AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF NURSING & MIDWIFERY SCIENCES
END OF SEMESTER DECEMBER 2024 EXAMINATIONS

COURSE CODE AND TITLE: ACN120: ESSENTIALS OF CRITICAL CARE NURSING

DATE: **FRIDAY 13TH DECEMBEBR 2024**
Duration: 2 HOURS Start: 2:00 PM Finish: 4:00 PM

INSTRUCTIONS

1. This exam is out of 120 marks
2. This Examination comprises ONE Section. Section I: Multiple Choice Questions (120 marks)
3. Answer ALL Questions.
4. Do Not write anything on the question paper -use the back of your booklet for rough work if need be.

SECTION I: MULTIPLE CHOICE QUESTIONS-120 MARKS

1. The atrial septal defect associated with mitral valve cleft include:
    A. Ostium secundum
    B. Sinus venosus
    C. Ostium primum
    D. Persistent foramen ovale
2. Pheochromocytoma is an adrenal tumor that causes hypertension due to circulating of:-
    A. Enzymes
    B. Catecholamine
    C. Hormones
    D. Glucocorticoids
3. Modifiable risk for coronary artery disease include:-
    A. Age
    B. Obesity
    C. Heredity
    D. Gender
4. Priority nursing intervention post coronary angioplasty include:-
    A. Assess peripheral pulses
    B. Monitor oxygen saturation
    C. Assess for arrhythmias
    D. Nutritional support
5. A nurse assessing Mr.T with a diagnosis of mitral stenosis noted a diastolic murmur. This pathophysiological process is associated with:-
    A. Narrowing of commissures of valve leaflet
    B. Backward pressure of blood into left atrium
    C. Turbulent blood flow through narrowed valve outlet
    D. Increased afterload of the left ventricle

6. The causative agent for rheumatic heart disease is:-

    A. Group B beta streptococcus

    B. Streptococci pyogenes

    C. Group A beta streptococcus

    D. Haemophilus influenza

7. A nurse is performing assessment on Ms G. who complains of cough and body weakness, an observation of Osler's nodes on fingers was noted. This clinical feature is diagnostic of:-

    A. Rheumatic endocarditis

    B. Aortic valve regurgitation

    C. Subcutaneous nodules

    D. Ineffective endocarditis

8. One of the following is congenital heart defect has is a pulmonary to systemic shunt:-

    A. Ventricular septal defect

    B. Coactation of the aorta

    C. Tetralogy of Fallot

    D. Pulmonary artery stenosis

9. The Cardiac muscle disease characterized by obstruction of blood outflow to the aorta by dense, noncompliant myocardial tissue is referred to as:-

    A. Restrictive cardiomyopathy

    B. Iron overload cardiomyopathy

    C. Hypertrophic cardiomyopathy

    D. Dilated cardiomyopathy

10. In pacing, the pacing code VVI stands for:-

    A. Ventricular pacing, atrial sensing, inhibited response to sensed QRS complexes

    B. Atrial pacing, ventricular sensing, inhibited response to sensed QRS complexes

    C. Ventricular pacing, ventricular sensing, inhibited response to sensed QRS complexes

    D. Atrial pacing, atrial sensing, inhibited response to sensed QRS complexes

11. Aortic dissection occurs when there is tear of:-

    A. Adventitia layer

    B. Externa layer

    C. Intimal layer

    D. Medial layer

12. A critical care nurse caring for master P. post open heart surgery, observed sudden increase of mediastinal chest tube drainage of more than 200mls. The priority intervention for this assessment include:-

    A. Increase rate of fluid infusion

    B. Transfuse packed red blood cells

    C. Call for immediate surgical intervention

    D. Maintain hourly monitoring of the drains

13. Prinzimental's angina is associated with;

    A. High cholesterol levels

    B. Increased physical activity

    C. Atheroma accumulation

    D. Coronary vasospasms

14. Contraindication for nitrates in management of acute coronary syndrome include:-

    A. Normal heart rate and diastolic hypotension

    B. Bradycardia and systolic hypotension

    C. Arrhythmias and systolic hypotension

    D. Low SP02 and normotension

15. An indication for intra-aortic balloon pump (IABP) is:

    A. Congestive heart failure

    B. Cardiogenic shock

    C. Pulmonary embolism

    D. Aortic insufficiency

16. Atherosclerosis impedes coronary blood flow through one of the following mechanism:

    A. Plaques obstructs the vein

    B. Plaques obstruct the artery

    C. Blood clots form outside the vessel wall

    D. Hardened vessels dilate to allow blood to flow through

17. Mr. D is received in coronary care unit post coronary angiogram and stenting through right femoral artery. Significant nursing education to this patient include:-

