Cutler and Levine performed the first pericardiectomy for constrictive pericarditis

(c) Closed mitral valvotomy was developed by Harken and Bailey in United States of America

(d) Crafoord and Nylin repaired coarctation of aorta

(1) a + b (2) c + d

(3) a + d (4) a + b + c

69. Which of the following surgeries are done by left thoracotomy ?

(a) Ligation of patent ductus arteriosus

(b) Blalock-Taussig shunt

(c) Closed mitral valvotomy

(d) Waterston shunt

(1) a + b (2) c + d

(3) a + d (4) a + b + c

70. Which of the following are ideal characteristics for blood pump ?

(a) All parts coming into contact with blood should have a smooth surface

(b) Should be able to pump 2 – 5 times of blood/minute

(c) Should have no disposable parts in the system

(d) Should not damage cellular and acellular components of blood

(1) a + b (2) c + d

(3) a + d (4) a + b + c

71. Which of the following statements regarding oxygenators are *correct* ?

(a) Should maximise transfer of oxygen, carbon dioxide and anaesthetic gases

(b) True membrane oxygenators need large priming volume

(c) Microporous membrane oxygenators can function for prolonged duration

(d) In bubble oxygenator, oxygen is passed from the top of mixing chamber

(1) a + b (2) c + d

(3) a + d (4) a + b + c

72. Which of the following statements are *correct* regarding open heart surgery ?

(a) Patient is connected to cardiopulmonary bypass

(b) Hypothermia to a temperature of 18°C, can prolong circulatory arrest time to 45 minutes

(c) During circulatory arrest, cerebroplegia is not necessary

(d) Deep hypothermia and circulatory arrest is not needed for pulmonary thrombo endarterectomy

(1) a + b (2) c + d

(3) a + d (4) a + b + c

73. In which of the following situations is IABP indicated ?

(a) Cardiogenic shock after myocardial infarction

(b) Aortic regurgitation with LV dysfunction

(c) Aortic aneursym

(d) Stabilising post infarction ventricular septal defect

(1) a + b (2) c + d

(3) a + d (4) a + b + c

74. Which of the following statements are *correct* regarding RIMA ?

(a) Used to bypass right coronary artery or posterior descending artery

(b) Side to side anastomosis with obtuse marginal branches

(c) End to side anastomosis to posterior descending artery

(d) Left anterior descending artery and its branches connected by end to side anastomosis

(1) a + b (2) c + d

(3) a + d (4) a + b + c

75. Which of the following statements regarding radial artery are *correct* ?

(a) Spasm is the major problem of the graft

(b) Application of papaverine during dissection prevents spasm

(c) Diltiazem should be continued for six months post-operatively

(d) Radial artery is taken from dominant hand

(1) a + b (2) c + d

(3) a + d (4) a + b + c

76. Which of the following statements are *correct* regarding long-term patency of bypass grafts ?

(a) Strict control of risk factors helps to improve long-term patency

(b) Only 50% of saphenous vein grafts are patent at the end of 10 years

(c) Patency of free radial artery is similar to saphenous vein grafts

(d) Patency of left internal mammary artery grafts at 20 years is reduced by half compared to patency of 10 years

(1) a + b (2) c + d

(3) a + d (4) a + b + c

77. Which of the following is an indication for coronary artery bypass surgery ?

(a) More than 50% stenosis of left main artery

(b) Left main equivalent disease

(c) Triple vessel disease with impaired left ventricular function

(d) Two or three vessel disease with Syntax score of less than 23

(1) a + b (2) c + d

(3) a + d (4) a + b + c

78. Which of the following statements regarding post-operative arrhythmias are *correct* ?

(a) Ventricular tachycardia is the most common post-operative arrhythmia

(b) In hemodynamically unstable patients with atrial fibrillation intravenous betablockers are ideal

(c) Arrhythmias are secondary to myocardial ischaemia and electrolyte imbalance

(d) Epicardial pacing wires help to manage bradyarrhythmias

(1) a + b (2) c + d

(3) a + d (4) a + b + c

79. Which of the following statements regarding comparison of coronary artery bypass surgery with multivessel angioplasty are *correct* ?

(a) Coronary artery bypass surgery does not offer survival benefit in diabetes

(b) Relief of angina in more patients after angioplasty than coronary artery bypass surgery

(c) Coronary artery bypass surgery is associated with better survival in certain groups of patients

(d) Less need for repeat revascularisation after coronary artery bypass surgery

(1) a + b (2) c + d

(3) a + d (4) a + b + c

80. Which of the following statements regarding reoperation for a post coronary artery bypass surgery patient are *correct* ?