    A. Eat as early as possible

    B. Avoid limb flexion

    C. Sleep on left lateral position

    D. Ambulate as soon as possible

18. Master K. is admitted to critical care unit post open heart surgery. An order of nitroglycerin infusion is placed, the rationale for administration of nitroglycerin infusion include:-

    A. To increase systemic vascular resistance

    B. To increase peripheral vascular resistance

    C. To increase perfusion

    D. To decrease cardiac output

19. Indication for coronary artery bypass graft include:-

    A. Left main vessel disease

    B. Ischemic cardiomyopathy

    C. Aortic aneurysm

    D. Hypertrophic cardiomyopathy

20. A Systolic murmur is detected in the following valvular disorders:-

    A. Mitral stenosis and aortic stenosis

    B. Aortic stenosis and mitral regurgitation

    C. Mitral stenosis and tricuspid regurgitation

    D. Aortic regurgitation and mitral regurgitation

21. Hypokalemia is the condition of low potassium levels in your blood. Hypokalemia ECG changes are observed by;-

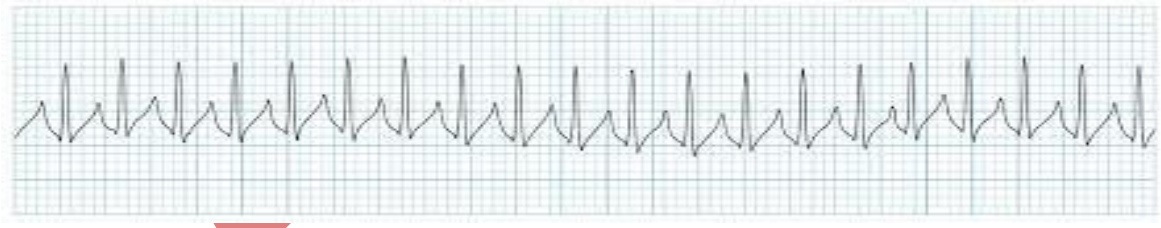
    A. ST segment elevation
    B. U wave (a position deflection after the T wave)
    C. Tall peaked T waves
    D. Widening of the QRS complex and increased amplitude

22. For the normal heartbeat, depolarization stimulus originates in;-
    A. His-bundle areas
    B. Epicardium
    C. Sinoatrial (SA)node
    D. Atrioventricular (AV) node

23. P wave indicates;-
    A. Depolarization of right ventricle
    B. Depolarization of left ventricle
    C. Depolarization of both atria
    D. Atria to ventricular conduction time

24. ECG identified by the PR interval tends to become longer with every succeeding ECG complex until there is a P wave not followed by a QRS is observed in;-
    A. Third-Degree Atrioventricular Block
    B. Second-Degree Atrioventricular Block, Type II
    C. Second-Degree Atrioventricular Block, Type I
    D. First-Degree Atrioventricular Block, Type II

25. A 46year old man presents to the emergency department with shortness of breath and palpitations. The following rhythm is seen on the cardiac monitor. What best describes the rhythm.



    A. Normal Sinus rhythm
    B. Supra-ventricular tachycardia
    C. Sinus bradycardia
    D. Atrial fibrillation

26. On initial assessment, his vitals are as follows; BP 80/40mmhg, HR 180b/min, RR 25, SPO2 94% on room air. What is the first intervention for the patient;

    A. Defibrillation.

    B. Cardiac Pacing

    C. Give IV fluids and adrenaline infusion

    D. Synchronized cardioversion.

27. Available is 250mg/20mls of Dobutamine solution. You are required to calculate the pump rate given that patients weight is 80kg. The drug is diluted in 30cc of N/saline. Prescription is 6.5ug/kg/min

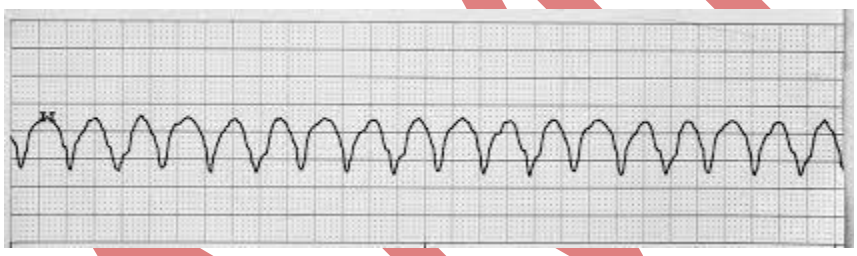
    A. 3.56

    B. 4.91

    C. 6.24

    D. 8.12

28. The following rhythm best describes;-



    A. Ventricular fibrillation

    B. Sinus bradycardia

    C. Junctional Tachycardia

    D. Ventricular tachycardia.

29. A 72yr old patient has been brought into the emergency room unresponsive with no pulse, CPR has been started and the following rhythm is seen on the cardiac monitor. What is the priority in the emergency treatment of this patient.

A. Continue CPR for 2 minutes then reassess the rythmm
B. Defibrillate the patient then resume with CPR.
C. Administer the first dose of epinephrine
D. Administer the first dose of Amiodarone.

30. The following is a common mode of mechanical ventilation;-
A. CPAP
B. BiPAP
C. SIMV
D. T-piece

31. PEEP is used in mechanical ventilation to:
A. Increase oxygen consumption
B. Prevent alveolar collapse
C. Decrease lung compliance
D. Reduce tidal volume

32. Thoracocentesis is indicated in;-
A. Pulmonary edema
B. Pneumothorax
C. Pleural effusion
D. Atelectasis

33. The best position for a patient undergoing thoracocentesis is:
A. Supine
B. Semi-Fowler's
C. Upright and leaning forward
D. Prone

34. Bronchoscopy is contraindicated in patients with:
    A. Severe hypoxemia
    B. Persistent cough
    C. Hemoptysis
    D. Atelectasis
35. A bronchoscopy can be used for all of the following EXCEPT:
    A. Biopsy
    B. Foreign body removal
    C. Lung volume reduction
    D. Bronchoalveolar lavage
36. The most common long-term complication of a tracheostomy is:
    A. Tracheal stenosis
    B. Infection
    C. Hemorrhage
    D. Subcutaneous emphysema
37. A key nursing intervention for a patient with a new tracheostomy is:
    A. Humidifying oxygen
    B. Keeping the stoma dry
    C. Applying high suctioning pressure
    D. Avoiding suctioning the airway
38. The purpose of an underwater seal drainage system is to:
    A. Measure pleural pressure
    B. Prevent air from re-entering the pleural space
    C. Drain excess fluids from the lungs
    D. Monitor tidal volume
39. When assessing a chest drainage system, continuous bubbling in the water seal chamber indicates:
    A. Normal function
    B. Air leak
    C. Fluid overload
    D. Blocked tube
40. The sign indicative of pneumothorax during a respiratory examination is;-
    A. Hyper-resonance on percussion
    B. Dullness on percussion
    C. Increased breath sounds
    D. Coarse crackles
41. During inspection of a patient with COPD, you would expect to find:
    A. Barrel chest
    B. Kyphosis
    C. Clubbing
    D. Cyanosis

42. A $PaCO_2$ level of 55 mmHg in ABG analysis indicates:
    A. Respiratory alkalosis
    B. Respiratory acidosis
    C. Metabolic alkalosis
    D. Normal range
43. The following ABG findings is consistent with metabolic acidosis;-
    A. pH 7.50, HCO_3 28 mEq/L
    B. pH 7.35, $PaCO_2$ 40 mmHg
    C. pH 7.25, HCO_3 18 mEq/L
    D. pH 7.45, PaO_2 85 mmHg
44. Capnography measures:
    A. Oxygen saturation
    B. End-tidal CO_2
    C. Ventilation rate
    D. Blood pressure
45. A shark-fin appearance on the capnography waveform is indicative of:
    A. Cardiac arrest
    B. Pulmonary embolism
    C. Bronchospasm
    D. Pneumothorax
46. A white-out appearance on chest X-ray is most commonly seen in:
    A. Pleural effusion
    B. Pneumothorax
    C. Atelectasis
    D. Pulmonary embolism
47. Hyperinflation of the lungs seen on chest X-ray is a common finding in:
    A. COPD
    B. Pneumonia
    C. Pulmonary fibrosis
    D. Pneumothorax
48. The following is used to assess lung volumes during a pulmonary function test;-
    A. FEV_1
    B. FVC
    C. RV
    D. PEFR
49. A decreased FEV_1/FVC ratio is indicative of:
    A. Restrictive lung disease
    B. Obstructive lung disease
    C. Pleural effusion
    D. Normal lung function