(a) Pericardial adhesions can lead to excessive bleeding

(b) There should be one good target vessel of more than 1·5 mm with more than 75% proximal narrowing

(c) Athero embolism from partially patent vein grafts can occur

(d) Carries same risk as first surgery

(1) a + b (2) c + d

(3) a + d (4) a + b + c

81. Which of the following are tilting disc type of prosthetic valves ?

(a) Chitra Valve

(b) Medtronic Hall Valve

(c) Omni Science Valve

(d) Starr Edward Valve

(1) a + b (2) c + d

(3) a + d (4) a + b + c

82. A patient with a calcific mitral stenosis and atrial fibrillation is operated and Perimount valve is replaced in mitral position. Which of the following statements are *correct* ?

(a) The thromboembolic risk is only till sewing ring gets endothelialized in this patient

(b) Requires anticoagulation with Warfarin for three months and subsequently Aspirin 75 mgs daily

(c) Requires lifelong anticoagulation with Warfarin

(d) INR can be maintained between 2 and 2·5

(1) a + b (2) c + d

(3) a + d (4) a + b + c

83. Which of the following regarding antithrombotic therapy are *correct* ?

(a) All valves require INR of 2·5 to 3·5 for the first three months after surgery

(b) Bioprosthetic valves after three months require only Aspirin provided there are no further risk factors

(c) Star Edward valve in mitral position requires the INR of 2 to 3

(d) Medtronic valve at aortic position should be maintained with an INR of 2·5 to 3·5

(1) a + b (2) c + d

(3) a + d (4) a + b + c

84. A patient with Chitra valve in aortic position should be given antibiotic prophylaxis against infective endocarditis during which of the following procedures ?

(a) Upper GI endoscopy

(b) Flexible bronchoscopy

(c) Tonsillectomy

(d) Gingivectomy

(1) a + b (2) c + d

(3) a + d (4) a + b + c

85. Following are the indications for Mitral Valve Replacement in mitral regurgitation :

(a) Symptomatic chronic severe mitral regurgitation with LV ejection fraction of 60%

(b) Asymptomatic chronic severe mitral regurgitation with LV end systolic dimension of 55 mm

(c) Moderate mitral regurgitation of acute onset following acute myocardial infarction

(d) Asymptomatic chronic severe mitral regurgitation with LV ejection fraction of 65%

(1) a + b (2) c + d

(3) a + d (4) a + b + c

86. Which of the following are *correct* indications for aortic valve replacement in chronic aortic regurgitation ?

(a) Symptomatic patient with severe aortic regurgitation and LV ejection fraction of 50%

(b) Symptomatic patient with severe aortic regurgitation and LV ejection fraction of 30%

(c) Asymptomatic patient with severe aortic regurgitation and LV end diastolic dimension of 80 mm

(d) Asymptomatic patient with severe aortic regurgitation and LV ejection fraction of 60%

(1) a + b (2) c + d

(3) a + d (4) a + b + c

87. Which of the following statements are *correct* ?

(a) One MET is equivalent to 3·5 ml of oxygen/min/kg of body weight

(b) Ordinary activities like walking and sitting require 7 – 9 METS

(c) A cardiac patient at the time of discharge from hospital should be able to exercise to 5 METS without symptoms

(d) Phase I of rehabilitation starts within 48 hours of hospitalisation

(1) a + b (2) c + d

(3) a + d (4) a + b + c

88. What is the type of exercise prescription will you give to a 55 year old male who is not overweight ?

(a) Low intensity aerobic exercise

(b) The maximal heart rate is 155/minute

(c) Should achieve a heart rate of 65 – 75% of maximum heart rate for his age

(d) Can be recommended walking or cycling 30 – 45 minutes 3 – 4 times a week

(1) a + b (2) c + d

(3) a + d (4) a + b + c

89. Which of the following statements regarding rehabilitation of a 65 year old patient recovering from acute myocardial infarction who has LV dysfunction and post prandial angina are *correct* ?

(a) He is a high risk patient

(b) His exercise program should not be without close surveillance

(c) Should be permitted to cycle 30 – 45 minutes 3 – 4 days a week

(d) Can be encouraged to perform resistance exercises

(1) a + b (2) c + d

(3) a + d (4) a + b + c

90. Which of the following statements are *correct* ?

(a) Type-A behaviour pattern is an independent risk factor for coronary artery disease

(b) In 30 – 50% of patients depression precedes myocardial infarction

(c) Anxiety and depression can be improved by exercise training alone

(d) People with Type-B behaviour pattern have easily evoked hostility

(1) a + b (2) c + d

(3) a + d (4) a + b + c

SPACE FOR ROUGH WORK