50. The following is a hallmark of asthma;-
    A. Barrel chest
    B. Wheezing
    C. Cyanosis
    D. Clubbing
51. Cystic fibrosis primarily affects which body system?
    A. Cardiovascular
    B. Respiratory
    C. Digestive
    D. Renal
52. The following complications is common in patients on prolonged mechanical ventilation;-
    A. Pneumothorax
    B. Ventilator-associated pneumonia (VAP)
    C. Atelectasis
    D. Pulmonary embolism
53. Weaning from mechanical ventilation is most appropriate when:
    A. PaO_2 is less than 60 mmHg
    B. The patient is sedated
    C. The patient demonstrates spontaneous breathing
    D. FiO_2 requirement is greater than 60%
54. In post-pneumonectomy care, the patient should be positioned:
    A. Supine
    B. On the operated side
    C. On the non-operated side
    D. Trendelenburg position
55. A key complication to monitor after pneumonectomy is:
    A. Tracheal deviation
    B. Atelectasis
    C. Bronchospasm
    D. Pulmonary embolism
56. A patient post-lobectomy is most at risk for:
    A. Pulmonary edema
    B. Pneumonia
    C. Pneumothorax
    D. Cardiac tamponade
57. Chest tubes after a lobectomy are primarily placed to:
    A. Prevent pulmonary embolism
    B. Drain fluid and air
    C. Reduce pleural effusion
    D. Maintain blood pressure

58. The most serious complication following an esophagectomy is:
    A. Anastomotic leak
    B. Pneumothorax
    C. Infection
    D. Hemorrhage
59. A patient undergoing esophagectomy will likely require:
    A. Mechanical ventilation post-operatively
    B. Early oral feeding
    C. Chest tube placement
    D. Bronchoscopy
60. Thymectomy is commonly indicated for patients with:
    A. Myasthenia gravis
    B. Asthma
    C. COPD
    D. Lung cancer
61. The most important post-operative assessment after thymectomy is:
    A. Pain level
    B. Respiratory function
    C. Chest tube output
    D. Blood glucose level
62. The following is a priority in managing patients with ARDS;-
    A. High tidal volume ventilation
    B. Low PEEP
    C. Prone positioning
    D. Increased FiO_2
63. Peak inspiratory pressure (PIP) is monitored to:
    A. Detect bronchospasm
    B. Ensure adequate tidal volume
    C. Avoid barotrauma
    D. Check oxygen saturation
64. A sign of acute respiratory distress in a ventilated patient is:
    A. Elevated PEEP
    B. Decreased respiratory rate
    C. Paradoxical chest movement
    D. Cyanosis
65. A patient on a ventilator suddenly develops hypotension and absent breath sounds on one side. The most likely cause is:
    A. Pulmonary embolism
    B. Atelectasis
    C. Pneumothorax
    D. Pleural effusion

66. Which part of the brain is responsible for coordinating voluntary movements?
    A. Cerebrum
    B. Cerebellum
    C. Medulla oblongata
    D. Pons
67. The myelin sheath surrounding the axons of neurons in the central nervous system is produced by:
    A. Schwann cells
    B. Astrocytes
    C. Microglia
    D. Oligodendrocytes
68. The primary function of the hypothalamus is to regulate:
    A. Vision
    B. Coordination
    C. Homeostasis
    D. Memory
69. The autonomic nervous system is divided into:
    A. Sympathetic and central divisions
    B. Sympathetic and parasympathetic divisions
    C. Somatic and parasympathetic divisions
    D. Central and peripheral divisions
70. The lobe of the brain involved in auditory processing is;-
    A. Frontal lobe
    B. Parietal lobe
    C. Temporal lobe
    D. Occipital lobe
71. A positive Babinski reflex in an adult suggests:
    A. Upper motor neuron lesion
    B. Lower motor neuron lesion
    C. Cerebellar dysfunction
    D. Normal finding
72. The following is part of a focused neurological examination;-
    A. Cranial nerve assessment
    B. Lung auscultation
    C. Abdominal palpation
    D. Joint range of motion
73. The Romberg test is used to assess:
    A. Muscle strength
    B. Coordination
    C. Balance
    D. Sensory function

74. The maximum score a patient can achieve on the Glasgow Coma Scale is;-
    A. 12
    B. 15
    C. 20
    D. 10
75. A GCS score of 8 or below indicates:
    A. Mild brain injury
    B. Moderate brain injury
    C. Severe brain injury
    D. Normal consciousness
76. The following is NOT assessed in the Glasgow Coma Scale;-
    A. Eye response
    B. Verbal response
    C. Pupil size
    D. Motor response
77. The FOUR Score assesses all the following EXCEPT:
    A. Eye response
    B. Brainstem reflexes
    C. Respiratory pattern
    D. Verbal response
78. A patient with a FOUR score of 0 in all components is likely to have:
    A. Mild head injury
    B. Severe head injury with brainstem damage
    C. Normal function
    D. Moderate head injury
79. The primary imaging modality used for acute head trauma is:
    A. MRI
    B. CT scan
    C. PET scan
    D. X-ray
80. The following condition is most commonly diagnosed using a CT scan of the brain;-
    A. Multiple sclerosis
    B. Acute stroke
    C. Epilepsy
    D. Migraine
81. One risk of repeated CT scans is exposure to:
    A. Ionizing radiation
    B. Non-ionizing radiation
    C. Electromagnetic fields
    D. Ultrasound waves

82. EEG is primarily used to diagnose:
    A. Parkinson's disease
    B. Stroke
    C. Seizure disorders
    D. Brain tumors
83. The following conditions can cause abnormal EEG findings;-
    A. Myasthenia gravis
    B. Epilepsy
    C. Bell's palsy
    D. Huntington's disease
84. Nerve conduction studies are used to assess:
    A. Central nervous system function
    B. Peripheral nerve function
    C. Brainstem activity
    D. Spinal cord injury
85. A reduction in nerve conduction velocity typically indicates:
    A. Upper motor neuron lesion
    B. Lower motor neuron lesion
    C. Central nervous system injury
    D. Myelin damage
86. EMG is used to evaluate:
    A. Muscle electrical activity
    B. Brain electrical activity
    C. Heart electrical activity
    D. Nerve conduction speed
87. The condition is commonly diagnosed using EMG?
    A. Multiple sclerosis
    B. Myasthenia gravis
    C. Amyotrophic lateral sclerosis (ALS)
    D. Guillain-Barré syndrome
88. Normal cerebrospinal fluid (CSF) is:
    A. Cloudy and yellow
    B. Clear and colorless
    C. Blood-tinged
    D. Milky white
89. In bacterial meningitis, CSF findings show:
    A. Elevated glucose
    B. Decreased white blood cells
    C. Decreased protein
    D. Elevated white blood cells

90. A lumbar puncture is contraindicated in patients with:
    A. Increased intracranial pressure
    B. Seizure disorder
    C. Severe headache
    D. Recent stroke
91. The following parameters is monitored in neurointensive care;-
    A. Intracranial pressure (ICP)
    B. Hemoglobin levels
    C. Liver enzymes
    D. Body mass index
92. An elevated ICP is most commonly associated with:
    A. Brain tumor
    B. Myasthenia gravis
    C. Guillain-Barré syndrome
    D. Peripheral neuropathy
93. Cerebral perfusion pressure (CPP) is the difference between:
    A. Systolic and diastolic pressure
    B. Mean arterial pressure (MAP) and intracranial pressure (ICP)
    C. Heart rate and respiratory rate
    D. PaO_2 and $PaCO_2$
94. Parkinson's disease is characterized by:
    A. Chorea
    B. Spasticity
    C. Bradykinesia
    D. Dysarthria
95. A common finding in patients with multiple sclerosis is:
    A. Flaccid paralysis
    B. Optic neuritis
    C. Tremor at rest
    D. Ascending paralysis
96. In a patient with Guillain-Barré syndrome, you would expect to find:
    A. Progressive ascending paralysis
    B. Tremor
    C. Hyperreflexia
    D. Aphasia
97. The following is a priority nursing intervention in the preoperative phase of a craniotomy;-
    A. Administering IV antibiotics
    B. Ensuring patient fasting
    C. Administering anticoagulants
    D. Starting chemotherapy

98. The main goal during the intraoperative phase of a craniotomy is to:
    A. Prevent intracranial pressure
    B. Control bleeding
    C. Reduce patient consciousness
    D. Manage cerebrospinal fluid
99. A major post-operative complication of craniotomy is:
    A. Subdural hematoma
    B. Urinary incontinence
    C. Hypotension
    D. Stroke
100. Post-craniotomy care should include monitoring for signs of:
    A. Increased intracranial pressure
    B. Hypertension
    C. Hypoglycemia
    D. Hypernatremia
101. Cushing's triad, indicating increased intracranial pressure, consists of:
    A. Hypotension, tachycardia, and slow respirations
    B. Hypertension, bradycardia, and irregular respirations
    C. Hypotension, bradycardia, and irregular respirations
    D. Hypertension, tachycardia, and fast respirations
102. The gold standard for measuring intracranial pressure is:
    A. MRI
    B. Lumbar puncture
    C. Ventriculostomy
    D. EEG
103. The following organ is irreversibly affected if CPR is delayed beyond three minutes;-
    A. Kidney
    B. Liver
    C. Brain
    D. Lungs
104. The minimum depth of a chest compression;-
    A. 2 cm
    B. 4 cm
    C. 5 cm
    D. 6 cm
105. The chest recoil is necessary between each compression because;-
    A. To give rest to the rescuer
    B. To prevent injury to the patient
    C. To allow the heart to fill with blood
    D. To allow blood delivery to the brain

106. The number of chest compressions that must be delivered per minute is;-
    A. 60
    B. 80
    C. 100
    D. 140
107. If a cervical spine injury is suspected, which of the following maneuvers can be used?
    A. Head tilt
    B. Chin lift
    C. Jaw thrust
    D. Roll over
108. Each rescue breath must be delivered over:
    A. One-second
    B. Two seconds
    C. Three seconds
    D. Four seconds
109. The most likely complication if too much air is delivered during rescue breathing is;-

    A. Lung collapse
    B. Gastric inflation
    C. Pneumothorax
    D. Brain injury
110. After how many minutes of 'hands-only' CPR must rescue breathing be started, if only a single rescuer is present;-
    A. 9 minutes
    B. 11 minutes
    C. 13 minutes
    D. 15 minutes
111. The following rhythms can be shocked by an automated external defibrillator;-
    A. Ventricular fibrillation
    B. Atrial fibrillation
    C. Asystole
    D. Pulseless electrical activity
112. If the patient has an implantable pacemaker, the following is the most appropriate action?
    A. Do not use the AED
    B. Place the AED pads directly on the pacemaker
    C. Place the AED pads away from the pacemaker
    D. Use a magnet to divert energy from the pacemaker
113. The ideal time window for defibrillation to be provided is;-
    A. 5 minutes
    B. 6 minutes
    C. 8 minutes
    D. 10 minutes

114. The CPR technique best for infants is;-
    A. One handed
    B. Two handed
    C. Two finger
    D. Two thumb encircling hands
115. The ideal depth of compression for infants is;-
    A. 2cm
    B. 3cm
    C. 4cm
    D. 5cm
116. The position for placement of child AED pads is;-
    A. Anterolateral
    B. Anteroposterior
    C. Posterolateral
    D. Mediolateral
117. The following protocols uses a compression: ventilation ratio of 15:2;-
    A. Single-rescuer for adults
    B. Two-rescuer for adults
    C. Two-rescuer for children
    D. Single-rescuer for children
118. How frequently must the AED rhythm be reassessed;-
    A. One minute
    B. Two minutes
    C. Five minutes
    D. Seven minutes
119. The following is an antidote for opioid;-
    A. Pethidine
    B. Naloxone
    C. Oxycodone
    D. Felypressin
120. Hands-only CPR should be performed by;-
    A. Untrained observers for adults
    B. Untrained observers for children
    C. Trained observers for adults
    D. Trained observers for children